```
CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                                 1            SORT1
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?              2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039              ,0010011040              3

                          THREE TAPE FIBONACCI SORT FOR D.A. SYSTEM    PHASE 1       SORT1              PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101  1 01   000    JOB   THREE TAPE FIBONACCI SORT FOR D.A. SYSTEM    PHASE 1
 102  1 02          CTL   440
 103  1 03   *                       THIS PHASE READS THE INPUT FILE,
 104  1 04   *                       INTERNALLY SORTS AS MANY RECORDS AS
 105  1 05   *                       POSSIBLE WITH THE CORE AVAILABLE,
 106  1 06   *                       AND PUTS THE RESULTING STRINGS OUT TO THE
 107  1 07   *                       TWO OUTPUT UNITS IN THE FIBBONACCI PATTERN.
 108  1 08   X1     EQU   89                                                       0089
 109  1 09   X2     EQU   94                                                       0094
 110  1 10   X3     EQU   99                                                       0099
 111  1 11   COR201 EQU   201                                                      0201
 112  1 12   SYSLNK EQU   400                SYSTEM CALL ENTRY POINT               0400
 113  1 13   LNKNOP EQU   450                OP CODE OF CALL COMPARE               0450
 114  1 14   SYSIO  EQU   500                SYSTEM I/O ENTRY POINT                0500
 115  1 15   MESSG  EQU   660                                                      0660
 116  1 16   TAPEI  EQU   675                INPUT TAPE                            0675
 117  1 17   TAPEO  EQU   676                OUTPUT TAPE                           0676
 118  1 18   KEYLOC EQU   679                LOW ORDER OF KEY                      0679
 119  1 19   KEYLNG EQU   681                KEY LENGTH                            0681
 120  1 20   NEXTID EQU   686                ID OF PROG. TO BE CALLED AT END       0686
 121  1 21   EJECT  EQU   704                                                      0704
 122  1 22   INGM   EQU   799                ADDR OF I/O GM STORAGE LOC            0799
 123  1 23          ORG   800                                                             0800
 124  1 24   KEYFAC DCW   #3          OFFSET FACTOR TO LOCATE KEY              3  0802                       4
 125  1 25   RECLNG       #3          RECORD LENGTH                            3  0805                       4
 126  1 26   NRECLG       #3          COMPLEMENT OF RECORD LENGTH              3  0808                       4
 127  1 27   TAPEA        #1                                                   1  0809                       4
 128  1 28   TAPEB        #1          TAPE POOL                                1  0810                       4
 129  1 29   TAPEC        #1                                                   1  0811                       4
 130  1 30                @0000@                                               4  0815                       4
 131  1 31   NSTRGB       @0000@      STRING COUNTS                            4  0819                       5
 132  1 32   NSTRGC       @0000@                                               4  0823                       5
 133  1 33   GM1          #3          INPUT AREA GMWM ADDRESS                  3  0826                       5
 134  1 34   BLKCT        #3          NUMBER OF RECS IN A BLOCK                3  0829                       5
 135  1 35   SEQ1         @00000@                                              5  0834                       5
 136  1 36   SEQ2         @00001@            OUTPUT STRING COUNTS              5  0839                       5
 137  1 37   SEQ3         @00001@                                              5  0844                       5
 138  1 38   LSTCTL       #20                CONTROL FIELD STORAGE AREA       20  0864                       6
 139  1 39   OLDCTL       #20                                                 20  0884                       7
 140  1 40   LOINPT       #3            LOW ORDER ADDRESS OF INPUT AREA        3  0887                       7
 141  1 41   LOFRST       #3          LOW ORDER ADDRESS OF FIRST BUCKET        3  0890                       7
 142  1 42   LOFULL       #3          LOW ORDER ADDRESS OF LAST FULL BUCKET    3  0893                       7
 143  1 43   RECCTI       #5          INTERNAL RECORD CAPACITY                 5  0898                       7
 144  1 44   CORSIZ       @07998@                                              5  0903                       7
 145  1 45   SWNOBK DC    #1       ON IF BREAK ON PRES CAUSES NO BREAK ON OLD  1  0904                       8
 146  1 46   SWSHFT DC    #1                 ON IF SHIFTING BEING PERFORMED    1  0905                       8
 147  1 47   SWEOFA DC    #1                 ON IF EOF ON INPUT UNIT           1  0906                       8
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

148  1 48   *                           PHASE 1, PART 2
149  1 49   CS     CS    0              CLEAR INITIALIZATION PHASE               4  0907  / 000                8
150  1 50          SBR   CS&3                                                    4  0911  H 910                8
151  1 51          BW    CS,INITA                                                8  0915  V 907 F00 1          8
152  1 52          SW    INARAA                                                  4  0923  , ?25                8
153  1 53   READ   B     SYSIO             READ INPUT FILE                       4  0927  B 500                9
154  1 54   IOCONB DCW   #1                                                      1  0931                       9
155  1 55          DC    &INARAA                                                 3  0934  ?25                  9
156  1 56          DC    @R@                                                     1  0935                       9
157  1 57          BEF   EOFA                                                    5  0936  B W80 K              9
158  1 58   *                  X2 CONTAINS L O OF LAST FULL BUCKET
159  1 59   *                  X3 CONTAINS L O OF KEY OF LAST FULL BUCKET
160  1 60   COMPA  SW    0        COMPA&3 CONTAINS H O OF INPUT KEY              4  0941  , 000                9
161  1 61   *                 COMPAB&6 CONTAINS L O OF KEY OF INPUT RECORD
162  1 62   COMPAB C     0&X3,0   COMPARES L O OF KEY OF LFB TO L O OF IN KEY    7  0945  C 0?0 000            9
163  1 63   COMPAC CW    0      COMPAC&3 CONTAINS H O OF INPUT KEY               4  0952  ) 000                9
164  1 64          BL    DECR                                                    5  0956  B S11 T              9
165  1 65          BW    SHIFTA,SWSHFT                                           8  0961  V S60 905 1         10
166  1 66          C     X2,GM2C1          IS OUTPUT AREA FULL                   7  0969  C 094 K28           10
167  1 67          BE    DUMP                                                    5  0976  B |06 S             10
168  1 68          MA    RECLNG,X2         SELECT NEXT BUCKET                    7  0981  # 805 094           10
169  1 69          MA    RECLNG,X3                                               7  0988  # 805 099           10
170  1 70   *                                PUT RECORD IN THAT BUCKET
171  1 71   INSRTA MLC   0,0&X2  INSRTA&3 CONTAINS L O OF INPUT RECORD           7  0995  M 000 0!0           11
172  1 72          B     READ              RETURN TO READ NEXT RECORD            4  1002  B 927               11
173  1 73   *                                WRITE BLOCKS ON OUTPUT FILE
174  1 74   DUMP   B     WRITOT            GO TO CHECK OUTPUT SEQUENCE           4  1006  B U69               11
175  1 75   DUMP1  MLC   GM1,LODGM&3       INIT GMWM SET                         7  1010  M 826 |59           11
176  1 76          MLC   @000@,X1          INIT FOR FIRST BLOCK                  7  1017  M K38 089           11
177  1 77          CW    SWSHFT            TURN OFF SHIFT SWITCH                 4  1024  ) 905               11
178  1 78   DUMPA  MLC   GM2A&X1,SAVRTN&3  INIT TO SAVE GMWM OVERLAY CHAR.       7  1028  M K/3 |38           12
179  1 79   SAVRTN MLC   0,SAVCHR#1        SAVE GMWM OVERLAY CHAR                7  1035  M 000 K39           12
180  1 80          MLC   GM1A&X1,IOCOND&3  INIT I/O CONSTANT                     7  1042  M K/0 |84           12
181  1 81          MLC   GM2A&X1,LODGM&6   INIT GMWM SET                         7  1049  M K/3 |62           12
182  1 82   LODGM  MLCWA 0,0               SET GMWM                              7  1056  L 000 000           12
183  1 83          MLC   GM2A&X1,UNLDGM&6  INIT REPLACE GMWM OVERLAY CHAR.       7  1063  M K/3 |97           13
184  1 84          MLC   GM2A&X1,UNLDGM&10                                       7  1070  M K/3 /01           13
185  1 85          B     SYSIO             WRITE OUT BLOCK                       4  1077  B 500               13
186  1 86   IOCOND DCW   #1                                                      1  1081                      13
187  1 87          DC    #3                                                      3  1084                      13
188  1 88          DC    @W@                                                     1  1085                      13
189  1 89          BEF   SHRTP1                                                  5  1086  B J69 K             13
190  1 90   UNLDGM MLC   SAVCHR,0          REPLACE CHAR. WHERE GMWM WAS PUT      7  1091  M K39 000           13
191  1 91          CW    0                                                       4  1098  ) 000               13
192  1 92          A     @1@,NOBLOK#1                                            7  1102  A K40 K41           14
193  1 93          C     NOBLOK,NOREQD     ARE ENOUGH BLOCKS WRITTEN OUT         7  1109  C K41 K34           14
194  1 94          BE    TSTEOF                                                  5  1116  B /32 S             14
195  1 95          MA    @003@,X1          INCREMENT FOR NEXT BLOCK              7  1121  # K44 089           14
196  1 96          B     DUMPA                                                   4  1128  B |28               14
197  1 97   TSTEOF MLC   @0@,NOBLOK        RESET BLOCK COUNT                     7  1132  M K45 K41           14
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

198  1 98          MLC   LOFULL,X2          RESET INDEX REGISTERS FOR NEXT BL     7  1139  M 893 094            15
199  1 99          MLC   X2,X3                                                    7  1146  M 094 099            15
200  2 00          MA    KEYFAC,X3                                                7  1153  # 802 099            15
201  2 01          BW    CHGBAK,SWNOBK      INTERCHANGE UNITS IF ON               8  1160  V T80 904 1          15
202  2 02   CHGRET BW    MORPAD,SWPAD       WAS THIS BLOCK PADDED                 8  1168  V !19 K29 1          15
203  2 03          BW    PADBEG,SWPAD2      OUTPUT AREA FULL AND PAD REQD         8  1176  V X00 K31 1          16
204  2 04          BW    PADBEG,SWPAD3      ANY MORE INPUT RECORDS                8  1184  V X00 K32 1          16
205  2 05          BW    CLRGMA,SWEOFA      END OF FILE ON INPUT                  8  1192  V J22 906 1          16
206  2 06   *                                 MOVE LAST INPUT REC TO FIRST BUCK
207  2 07   *                              LODDMP&6 CONTAINS L O OF FIRST BUCK
208  2 08   LODDMP MLC   0,0              LODDMP&3 CONTAINS L O OF INPUT          7  1200  M 000 000            16
209  2 09          B     READ               GO TO READ INPUT RECORD               4  1207  B 927                16
210  2 10   *                                 DECREMENT REGISTERS TO COMPARE
211  2 11   *                                      AGAINST PREVIOUS BUCKETS
212  2 12   DECR   NOP   SUBX3                                                    4  1211  N S34                16
213  2 13          MLC   @B@,DECR           TURN ON BRANCH SWITCH                 7  1215  M K46 S11            17
214  2 14          MLC   X3,X3HOLD#8        SAVE INDEX REGISTERS                  7  1222  M 099 K54            17
215  2 15          MLC                                                            1  1229  M                    17
216  2 16          SW    SWSHFT             TURN ON SHIFT SWITCH                  4  1230  , 905                17
217  2 17   SUBX3  MA    NRECLG,X3          DECR INDEX REG S                      7  1234  # 808 099            17
218  2 18          MA    NRECLG,X2                                                7  1241  # 808 094            17
219  2 19          C     X2,GM1             IS HIGH END OF I/O AREA               7  1248  C 094 826            18
220  2 20          BU    COMPA              RETURN TO COMPARE                     5  1255  B 941 /              18
221  2 21   SHIFTA SBR   SWINA&3,0&X2       INIT SET AND CLEAR SHIFT WM           7  1260  H T54 0!0            18
222  2 22          MA    @001@,SWINA&3                                            7  1267  # K57 T54            18
223  2 23          SW    SWINA&1                                                  4  1274  , T52                18
224  2 24          MLC   SWINA&3,CLSHWM&3                                         7  1278  M T54 T65            18
225  2 25          CW    SWINA&1                                                  4  1285  ) T52                19
226  2 26          MA    RECLNG,X2          INIT SHIFT                            7  1289  # 805 094            19
227  2 27          SBR   INSRTB&6,0&X2                                            7  1296  H T75 0!0            19
228  2 28          MLC   X3HOLD,X3          RESTORE INDEX REGISTERS               7  1303  M K54 099            19
229  2 29          MLC                                                            1  1310  M                    19
230  2 30          MLC   @N@,DECR           TURN OFF BRANCH SWITCH                7  1311  M K58 S11            19
231  2 31          C     X2,GM2C1           IS LOW END OF I/O AREA                7  1318  C 094 K28            20
232  2 32          BE    DUMP                                                     5  1325  B |06 S              20
233  2 33          SBR   LODARA&3,0&X2                                            7  1330  H T58 0!0            20
234  2 34          MA    RECLNG,X2          INCR REG S FOR SHIFT                  7  1337  # 805 094            20
235  2 35          MA    RECLNG,X3                                                7  1344  # 805 099            20
236  2 36   SWINA  SW    0     SET WM IN H O OF LAST RECORD TO BE SHIFTED         4  1351  , 000                20
237  2 37   LODARA MLC   0,0&X2               SHIFT RECORDS TO RIGHT              7  1355  M 000 0!0            21
238  2 38   CLSHWM CW    0,SWSHFT           CLEAR SHIFT WM AND SHIFT SWITCH       7  1362  ) 000 905            21
239  2 39   INSRTB MLC   0,0   INSRTB&3 CONTAINS L O OF INPUT RECORD              7  1369  M 000 000            21
240  2 40          B     READ                                                     4  1376  B 927                21
241  2 41   CHGBAK CW    SWNOBK                                                   4  1380  ) 904                21
242  2 42          B     INTCHG                                                   4  1384  B T92                21
243  2 43          B     CHGRET                                                   4  1388  B /68                21
244  2 44   *
245  2 45   *
246  2 46   *  SEQ1 IS USED TO COUNT THE STRINGS AS THEY ARE WRITTEN ON THE
247  2 47   *     OUTPUT UNIT.  SEQ2 CONTAINS THE NUMBER OF STRINGS REQUIRED
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SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  2 48   *     ON THE PRESENT OUTPUT UNIT. SEQ3 CONTAINS THE NUMBER OF
249  2 49   *     STRINGS REQUIRED ON THE NEXT OUTPUT UNIT.  WHEN A SEQ. BREAK
250  2 50   *     OCCURS SEQ1 IS INCREMENTED AND COMPARED TO SEQ2.  WHEN EQUAL
251  2 51   *     THE OUTPUT UNITS ARE INTERCHANGED, SEQ3 IS MOVED TO SEQ2 AND
252  2 52   *     SEQ1 IS REINITIALIZED.  SEQ1 IS ALSO ADDED TO SEQ3 BEFORE
253  2 53   *     REINITIALIZATION EXCEPT ON THE FIRST SEQUENCE BREAK.  THIS
254  2 54   *     PROCEDURE PRODUCES THE PROPER OUTPUT FOR THE FIBONACCI MERGE.
255  2 55   *
256  2 56   *
257  2 57   INTCHG SBR   INXEXT&3                                                 4  1392  H U18               22
258  2 58          C     IOCOND,TAPEC       IS OUTPUT UNIT TAPE C                 7  1396  C |81 811           22
259  2 59          BE    MOVETB                                                   5  1403  B U19 S             22
260  2 60          MLC   TAPEC,IOCOND                                             7  1408  M 811 |81           22
261  2 61   INXEXT B     0                                                        4  1415  B 000               22
262  2 62   MOVETB MLC   TAPEB,IOCOND                                             7  1419  M 810 |81           22
263  2 63          B     INXEXT                                                   4  1426  B U15               22
264  2 64   INTCHB MLC   SEQ3,SEQ2                                                7  1430  M 844 839           23
265  2 65   ADD123 NOP   SEQ1,SEQ3                                                7  1437  N 834 844           23
266  2 66          MLC   @A@,ADD123                                               7  1444  M K59 U37           23
267  2 67          MLC   @00000@,SEQ1                                             7  1451  M K64 834           23
268  2 68          MLC   LSTCTL,OLDCTL                                            7  1458  M 864 884           23
269  2 69          B     MOVCTL                                                   4  1465  B U85               23
270  2 70   WRITOT SBR   WRIEXT&3           CHECK FOR SEQ BRK ON OUTPUT UNIT      4  1469  H U95               24
271  2 71   OUTPUT C     0,LSTCTL      OUTPUT&3  CONTAINS L O OF OUTPUT KEY       7  1473  C 000 864           24
272  2 72          BH    SEQBRK                                                   5  1480  B V99 U             24
273  2 73   MOVCTL MLC   0,LSTCTL     MOVCTL&3 CONTAINS L O OF OUTPUT KEY         7  1485  M 000 864           24
274  2 74   WRIEXT B     0                                                        4  1492  B 000               24
275  2 75   PUTOLD MLC   0,OLDCTL                                                 7  1496  M 000 884           24
276  2 76          SW    SWNOBK                                                   4  1503  , 904               24
277  2 77          B     INTCHG                                                   4  1507  B T92               25
278  2 78          BW    PADLAS,SWEOFA                                            8  1511  V V23 906 1         25
279  2 79          B     WRIEXT                                                   4  1519  B U92               25
280  2 80   PADLAS C     X2,GM2C1                                                 7  1523  C 094 K28           25
281  2 81          BE    WRIEXT                                                   5  1530  B U92 S             25
282  2 82          MA    RECLNG,X2                                                7  1535  # 805 094           25
283  2 83          MA    RECLNG,X3                                                7  1542  # 805 099           26
284  2 84          MLC   X2,SETAST&6                                              7  1549  M 094 V76           26
285  2 85          MA    NRECLG,SETAST&6                                          7  1556  # 808 V76           26
286  2 86          MA    @005@,SETAST&6                                           7  1563  # K67 V76           26
287  2 87   SETAST MLC   @*@,0                                                    7  1570  M K68 000           26
288  2 88          MLC   @9@,LSTCTL                                               7  1577  M K69 864           27
289  2 89          MLC   LSTCTL                                                   4  1584  M 864               27
290  2 90          MLC   LSTCTL,0&X3                                              7  1588  M 864 0?0           27
291  2 91          B     PADLAS                                                   4  1595  B V23               27
292  2 92   SEQBRK C     0,OLDCTL                                                 7  1599  C 000 884           27
293  2 93          BH    INCSQ1                                                   5  1606  B W23 U             27
294  2 94          BW    INCSQ1,SWEOFA                                            8  1611  V W23 906 1         28
295  2 95          B     PUTOLD                                                   4  1619  B U96               28
296  2 96   INCSQ1 A     @1@,SEQ1                                                 7  1623  A K40 834           28
297  2 97          C     IOCOND,TAPEC                                             7  1630  C |81 811           28
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

298  2 98          BE    A1TONC                                                     5  1637  B W53 S             28
299  2 99          A     @1@,NSTRGB                                                 7  1642  A K40 819           28
300  3 00          B     CS1S2                                                      4  1649  B W60               29
301  3 01   A1TONC A     @1@,NSTRGC                                                 7  1653  A K40 823           29
302  3 02   CS1S2  C     SEQ1,SEQ2                                                  7  1660  C 834 839           29
303  3 03          BU    MOVCTL                                                     5  1667  B U85 /             29
304  3 04          B     INTCHG                                                     4  1672  B T92               29
305  3 05          B     INTCHB                                                     4  1676  B U30               29
306  3 06   EOFA   SW    SWEOFA              INPUT END OF FILE                      4  1680  , 906               29
307  3 07          B     WRITOT                                                     4  1684  B U69               30
308  3 08          C     X2,GM2C1            IS END OF I/O AREA                     7  1688  C 094 K28           30
309  3 09          BE    SETPS3                                                     5  1695  B J14 S             30
310  3 10   PADBEG A     @1@,SEQ1            COUNT LAST REAL STRING                 7  1700  A K40 834           30
311  3 11          CW    SWPAD3                                                     4  1707  ) K32               30
312  3 12          C     IOCOND,TAPEB                                               7  1711  C |81 810           30
313  3 13          BE    INCTXB                                                     5  1718  B X34 S             30
314  3 14          A     @1@,NSTRGC                                                 7  1723  A K40 823           31
315  3 15          B     PAD                                                        4  1730  B X41               31
316  3 16   INCTXB A     @1@,NSTRGB                                                 7  1734  A K40 819           31
317  3 17   PAD    C     SEQ1,SEQ2           STRING PADDING ROUTINE ENTRY           7  1741  C 834 839           31
318  3 18          BU    SETPAD                                                     5  1748  B Z18 /             31
319  3 19   BLKPAD CW    SWPAD,SWPAD2        BLOCK PADDING ROUTINE ENTRY            7  1753  ) K29 K31           31
320  3 20          BW    CKENDP,SWPAD1                                              8  1760  V X82 K30 1         32
321  3 21          MA    RECLNG,X2           INCREMENT TO UNUSED BUCKET             7  1768  # 805 094           32
322  3 22          MA    RECLNG,X3                                                  7  1775  # 805 099           32
323  3 23   CKENDP CW    SWPAD1                                                     4  1782  ) K30               32
324  3 24          C     X2,GM2A1            IS END OF BLOCK 1                      7  1786  C 094 K22           32
325  3 25          BE    BK1FL                                                      5  1793  B Y80 S             32
326  3 26          C     X2,GM2B1            IS END OF BLOCK 2                      7  1798  C 094 K25           33
327  3 27          BE    BK2FL                                                      5  1805  B Y95 S             33
328  3 28          C     X2,GM2C1            IS END OF BLOCK 3                      7  1810  C 094 K28           33
329  3 29          BE    BK3FL                                                      5  1817  B Z10 S             33
330  3 30   LSTPAD MLC   X2,MVAST1&6                                                7  1822  M 094 Y49           33
331  3 31          MA    NRECLG,MVAST1&6                                            7  1829  # 808 Y49           33
332  3 32          MA    @005@,MVAST1&6                                             7  1836  # K67 Y49           34
333  3 33   MVAST1 MLC   @*@,0               MOVE PAD * TO POS. 5                   7  1843  M K68 000           34
334  3 34          MLC   @9@,LSTCTL          MOVE 9 S TO KEY                        7  1850  M K69 864           34
335  3 35          MLC   LSTCTL                                                     4  1857  M 864               34
336  3 36          MLC   LSTCTL,0&X3                                                7  1861  M 864 0?0           34
337  3 37          BW    DUMP1,SWENDP                                               8  1868  V |10 K33 1         35
338  3 38          B     BLKPAD                                                     4  1876  B X53               35
339  3 39   BK1FL  MLC   @1@,NOREQD                                                 7  1880  M K40 K34           35
340  3 40          SW    SWENDP                                                     4  1887  , K33               35
341  3 41          B     LSTPAD                                                     4  1891  B Y22               35
342  3 42   BK2FL  MLC   @2@,NOREQD                                                 7  1895  M K70 K34           35
343  3 43          SW    SWENDP                                                     4  1902  , K33               35
344  3 44          B     LSTPAD                                                     4  1906  B Y22               36
345  3 45   BK3FL  SW    SWENDP                                                     4  1910  , K33               36
346  3 46          B     LSTPAD                                                     4  1914  B Y22               36
347  3 47   SETPAD NOP   MORPAD              BEGIN STRING PADDING                   4  1918  N !19               36
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

348  3 48          MLC   @B@,SETPAD         MAKE SETPAD AN UNCOND. BRANCH         7  1922  M K46 Z18            36
349  3 49          MLC   @9@,LSTCTL                                               7  1929  M K69 864            36
350  3 50          MLC   LSTCTL                                                   4  1936  M 864                36
351  3 51          SW    SWPAD1                                                   4  1940  , K30                37
352  3 52          MA    RECLNG,X2          INCR TO UNUSED BUCKET                 7  1944  # 805 094            37
353  3 53          MA    RECLNG,X3                                                7  1951  # 805 099            37
354  3 54          MLC   LSTCTL,0&X3        MOVE 9 S TO KEY                       7  1958  M 864 0?0            37
355  3 55          MLC   X2,MVAST2&6                                              7  1965  M 094 Z92            37
356  3 56          MA    NRECLG,MVAST2&6                                          7  1972  # 808 Z92            37
357  3 57          MA    @005@,MVAST2&6                                           7  1979  # K67 Z92            38
358  3 58   MVAST2 MLC   @*@,0              MOVE PAD * TO POS. 5                  7  1986  M K68 000            38
359  3 59          C     X2,GM2C1           IS END OF BLOCK 3                     7  1993  C 094 K28            38
360  3 60          MA    RECLNG,X2          INCR TO NEXT UNUSED BUCKET            7  2000  # 805 094            38
361  3 61          MA    RECLNG,X3                                                7  2007  # 805 099            38
362  3 62          BE    SETPSW                                                   5  2014  B !98 S              39
363  3 63   MORPAD S     @1@,LSTCTL         DECR KEY TO PRODUCE SEQ. BREAK        7  2019  S K40 864            39
364  3 64          MLZS  @ @,LSTCTL                                               7  2026  Y K71 864            39
365  3 65          MLC   LSTCTL,0&X3                                              7  2033  M 864 0?0            39
366  3 66          MLC   X2,MVAST3&6                                              7  2040  M 094 !67            39
367  3 67          MA    NRECLG,MVAST3&6                                          7  2047  # 808 !67            40
368  3 68          MA    @005@,MVAST3&6                                           7  2054  # K67 !67            40
369  3 69   MVAST3 MLC   @*@,0              PUT PAD * TO POS. 5                   7  2061  M K68 000            40
370  3 70          C     X2,GM2C1           IS END OF BLOCK 3                     7  2068  C 094 K28            40
371  3 71          BE    SETPSA                                                   5  2075  B J06 S              40
372  3 72          MA    RECLNG,X2          INCR FOR NEXT UNUSED BLOCK            7  2080  # 805 094            41
373  3 73          MA    RECLNG,X3                                                7  2087  # 805 099            41
374  3 74          B     PADBEG                                                   4  2094  B X00                41
375  3 75   SETPSW SW    SWPAD                                                    4  2098  , K29                41
376  3 76          B     DUMP1                                                    4  2102  B |10                41
377  3 77   SETPSA SW    SWPAD2                                                   4  2106  , K31                41
378  3 78          B     DUMP1                                                    4  2110  B |10                41
379  3 79   SETPS3 SW    SWPAD3                                                   4  2114  , K32                42
380  3 80          B     DUMP1                                                    4  2118  B |10                42
381  3 81   CLRGMA CW    0            CLEAR GROUP MARK WORD MARK                  4  2122  ) 000                42
382  3 82          MLC   TAPEB,TMTPB&3                                            7  2126  M 810 J43            42
383  3 83          MLC   TAPEC,TMTPC&3                                            7  2133  M 811 J48            42
384  3 84   TMTPB  WTM   0                                                        5  2140  U %U0 M              42
385  3 85   TMTPC  WTM   0                                                        5  2145  U %U0 M              42
386  3 86          RWD   2                                                        5  2150  U %U2 R              43
387  3 87          RWD   3                                                        5  2155  U %U3 R              43
388  3 88          RWD   4                                                        5  2160  U %U4 R              43
389  3 89          B     SYSLNK             CALL SORT PHASE 2                     4  2165  B 400                43
390  3 90   SHRTP1 SBR   MVSHRT&3                                                 4  2169  H J90                43
391  3 91          MLC   @ERROR - TAPE   TOO SHORT - RESTART RUN@,COR201&38       7  2173  M L09 239            43
392  3 92          MA    @I9?@,MVSHRT&3                                           7  2180  # L12 J90            43
393  3 93   MVSHRT MLC   0,COR201&14                                              7  2187  M 000 215            44
394  3 94          B     MESSG                                                    4  2194  B 660                44
395  3 95          B     EJECT                                                    4  2198  B 704                44
396  3 96   H6     H                                                              1  2202  .                    44
397  3 97          DC    @6@                                                      1  2203                       44
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

398  3 98          B     H6                                                    4  2204  B K02               44
399  3 99   GM1A   DCW   #3                                                    3  2210                      44
400  4 00   GM2A   DCW   #3                                                    3  2213                      44
401  4 01   GM2B   DCW   #3                                                    3  2216                      45
402  4 02   GM2C   DCW   #3                                                    3  2219                      45
403  4 03   GM2A1  DCW   #3                                                    3  2222                      45
404  4 04   GM2B1  DCW   #3                                                    3  2225                      45
405  4 05   GM2C1  DCW   #3                                                    3  2228                      45
406  4 06   SWPAD  DC    #1                                                    1  2229                      45
407  4 07   SWPAD1 DC    #1                                                    1  2230                      45
408  4 08   SWPAD2 DC    #1                                                    1  2231                      45
409  4 09   SWPAD3 DC    #1                   ON IF LAST REC WENT INTO LAST BUC    1  2232                      45
410  4 10   SWENDP DC    #1                                                    1  2233                      45
411  4 11   NOREQD DCW   @3@                                                   1  2234                      45
412  4 12          LTORG *&1          HIGH ORDER OF INPUT AREA                        2236
                   DCW   @000@                                                 3  2238             LIT      46
       179  SAVCHR       #01                                                   1  2239             AREA     46
                         @1@                                                   1  2240             LIT      46
       192  NOBLOK       #01                                                   1  2241             AREA     46
                         @003@                                                 3  2244             LIT      46
                         @0@                                                   1  2245             LIT      46
                         @B@                                                   1  2246             LIT      46
       214  X3HOLD       #08                                                   8  2254             AREA     47
                         @001@                                                 3  2257             LIT      47
                         @N@                                                   1  2258             LIT      47
                         @A@                                                   1  2259             LIT      47
       267               @00000@                                               5  2264             LIT      47
                         @005@                                                 3  2267             LIT      47
                         @*@                                                   1  2268             LIT      47
                         @9@                                                   1  2269             LIT      48
                         @2@                                                   1  2270             LIT      48
                         @ @                                                   1  2271             LIT      48
       391               @ERROR - TAPE   TOO SHORT - RESTART RUN@             38  2309             LIT      49
                         @I9?@                                                 3  2312             LIT      50
413  4 13          ORG   3025                 THIS ORG MUST BE EQUAL TO OR                3025
414  4 14   *                                   HIGHER THAN LSTKEY & 5 IN PHASE 2
415  4 15   INARAA EQU   *&1                                                      3025
416  4 16          ORG   *&X00       INITIALIZATION  PORTION                            3100
417  4 17          ORG   *&500        PHASE 1, PART1                                     3600
418  4 18   INITA  SW    TAPEI,TAPEO                                           7  3600  , 675 676           51
419  4 19          SW    KEYLOC-2                                              4  3607  , 677               51
420  4 20          SW    KEYLNG-1,NEXTID-4                                     7  3611  , 680 682           51
421  4 21          CW    RECLNG-1,RECLNG        INITIALIZE COMMUNICATION       7  3618  ) 804 805           51
422  4 22   *                                             AREA WORD MARKS
423  4 23          CW    KEYLNG,NEXTID-3                                       7  3625  ) 681 683           51
424  4 24          CW    NEXTID-2,NEXTID-1                                     7  3632  ) 684 685           51
425  4 25          CW    NEXTID,TAPEI-1                                        7  3639  ) 686 674           52
426  4 26          MLC   TAPEI,TAPEA                                           7  3646  M 675 809           52
427  4 27          BCE   SETUPA,TAPEA,2                                        8  3653  B F73 809 2         52
428  4 28          BCE   SETUPB,TAPEA,3                                        8  3661  B F91 809 3         52
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SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD

429  4 29          B     SETUPC                                                  4  3669  B G09               52
430  4 30   SETUPA MLC   @3@,TAPEB                                               7  3673  M 71Y 810           53
431  4 31          MLC   @4@,TAPEC                                               7  3680  M 71Z 811           53
432  4 32          B     INITB                                                   4  3687  B G23               53
433  4 33   SETUPB MLC   @2@,TAPEB                                               7  3691  M 72| 810           53
434  4 34          MLC   @4@,TAPEC                                               7  3698  M 71Z 811           53
435  4 35          B     INITB                                                   4  3705  B G23               53
436  4 36   SETUPC MLC   @2@,TAPEB          INITIALIZE TAPE POOL                 7  3709  M 72| 810           54
437  4 37          MLC   @3@,TAPEC                                               7  3716  M 71Y 811           54
438  4 38   INITB  CS    0                                                       4  3723  / 000               54
439  4 39          SBR   HICORE#3                                                4  3727  H 72T               54
440  4 40          C     HICORE,@I9I@                                            7  3731  C 72T 72W           54
441  4 41          BE    SIXTNK                                                  5  3738  B 56| S             54
442  4 42          C     HICORE,@I9R@         COMPUTE CORE SIZE                  7  3743  C 72T 72Z           55
443  4 43          BE    TWELVK                                                  5  3750  B 57/ S             55
444  4 44   RDFRST MLC   TAPEA,IOCONA                                            7  3755  M 809 G81           55
445  4 45          RWD   2                                                       5  3762  U %U2 R             55
446  4 46          RWD   3                                                       5  3767  U %U3 R             55
447  4 47          RWD   4                                                       5  3772  U %U4 R             55
448  4 48          B     SYSIO                  READ FIRST INPUT RECORD          4  3777  B 500               55
449  4 49   IOCONA DCW   #1                                                      1  3781                      56
450  4 50          DC    &INARAA                                                 3  3784  ?25                 56
451  4 51          DC    @R@                                                     1  3785                      56
452  4 52          MLC   &INARAA,ADDR3#3      COMPUTE RECORD LENGTH              7  3786  M 73S 73V           56
453  4 53          B     CONVRT                                                  4  3793  B 58S               56
454  4 54          MLC   DECDBX#5,HOINAR#5                                       7  3797  M 74| 74V           56
455  4 55          MLC   INGM,GM1                                                7  3804  M 799 826           56
456  4 56          MLC   INGM,SWINGM&3                                           7  3811  M 799 H21           56
457  4 57   SWINGM SW    0              SET WM IN INPUT GM                       4  3818  , 000               57
458  4 58          MLC   INGM,ADDR3                                              7  3822  M 799 73V           57
459  4 59          B     CONVRT                                                  4  3829  B 58S               57
460  4 60          S     HOINAR,DECDBX                                           7  3833  S 74V 74|           57
461  4 61          MLNS  DECDBX,RECLNG                                           7  3840  D 74| 805           57
462  4 62          MLC                                                           1  3847  M                   57
463  4 63          MLC   RECLNG,DBLRL#3     COMPUTE DOUBLE THE RECORD LENGTH     7  3848  M 805 74Y           57
464  4 64          A     RECLNG,DBLRL                                            7  3855  A 805 74Y           58
465  4 65          MLC   DBLRL,TRIRL#3      COMPUTE TRIPLE THE RECORD LENGTH     7  3862  M 74Y 75/           58
466  4 66          A     RECLNG,TRIRL                                            7  3869  A 805 75/           58
467  4 67   *                COMPUTE INTERNAL RECORD CAPACITY
468  4 68          MLC   INGM,TPGM2A#3                                           7  3876  M 799 75U           58
469  4 69          MA    @001@,TPGM2A                                            7  3883  # 75X 75U           58
470  4 70          MLC   TPGM2A,TPGM2B#3                                         7  3890  M 75U 76|           59
471  4 71          MLC   TPGM2A,TPGM2C#3                                         7  3897  M 75U 76T           59
472  4 72          MLC   TPGM2C,ADDR3                                            7  3904  M 76T 73V           59
473  4 73          B     CONVRT                                                  4  3911  B 58S               59
474  4 74          MLC   DECDBX,T5GM2C#5                                         7  3915  M 74| 76Y           59
475  4 75   ADDLNG MA    RECLNG,TPGM2A                                           7  3922  # 805 75U           59
476  4 76          MA    DBLRL,TPGM2B                                            7  3929  # 74Y 76|           60
477  4 77          MA    TRIRL,TPGM2C                                            7  3936  # 75/ 76T           60
478  4 78          A     TRIRL,T5GM2C                                            7  3943  A 75/ 76Y           60
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SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

479  4 79          A     @1@,TPBLCT#3                                                   7  3950  A 76Z 77S             60
480  4 80          A     @3@,TPRECI#3                                                   7  3957  A 71Y 77V             60
481  4 81          C     T5GM2C,CORSIZ                                                  7  3964  C 76Y 903             61
482  4 82          BL    SWINPT                                                         5  3971  B 01V T               61
483  4 83          MLC   TPGM2A,GM2A                                                    7  3976  M 75U K13             61
484  4 84          MLC   TPGM2B,GM2B                                                    7  3983  M 76| K16             61
485  4 85          MLC   TPGM2C,GM2C                                                    7  3990  M 76T K19             61
486  4 86          MLC   TPRECI,RECCTI                                                  7  3997  M 77V 898             62
487  4 87          MLC   TPBLCT,BLKCT                                                   7  4004  M 77S 829             62
488  4 88          B     ADDLNG                                                         4  4011  B I22                 62
489  4 89   SWINPT MLC   GM1,GM1A                                                       7  4015  M 826 K10             62
490  4 90          MA    @001@,GM1A                                                     7  4022  # 75X K10             62
491  4 91          MLC   GM2A,GM2A1                                                     7  4029  M K13 K22             62
492  4 92          MLC   GM2B,GM2B1                                                     7  4036  M K16 K25             63
493  4 93          MLC   GM2C,GM2C1                                                     7  4043  M K19 K28             63
494  4 94          MA    @I9I@,GM2A1                                                    7  4050  # 72W K22             63
495  4 95          MA    @I9I@,GM2B1                                                    7  4057  # 72W K25             63
496  4 96          MA    @I9I@,GM2C1                                                    7  4064  # 72W K28             63
497  4 97          SW    INARAA                                                         4  4071  , ?25                 63
498  4 98          MLC   GM1,MOVE1&6                                                    7  4075  M 826 12T             64
499  4 99          MLC   GM1,MOVE1&3                                                    7  4082  M 826 12|             64
500  5 00          MA    RECLNG,MOVE1&6                                                 7  4089  # 805 12T             64
501  5 01          MLC   MOVE1&6,LOFRST                                                 7  4096  M 12T 890             64
502  5 02          MA    @I9I@,MOVE1&3                                                  7  4103  # 72W 12|             64
503  5 03          MLC   MOVE1&3,LOINPT                                                 7  4110  M 12| 887             65
504  5 04   MOVE1  MLC   0,0                                                            7  4117  M 000 000             65
505  5 05          MLC   MOVE1&6,LOFULL    MOVE FIRST RECORD TO FIRST BUCKET            7  4124  M 12T 893             65
506  5 06          S     KEYLOC,KEYFAC                                                  7  4131  S 679 802             65
507  5 07   *                                  CALC FACTOR TO BE ADDED TO LOW
508  5 08   *                                ORDER POSITION OF RECORD TO GIVE
509  5 09   *                                   LOW ORDER OF CONTROL FIELD
510  5 10          A     RECLNG,KEYFAC                                                  7  4138  A 805 802             65
511  5 11          MLZS  @ @,KEYFAC                                                     7  4145  Y 77W 802             66
512  5 12          MLC   @16000@,ADDR5                                                  7  4152  M 78/ 80U             66
513  5 13          S     KEYFAC,ADDR5                                                   7  4159  S 802 80U             66
514  5 14          MLZS  @ @,ADDR5                                                      7  4166  Y 77W 80U             66
515  5 15          B     RECONV                                                         4  4173  B 52T                 66
516  5 16          MLC   CODBOX,KEYFAC                                                  7  4177  M 80X 802             66
517  5 17          MLC   @16000@,ADDR5                                                  7  4184  M 78W 80U             67
518  5 18          S     RECLNG,ADDR5     CALCULATE NEGATIVE RECORD LENGTH              7  4191  S 805 80U             67
519  5 19          MLZS  @ @,ADDR5                                                      7  4198  Y 77W 80U             67
520  5 20          B     RECONV                                                         4  4205  B 52T                 67
521  5 21          MLC   CODBOX,NRECLG                                                  7  4209  M 80X 808             67
522  5 22          MLC   @N@,LNKNOP                                                     7  4216  M 78X 450             67
523  5 23          MLC   TAPEA,IOCONB     INIT TAPE READ                                7  4223  M 809 931             68
524  5 24   *          INITIALIZE VARIOUS INSTRUCTIONS IN PHASE 1, PART 2
525  5 25   *               WITH ADDRESSES AND CONSTANTS CALCULATED IN PART 1.
526  5 26          MLCWA LOFULL,X2                                                      7  4230  L 893 094             68
527  5 27          MLCWA LOFULL,X3                                                      7  4237  L 893 099             68
528  5 28          MA    KEYFAC,X3                                                      7  4244  # 802 099             68
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

529  5 29          MLC   LOINPT,COMPAB&6                                              7  4251  M 887 951            68
530  5 30          MA    KEYFAC,COMPAB&6                                              7  4258  # 802 951            69
531  5 31          MLC   LOINPT,INSRTA&3                                              7  4265  M 887 998            69
532  5 32          MLC   KEYLOC,CALCKY#3                                              7  4272  M 679 79|            69
533  5 33          S     KEYLNG,CALCKY                                                7  4279  S 681 79|            69
534  5 34          MLZS  @ @,CALCKY                                                   7  4286  Y 77W 79|            69
535  5 35          MLC   CALCKY,COMPA&3                                               7  4293  M 79| 944            70
536  5 36          MA    GM1,COMPA&3                                                  7  4300  # 826 944            70
537  5 37          MA    NRECLG,COMPA&3                                               7  4307  # 808 944            70
538  5 38          SW    COMPA&1                                                      4  4314  , 942                70
539  5 39          MLC   COMPA&3,COMPAC&3                                             7  4318  M 944 955            70
540  5 40          CW    COMPA&1                                                      4  4325  ) 942                70
541  5 41          C     COMPAC&3,&INARAA                                             7  4329  C 955 79T            71
542  5 42          BU    NONOP                                                        5  4336  B 34Y /              71
543  5 43          MLC   @N@,COMPAC                                                   7  4341  M 78X 952            71
544  5 44   NONOP  MLC   @16000@,ADDR5                                                7  4348  M 79Y 80U            71
545  5 45          S     KEYLNG,ADDR5                                                 7  4355  S 681 80U            71
546  5 46          A     @1@,ADDR5                                                    7  4362  A 76Z 80U            72
547  5 47          MLZS  @ @,ADDR5                                                    7  4369  Y 77W 80U            72
548  5 48          B     RECONV                                                       4  4376  B 52T                72
549  5 49          MA    CODBOX,SWOUTK&3                                              7  4380  # 80X 39|            72
550  5 50   SWOUTK SW    LSTCTL                                                       4  4387  , 864                72
551  5 51          MLC   LOINPT,INSRTB&3                                              7  4391  M 887 T72            72
552  5 52          MLC   GM1,OUTPUT&3                                                 7  4398  M 826 U76            73
553  5 53          MA    RECLNG,OUTPUT&3                                              7  4405  # 805 U76            73
554  5 54          MLC   GM2C,MOVCTL&3                                                7  4412  M K19 U88            73
555  5 55          MA    @I9I@,MOVCTL&3                                               7  4419  # 72W U88            73
556  5 56          MA    KEYFAC,OUTPUT&3                                              7  4426  # 802 U76            73
557  5 57          MA    KEYFAC,MOVCTL&3                                              7  4433  # 802 U88            74
558  5 58          SW    OUTPUT&1                                                     4  4440  , U74                74
559  5 59          MLC   OUTPUT&3,SEQBRK&3                                            7  4444  M U76 W02            74
560  5 60          CW    OUTPUT&1                                                     4  4451  ) U74                74
561  5 61          SW    MOVCTL&1                                                     4  4455  , U86                74
562  5 62          MLC   MOVCTL&3,PUTOLD&3                                            7  4459  M U88 U99            74
563  5 63          CW    MOVCTL&1                                                     4  4466  ) U86                74
564  5 64          MLC   TAPEB,IOCOND                                                 7  4470  M 810 |81            75
565  5 65          MLC   LOINPT,LODDMP&3                                              7  4477  M 887 S03            75
566  5 66          MLC   LOFRST,LODDMP&6                                              7  4484  M 890 S06            75
567  5 67          MLC   GM1,CLRGMA&3                                                 7  4491  M 826 J25            75
568  5 68          MLCWA LSTCTL,OLDCTL                                                7  4498  L 864 884            75
569  5 69          MLC   @9@,OLDCTL                                                   7  4505  M 79Z 884            76
570  5 70          MLC   OLDCTL,OLDCTL-1                                              7  4512  M 884 883            76
571  5 71          B     CS                                                           4  4519  B 907                76
572  5 72   RECONV SBR   RECONX&3           CONVERT 5-CHARACTER ADDRESSES             4  4523  H 54U                76
573  5 73          MLC   ADDR5#5,CODBOX#3        TO 3-CHARACTER                       7  4527  M 80U 80X            76
574  5 74   SUBTHO S     @1@,ADDR5-3                                                  7  4534  S 76Z 80/            76
575  5 75   RECONX BM    0,ADDR5-3                                                    8  4541  V 000 80/ K          77
576  5 76          MA    @|00@,CODBOX                                                 7  4549  # 81| 80X            77
577  5 77          B     SUBTHO                                                       4  4556  B 53U                77
578  5 78   SIXTNK MLC   @15998@,CORSIZ                                               7  4560  M 81V 903            77
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

579  5 79          B     RDFRST                                                       4  4567  B G55               77
580  5 80   TWELVK MLC   @11998@,CORSIZ                                               7  4571  M 82| 903           77
581  5 81          B     RDFRST                                                       4  4578  B G55               78
582  5 82   CONVRT SBR   CONVEX&3            CONVERT  3-CHARACTER ADDRESSES           4  4582  H 65/               78
583  5 83          ZA    ADDR3,DECDBX              TO  5-CHARACTER                    7  4586  ? 73V 74|           78
584  5 84          BWZ   ADD1,ADDR3-2,S                                               8  4593  V 65S 73T S         78
585  5 85          BWZ   ADD2,ADDR3-2,K                                               8  4601  V 66T 73T K         78
586  5 86          BWZ   ADD3,ADDR3-2,B                                               8  4609  V 67U 73T B         78
587  5 87   CONVR2 BWZ   ADD4,ADDR3,S                                                 8  4617  V 68V 73V S         79
588  5 88          BWZ   ADD8,ADDR3,K                                                 8  4625  V 69W 73V K         79
589  5 89          BWZ   ADD12,ADDR3,B                                                8  4633  V 70X 73V B         79
590  5 90   CONVR3 MLZS  @ @,DECDBX                                                   7  4641  Y 77W 74|           79
591  5 91   CONVEX B     0                                                            4  4648  B 000               79
592  5 92   ADD1   A     @1@,DECDBX-3                                                 7  4652  A 76Z 73X           80
593  5 93          B     CONVR2                                                       4  4659  B 61X               80
594  5 94   ADD2   A     @2@,DECDBX-3                                                 7  4663  A 72| 73X           80
595  5 95          B     CONVR2                                                       4  4670  B 61X               80
596  5 96   ADD3   A     @3@,DECDBX-3                                                 7  4674  A 71Y 73X           80
597  5 97          B     CONVR2                                                       4  4681  B 61X               80
598  5 98   ADD4   A     @4@,DECDBX-3                                                 7  4685  A 71Z 73X           81
599  5 99          B     CONVR3                                                       4  4692  B 64/               81
600  6 00   ADD8   A     @8@,DECDBX-3                                                 7  4696  A 82/ 73X           81
601  6 01          B     CONVR3                                                       4  4703  B 64/               81
602  6 02   ADD12  A     @12@,DECDBX-3                                                7  4707  A 82T 73X           81
603  6 03          B     CONVR3                                                       4  4714  B 64/               81
604  6 04          LTORG *                                                                    4718
                   DCW   @3@                                                          1  4718              LIT     81
                         @4@                                                          1  4719              LIT     82
                         @2@                                                          1  4720              LIT     82
       439  HICORE       #03                                                          3  4723              AREA    82
                         @I9I@                                                        3  4726              LIT     82
                         @I9R@                                                        3  4729              LIT     82
       452               &INARAA                                                      3  4732  ?25         ADCON   82
       452  ADDR3        #03                                                          3  4735              AREA    82
       454  DECDBX       #05                                                          5  4740              AREA    83
       454  HOINAR       #05                                                          5  4745              AREA    83
       463  DBLRL        #03                                                          3  4748              AREA    83
       465  TRIRL        #03                                                          3  4751              AREA    83
       468  TPGM2A       #03                                                          3  4754              AREA    83
                         @001@                                                        3  4757              LIT     83
       470  TPGM2B       #03                                                          3  4760              AREA    83
       471  TPGM2C       #03                                                          3  4763              AREA    84
       474  T5GM2C       #05                                                          5  4768              AREA    84
                         @1@                                                          1  4769              LIT     84
       479  TPBLCT       #03                                                          3  4772              AREA    84
       480  TPRECI       #03                                                          3  4775              AREA    84
                         @ @                                                          1  4776              LIT     84
       512               @16000@                                                      5  4781              LIT     84
       517               @16000@                                                      5  4786              LIT     85
                         @N@                                                          1  4787              LIT     85
```

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	
		532	CALCKY		#03		3	4790		AREA	85	
		541			&INARAA		3	4793	?25	ADCON	85	
		544			@16000@		5	4798		LIT	85	
					@9@		1	4799		LIT	85	
		573	ADDR5		#05		5	4804		AREA	85	
		573	CODBOX		#03		3	4807		AREA	86	
					@|00@		3	4810		LIT	86	
		578			@15998@		5	4815		LIT	86	
		580			@11998@		5	4820		LIT	86	
					@8@		1	4821		LIT	86	
					@12@		2	4823		LIT	86	
605	6	05		END	INITA				/ F00 080		87	
		512			@16000@		5	4781		LIT	84	*****
		517			@16000@		5	4786		LIT	85	
					@N@		1	4787		LIT	85	

SEQ PG LIN	LABEL	OP	OPERANDS	SFX CT	LOCN	INSTRUCTION	TYPE	CARD
532	CALCKY		#03	3	4790		AREA	85
541			&INARAA	3	4793	?25	ADCON	85
544			@16000@	5	4798		LIT	85
			@9@	1	4799		LIT	85
573	ADDR5		#05	5	4804		AREA	85
573	CODBOX		#03	3	4807		AREA	86
			@|00@	3	4810		LIT	86
578			@15998@	5	4815		LIT	86

```
CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                             1             SORT2
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?           2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040           3

                          THREE TAPE FIBONACCI SORT FOR D.A. SYSTEM    PHASE 2       SORT2               PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101  1 01   000    JOB   THREE TAPE FIBONACCI SORT FOR D.A. SYSTEM    PHASE 2
 102  1 02          CTL   440  1
 103  1 03   *                       THIS PHASE MERGES THE STRINGS PRODUCED
 104  1 04   *                       BY PHASE 1 MAKING AS MANY PASSES AS
 105  1 05   *                       NECESSARY TO OUTPUT ONE STRING ON THE
 106  1 06   *                       OUTPUT UNIT REQUESTED.
 107  1 07   X1     EQU   89                                                           0089
 108  1 08   X2     EQU   94                                                           0094
 109  1 09   X3     EQU   99                                                           0099
 110  1 10   COR201 EQU   201                                                          0201
 111  1 11   SYSLNK EQU   400                                                          0400
 112  1 12   LNKNOP EQU   450                                                          0450
 113  1 13   CONTGM EQU   499                                                          0499
 114  1 14   SYSIO  EQU   500                                                          0500
 115  1 15   MESSG  EQU   660                                                          0660
 116  1 16   TAPEI  EQU   675                                                          0675
 117  1 17   TAPEO  EQU   676                                                          0676
 118  1 18   KEYLNG EQU   681                                                          0681
 119  1 19   NEXTID EQU   686                                                          0686
 120  1 20   EJECT  EQU   704                                                          0704
 121  1 21   KEYFAC EQU   802                                                          0802
 122  1 22   RECLNG EQU   KEYFAC&3                                                     0805
 123  1 23   NRECLG EQU   KEYFAC&6                                                     0808
 124  1 24   TAPEA  EQU   KEYFAC&7                                                     0809
 125  1 25   TAPEB  EQU   KEYFAC&8                                                     0810
 126  1 26   TAPEC  EQU   KEYFAC&9                                                     0811
 127  1 27   NSTRGA EQU   KEYFAC&13                                                    0815
 128  1 28   NSTRGB EQU   KEYFAC&17                                                    0819
 129  1 29   NSTRGC EQU   KEYFAC&21                                                    0823
 130  1 30   BLKCT  EQU   KEYFAC&27                                                    0829
 131  1 31   MARK   EQU   2050              ANALYSIS OVERLAY ENTRY POINT               2050
 132  1 32          ORG   KEYFAC&33                                                           0835
 133  1 33   HOAR1  DCW   #3                ADDRESS OF HIGH ORDER OF AREA 1       3  0837                     4
 134  1 34   HOAR2  DCW   #3                ADDRESS OF HIGH ORDER OF AREA 2       3  0840                     4
 135  1 35   HOAR3  DCW   #3                ADDRESS OF HIGH ORDER OF AREA 3       3  0843                     4
 136  1 36   LOAR1  DCW   #3                ADDRESS OF LOW ORDER OF AREA 1        3  0846                     4
 137  1 37   LOAR2  DCW   #3                ADDRESS OF LOW ORDER OF AREA 2        3  0849                     4
 138  1 38   LOAR3  DCW   #3                ADDRESS OF LOW ORDER OF AREA 3        3  0852                     4
 139  1 39   GMAR1  DCW   #3                ADDRESS OF GMWM OF AREA 1             3  0855                     4
 140  1 40   GMAR2  DCW   #3                ADDRESS OF GMWM OF AREA 2             3  0858                     5
 141  1 41   GMAR3  DCW   #3                ADDRESS OF GMWM OF AREA 3             3  0861                     5
 142  1 42   HOKEYF DCW   #3                OFFSET FACTOR TO GIVE H. O. OF KY     3  0864                     5
 143  1 43   *                                PHASE 2 - PART 2
 144  1 44   MNCOMP BCE   CALLOV,PADCK1,B   GO TO CALL OVERLAY IF LAST PASS       8  0865  B Y77 /96 B        5
 145  1 45          BW    WFROM1,SWR2NO     NO MORE ON SECONDARY                  8  0873  V /21 Y37 1        5
 146  1 46          BW    WFROM2,SWR1NO     NO MORE ON PRIMARY                    8  0881  V 982 Y36 1        5
 147  1 47          C     SEQX1,SEQX2       HAS ONE UNIT HAD MORE STRINGS         7  0889  C Z71 Z98          6
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

148  1 48          BH    WFROM1                 REMOVED THAN THE OTHER           5  0896  B /21 U             6
149  1 49          BL    WFROM2                                                  5  0901  B 982 T             6
150  1 50          SBR   SWKEY&3,0&X2       INIT COMPARE SET WM                  7  0906  H 937 0!0           6
151  1 51          SBR   CWKEY&3,0&X2                                            7  0913  H 976 0!0           6
152  1 52          MA    HOKEYF,CWKEY&3                                          7  0920  # 864 976           6
153  1 53          MA    HOKEYF,SWKEY&3                                          7  0927  # 864 937           7
154  1 54   SWKEY  SW    0                  SET COMPARE WM                       4  0934  , 000               7
155  1 55          SBR   COMP&3,0&X1        INIT COMPARE                         7  0938  H 969 0|0           7
156  1 56          SBR   COMP&6,0&X2                                             7  0945  H 972 0!0           7
157  1 57          MA    KEYFAC,COMP&3                                           7  0952  # 802 969           7
158  1 58          MA    KEYFAC,COMP&6                                           7  0959  # 802 972           7
159  1 59   COMP   C     0,0                COMPARE INPUT 1 KEY TO INPUT 2       7  0966  C 000 000           8
160  1 60   CWKEY  CW    0                  CLEAR COMPARE WM                     4  0973  ) 000               8
161  1 61          BH    WFROM1                                                  5  0977  B /21 U             8
162  1 62   WFROM2 MLC   NLINK,IOCONF       PUT OUT RECORD FROM SECONDARY        7  0982  M Z09 W93           8
163  1 63          SBR   SQB3A&3,0&X2       INIT SEQ. BREAK CHECK                7  0989  H |20 0!0           8
164  1 64          SBR   RESTKA&3,0&X2                                           7  0996  H |32 0!0           8
165  1 65          MA    KEYFAC,SQB3A&3                                          7  1003  # 802 |20           9
166  1 66          MA    KEYFAC,RESTKA&3                                         7  1010  # 802 |32           9
167  1 67   SQB3A  C     0,LSTKEY           IS SEQ. BREAK ON SECONDARY           7  1017  C 000 ?18           9
168  1 68          BH    A1S3A                                                   5  1024  B /10 U             9
169  1 69   RESTKA MLC   0,LSTKEY           SAVE NEW OUTPUT KEY                  7  1029  M 000 ?18           9
170  1 70          SBR   PADCK2&6,0&X2      INIT. PAD CHECK                      7  1036  H |63 0!0          10
171  1 71          MA    NRECLG,PADCK2&6                                         7  1043  # 808 |63          10
172  1 72          MA    @005@,PADCK2&6                                          7  1050  # Z36 |63          10
173  1 73   PADCK2 BCE   W2LINK,0,*                                              8  1057  B /02 000 *        10
174  1 74          MLC   0&X2,0&X3          MOVE REC. FROM SEC. TO OUTPUT        7  1065  M 0!0 0?0          10
175  1 75          C     X3,LOAR3           IS OUTPUT AREA FULL                  7  1072  C 099 852          11
176  1 76   BFULL2 BU    INCX3A                                                  5  1079  B |95 /            11
177  1 77          B     OUT3               WRITE BLOCK ON OUTPUT                4  1084  B W61              11
178  1 78          MLC   LOFRK3,X3          RESET X3                             7  1088  M Z44 099          11
179  1 79   INCX3A MA    RECLNG,X3                                               7  1095  # 805 099          11
180  1 80   W2LINK B     RDTUX2             GO TO READ NEXT REC. FROM SEC.       4  1102  B U68              11
181  1 81          B     MNCOMP             RETURN TO MAIN COMPARE               4  1106  B 865              11
182  1 82   A1S3A  A     @1@,SEQX3#4        ADD 1 TO OUTPUT STRING COUNT         7  1110  A Z37 Z41          12
183  1 83          B     RESTKA                                                  4  1117  B |29              12
184  1 84   *                                 THIS ROUTINE PUTS  THE NEXT REC
185  1 85   *                                      FROM THE PRI. INPUT IN THE
186  1 86   *                                      OUTPUT BLOCK. IT IS ESSENTI-
187  1 87   *                                      ALLY THE SAME AS WFROM2.
188  1 88   WFROM1 MLC   NLINK,IOCONF                                            7  1121  M Z09 W93          12
189  1 89          SBR   SQB3B&3,0&X1                                            7  1128  H /59 0|0          12
190  1 90          SBR   RESTKB&3,0&X1                                           7  1135  H /71 0|0          12
191  1 91          MA    KEYFAC,SQB3B&3                                          7  1142  # 802 /59          12
192  1 92          MA    KEYFAC,RESTKB&3                                         7  1149  # 802 /71          13
193  1 93   SQB3B  C     0,LSTKEY           IS SEQ. BRK. ON PRIMARY INPUT        7  1156  C 000 ?18          13
194  1 94          BH    A1S3B                                                   5  1163  B S49 U            13
195  1 95   RESTKB MLC   0,LSTKEY           SAVE NEW KEY                         7  1168  M 000 ?18          13
196  1 96          SBR   PADCK1&6,0&X1      INIT PAD CHECK                       7  1175  H S02 0|0          13
197  1 97          MA    NRECLG,PADCK1&6                                         7  1182  # 808 S02          14
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

198  1 98          MA    @005@,PADCK1&6                                            7  1189  # Z36 S02           14
199  1 99   PADCK1 BCE   W1LINK,0,*          IS PAD RECORD - IF SO, SKIP IT        8  1196  B S41 000 *         14
200  2 00          MLC   0&X1,0&X3                                                 7  1204  M 0|0 0?0           14
201  2 01          C     X3,LOAR3            IS BLOCK FULL                         7  1211  C 099 852           14
202  2 02   BFULL1 BU    INCX3B                                                    5  1218  B S34 /             15
203  2 03          B     OUT3                WRITE OUT FULL BLOCK                  4  1223  B W61               15
204  2 04          MLC   LOFRK3#3,X3                                               7  1227  M Z44 099           15
205  2 05   INCX3B MA    RECLNG,X3                                                 7  1234  # 805 099           15
206  2 06   W1LINK B     RDTUX1                                                    4  1241  B S60               15
207  2 07          B     MNCOMP                                                    4  1245  B 865               15
208  2 08   A1S3B  A     @1@,SEQX3                                                 7  1249  A Z37 Z41           15
209  2 09          B     RESTKB                                                    4  1256  B /68               16
210  2 10   RDTUX1 SBR   RD1EX&3             ROUTINE TO READ RECORD FROM PRIM.     4  1260  H T54               16
211  2 11          C     X1,LOAR1            IS END OF BLOCK                       7  1264  C 089 846           16
212  2 12          BU    INCX1                                                     5  1271  B T55 /             16
213  2 13          MLC   NLINK-2,IOCONJ      INITIALIZE I/O LINKAGE                7  1276  M Z07 S87           16
214  2 14          B     SYSIO               READ BLOCK                            4  1283  B 500               16
215  2 15   IOCONJ DCW   #1                                                        1  1287                      16
216  2 16          DC    #3                                                        3  1290                      17
217  2 17          DC    @R@                                                       1  1291                      17
218  2 18          MLC   LOFR1#3,X1          INIT INDEXER FOR NEW BLOCK            7  1292  M Z47 089           17
219  2 19          BEF   A1SQX1                                                    5  1299  B T66 K             17
220  2 20   SEQBX1 SBR   SEQCP1&3,0&X1       INIT SEQUENCE BREAK CHECK             7  1304  H T21 0|0           17
221  2 21          MA    KEYFAC,SEQCP1&3                                           7  1311  # 802 T21           17
222  2 22   *                                  IS SEQUENCE BREAK IN INPUT
223  2 23   SEQCP1 C     0,KEYX1#20        3 CONTAINS L.O. OF OUTPUT KEY 1         7  1318  C 000 Z67           18
224  2 24          BH    A1SQX1                                                    5  1325  B T66 U             18
225  2 25   RESTX1 SBR   RESMV1&3,0&X1       INIT SAVE KEY                         7  1330  H T47 0|0           18
226  2 26          MA    KEYFAC,RESMV1&3                                           7  1337  # 802 T47           18
227  2 27   *                                  SAVE KEY
228  2 28   RESMV1 MLC   0,KEYX1          &3 CONTAINS SAME                         7  1344  M 000 Z67           18
229  2 29   RD1EX  B     0                   EXIT                                  4  1351  B 000               18
230  2 30   INCX1  MA    RECLNG,X1           INCREMENT INDEX FOR NEXT RECORD       7  1355  # 805 089           19
231  2 31          B     SEQBX1                                                    4  1362  B T04               19
232  2 32   A1SQX1 A     @1@,SEQX1#4         INCREMENT SEQUENCE BREAK COUNT        7  1366  A Z37 Z71           19
233  2 33          BCE   CSX1A,ALINK-1,A     FIND WHICH COUNT TO COMPARE TO        8  1373  B U26 Z11 A         19
234  2 34          BCE   CSX1B,ALINK-1,B          IN ORDER TO DETERMINE IF         8  1381  B U47 Z11 B         19
235  2 35          C     SEQX1,NSTRGC             IF ENOUGH STRINGS HAVE BEEN      7  1389  C Z71 823           20
236  2 36   *                                  READ.
237  2 37          BE    R1NOON                                                    5  1396  B U10 S             20
238  2 38          BL    R1NOON                                                    5  1401  B U10 T             20
239  2 39          B     RESTX1                                                    4  1406  B T30               20
240  2 40   R1NOON SW    SWR1NO              DISABLE READING ON PRIMARY            4  1410  , Y36               20
241  2 41          BW    RESETA,SWR2NO       HAS SECONDARY BEEN DISABLED           8  1414  V Z15 Y37 1         20
242  2 42          B     RD1EX                                                     4  1422  B T51               20
243  2 43   CSX1A  C     SEQX1,NSTRGA        HAVE ENOUGH STRINGS BEEN READ         7  1426  C Z71 815           21
244  2 44          BE    R1NOON                                                    5  1433  B U10 S             21
245  2 45          BL    R1NOON                                                    5  1438  B U10 T             21
246  2 46          B     RESTX1                                                    4  1443  B T30               21
247  2 47   CSX1B  C     SEQX1,NSTRGB        HAVE ENOUGH STRINGS BEEN READ         7  1447  C Z71 819           21
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  2 48          BE    R1NOON                                                 5  1454  B U10 S             21
249  2 49          BL    R1NOON                                                 5  1459  B U10 T             21
250  2 50          B     RESTX1                                                 4  1464  B T30               22
251  2 51   RDTUX2 SBR   RD2EX&3              ROUTINE TO READ FROM SECONDARY    4  1468  H V62               22
252  2 52   *                                   THIS ROUTINE IS THE SAME AS THE
253  2 53   *                                        PRIMARY READ - RDTUX1
254  2 54          C     X2,LOAR2                                               7  1472  C 094 849           22
255  2 55          BU    INCX2                                                  5  1479  B V63 /             22
256  2 56          MLC   NLINK-1,IOCONI                                         7  1484  M Z08 U95           22
257  2 57          B     SYSIO                                                  4  1491  B 500               22
258  2 58   IOCONI DCW   #1                                                     1  1495                      22
259  2 59          DC    #3                                                     3  1498                      23
260  2 60          DC    @R@                                                    1  1499                      23
261  2 61          MLC   LOFR2#3,X2                                             7  1500  M Z74 094           23
262  2 62          BEF   A1SQX2                                                 5  1507  B V74 K             23
263  2 63   SEQBX2 SBR   SEQCP2&3,0&X2                                          7  1512  H V29 0!0           23
264  2 64          MA    KEYFAC,SEQCP2&3                                        7  1519  # 802 V29           23
265  2 65   SEQCP2 C     0,KEYX2#20       &3 CONTAINS L.O. OF OUTPUT KEY 2      7  1526  C 000 Z94           24
266  2 66          BH    A1SQX2                                                 5  1533  B V74 U             24
267  2 67   RESTX2 SBR   RESMV2&3,0&X2                                          7  1538  H V55 0!0           24
268  2 68          MA    KEYFAC,RESMV2&3                                        7  1545  # 802 V55           24
269  2 69   RESMV2 MLC   0,KEYX2         &3 CONTAINS SAME                       7  1552  M 000 Z94           24
270  2 70   RD2EX  B     0                                                      4  1559  B 000               24
271  2 71   INCX2  MA    RECLNG,X2                                              7  1563  # 805 094           25
272  2 72          B     SEQBX2                                                 4  1570  B V12               25
273  2 73   A1SQX2 A     @1@,SEQX2#4                                            7  1574  A Z37 Z98           25
274  2 74          BCE   CSX2A,ALINK-1,A                                        8  1581  B W29 Z11 A         25
275  2 75          BCE   CSX2B,ALINK-1,B                                        8  1589  B W45 Z11 B         25
276  2 76          C     SEQX2,NSTRGC                                           7  1597  C Z98 823           26
277  2 77          BE    R2NOON                                                 5  1604  B W13 S             26
278  2 78          B     RESTX2                                                 4  1609  B V38               26
279  2 79   R2NOON SW    SWR2NO                                                 4  1613  , Y37               26
280  2 80          BW    RESETA,SWR1NO                                          8  1617  V Z15 Y36 1         26
281  2 81          B     RD2EX                                                  4  1625  B V59               26
282  2 82   CSX2A  C     SEQX2,NSTRGA                                           7  1629  C Z98 815           26
283  2 83          BE    R2NOON                                                 5  1636  B W13 S             27
284  2 84          B     RESTX2                                                 4  1641  B V38               27
285  2 85   CSX2B  C     SEQX2,NSTRGB                                           7  1645  C Z98 819           27
286  2 86          BE    R2NOON                                                 5  1652  B W13 S             27
287  2 87          B     RESTX2                                                 4  1657  B V38               27
288  2 88   OUT3   SBR   RETURN&3             OUTPUT WRITE ROUTINE              4  1661  H X10               27
289  2 89          BCE   IOCONF-4,PADCK1,N                                      8  1665  B W89 /96 N         27
290  2 90          BCE   MARK,NEXTID-4,3      GO TO ANALYSIS OVERLAY IF PRESENT 8  1673  B !50 682 3         28
291  2 91          B     IOCONF-4             OVERLAY WRITE INTRY POINT         4  1681  B W89               28
292  2 92          B     RETURN               OVERLAY SKIP ENTRY POINT          4  1685  B X07               28
293  2 93          B     SYSIO                                                  4  1689  B 500               28
294  2 94   IOCONF DCW   #1                                                     1  1693                      28
295  2 95          DC    #3                                                     3  1696                      28
296  2 96          DC    @W@                                                    1  1697                      28
297  2 97   MARKCW CW    79                   CLEAR ANALYSIS TRUNCATION GMWM    4  1698  ) 079               28
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

298  2 98          BEF   SHRTP1                                                   5  1702  B Y38 K             28
299  2 99   RETURN B     0                                                        4  1707  B 000               29
300  3 00   COPY   MLC   NLINK-2,TAPEI      SET DYNAMIC OUTPUT INDICATOR          7  1711  M Z07 675           29
301  3 01          SW    TAPEO-2            SET END OF FILE INDICATOR             4  1718  , 674               29
302  3 02          RWD   2                                                        5  1722  U %U2 R             29
303  3 03          RWD   3                                                        5  1727  U %U3 R             29
304  3 04          RWD   4                                                        5  1732  U %U4 R             29
305  3 05   CSEND  CS    0                  CLEAR CORE                            4  1737  / 000               29
306  3 06          SBR   CSEND&3                                                  4  1741  H X40               30
307  3 07          BW    CSEND,LSTKEY-19                                          8  1745  V X37 R99 1         30
308  3 08          BCE   MARK,NEXTID-4,3    EXIT TO OVERLAY IF PRESENT            8  1753  B !50 682 3         30
309  3 09          MLC   @B@,LNKNOP         ENABLE SYSLINK SEARCH                 7  1761  M Z99 450           30
310  3 10          B     SYSLNK             CALL NEXT PROGRAM                     4  1768  B 400               30
311  3 11   NXTLNK DCW   #5                                                       5  1776                      30
312  3 12   PRECPY MLC   NLINK,NLINK-2      PUT OUTPUT UNIT IN H. O. OF LINK      7  1777  M Z09 Z07           31
313  3 13          SW    SWCOPY                                                   4  1784  , Z14               31
314  3 14   PRTMX3 MLNS  NLINK,TMX3&3       TAPE MARK OUTPUT UNIT                 7  1788  D Z09 X98           31
315  3 15   TMX3   WTM   0                                                        5  1795  U %U0 M             31
316  3 16          MLNS  NLINK,RWDX3&3      REWIND OUTPUT UNIT                    7  1800  D Z09 Y10           31
317  3 17   RWDX3  RWD   0                                                        5  1807  U %U0 R             31
318  3 18          MLNS  NLINK-1,RWDX2&3    REWIND SECONDARY INPUT UNIT           7  1812  D Z08 Y22           32
319  3 19   RWDX2  RWD   0                                                        5  1819  U %U0 R             32
320  3 20          BW    COPY,SWCOPY                                              8  1824  V X11 Z14 1         32
321  3 21          B     RESETE                                                   4  1832  B Q58               32
322  3 22   SWR1NO DC    #1                                                       1  1836                      32
323  3 23   SWR2NO DC    #1                                                       1  1837                      32
324  3 24   SHRTP1 SBR   MVSHRT&3                                                 4  1838  H Y59               32
325  3 25          MLC   @ERROR - TAPE   TOO SHORT - RESTART RUN@,COR201&38       7  1842  M !37 239           32
326  3 26          MA    @I9?@,MVSHRT&3                                           7  1849  # !40 Y59           33
327  3 27   MVSHRT MLC   0,COR201&14                                              7  1856  M 000 215           33
328  3 28          B     MESSG                                                    4  1863  B 660               33
329  3 29          B     EJECT                                                    4  1867  B 704               33
330  3 30   H6     H                                                              1  1871  .                   33
331  3 31          DC    @6@                                                      1  1872                      33
332  3 32          B     H6                                                       4  1873  B Y71               33
333  3 33   CALLOV MLC   @N@,MNCOMP         NOP GO TO CALL                        7  1877  M !41 865           33
334  3 34          BCE   MNCOMP,NEXTID-4,5  SKIP CALL IF VERIFY SORT              8  1884  B 865 682 5         34
335  3 35          B     SYSLNK             CALL ANALYSIS OVERLAY                 4  1892  B 400               34
336  3 36   CALRET MLC   @B@,LNKNOP         ENABLE SYSLINK SEARCH                 7  1896  M Z99 450           34
337  3 37          B     MNCOMP             RETURN TO MAIN LINE                   4  1903  B 865               34
338  3 38   NLINK  DCW   #3                                                       3  1909                      34
339  3 39   ALINK  DCW   #3                                                       3  1912                      34
340  3 40   SWDEBK DC    #1                                                       1  1913                      34
341  3 41   SWCOPY DC    #1                                                       1  1914                      34
342  3 42   *                 INITIALIZE FOR NEXT MERGE PASS
343  3 43   RESETA A     @1@,SEQX3                                                7  1915  A Z37 Z41           34
344  3 44          BCE   PRECPY,BFULL1,N    HAS DEBLOCKING BEEN DONE              8  1922  B X77 S18 N         35
345  3 45          B     RESETB                                                   4  1930  B !42               35
346  3 46          LTORG *                                                             1934
                   DCW   @005@                                                    3  1936            LIT       35
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

                         @1@                                                  1  1937              LIT     35
       182  SEQX3        #04                                                  4  1941              AREA    35
       204  LOFRK3       #03                                                  3  1944              AREA    35
       218  LOFR1        #03                                                  3  1947              AREA    35
       223  KEYX1        #20                                                 20  1967              AREA    36
       232  SEQX1        #04                                                  4  1971              AREA    36
       261  LOFR2        #03                                                  3  1974              AREA    36
       265  KEYX2        #20                                                 20  1994              AREA    37
       273  SEQX2        #04                                                  4  1998              AREA    37
                         @B@                                                  1  1999              LIT     37
       325               @ERROR - TAPE   TOO SHORT - RESTART RUN@            38  2037              LIT     38
                         @I9?@                                                3  2040              LIT     39
                         @N@                                                  1  2041              LIT     39
347  3 47   RESETB BCE   SUBXA,ALINK-1,A    DETERMINE UNITS USED IN ORDER TO  8  2042  B !91 Z11 A         39
348  3 48          BCE   SUBXB,ALINK-1,B         SUBTRACT SECONDARY STRING    8  2050  B J24 Z11 B         39
349  3 49          BCE   SUBXCA,ALINK-2,A        COUNT FROM PRIMARY.          8  2058  B J57 Z10 A         39
350  3 50          S     NSTRGC,NSTRGB                C FROM B                7  2066  S 823 819           39
351  3 51          MLZS  @ @,NSTRGB                                           7  2073  Y R41 819           40
352  3 52          MLC   @0000@,NSTRGC                                        7  2080  M R45 823           40
353  3 53          B     RESETC                                               4  2087  B K28               40
354  3 54   SUBXA  BCE   SUBXAB,ALINK-2,B                                     8  2091  B J82 Z10 B         40
355  3 55          S     NSTRGA,NSTRGC                A FROM C                7  2099  S 815 823           40
356  3 56          MLZS  @ @,NSTRGC                                           7  2106  Y R41 823           41
357  3 57          MLC   @0000@,NSTRGA                                        7  2113  M R45 815           41
358  3 58          B     RESETC                                               4  2120  B K28               41
359  3 59   SUBXB  BCE   SUBXBA,ALINK-2,A                                     8  2124  B K07 Z10 A         41
360  3 60          S     NSTRGB,NSTRGC                B FROM C                7  2132  S 819 823           41
361  3 61          MLZS  @ @,NSTRGC                                           7  2139  Y R41 823           42
362  3 62          MLC   @0000@,NSTRGB                                        7  2146  M R45 819           42
363  3 63          B     RESETC                                               4  2153  B K28               42
364  3 64   SUBXCA S     NSTRGC,NSTRGA                C FROM A                7  2157  S 823 815           42
365  3 65          MLZS  @ @,NSTRGA                                           7  2164  Y R41 815           42
366  3 66          MLC   @0000@,NSTRGC                                        7  2171  M R45 823           42
367  3 67          B     RESETC                                               4  2178  B K28               43
368  3 68   SUBXAB S     NSTRGA,NSTRGB                A FROM B                7  2182  S 815 819           43
369  3 69          MLZS  @ @,NSTRGB                                           7  2189  Y R41 819           43
370  3 70          MLC   @0000@,NSTRGA                                        7  2196  M R45 815           43
371  3 71          B     RESETC                                               4  2203  B K28               43
372  3 72   SUBXBA S     NSTRGB,NSTRGA                B FROM A                7  2207  S 819 815           43
373  3 73          MLZS  @ @,NSTRGA                                           7  2214  Y R41 815           44
374  3 74          MLC   @0000@,NSTRGB                                        7  2221  M R45 819           44
375  3 75   RESETC BCE   MVSQA3,ALINK,A                                       8  2228  B R18 Z12 A         44
376  3 76          BCE   MVSQB3,ALINK,B                                       8  2236  B R29 Z12 B         44
377  3 77          MLC   SEQX3,NSTRGC                                         7  2244  M Z41 823           44
378  3 78   RESETD MLC   @0000@,SEQX1       RESET STRING COUNTS               7  2251  M R45 Z71           45
379  3 79          MLC   @0000@,SEQX2                                         7  2258  M R45 Z98           45
380  3 80          MLC   @0000@,SEQX3                                         7  2265  M R45 Z41           45
381  3 81          CW    SWR1NO,SWR2NO      RESET NO READ SWITCHES            7  2272  ) Y36 Y37           45
382  3 82          C     X3,LOFR3#3         PAD THE LAST OUTPUT BLOCK         7  2279  C 099 R48           45
383  3 83          BE    BLKKEY                                               5  2286  B Q33 S             46
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

384  3 84          C     X3,LOAR3                                               7  2291  C 099 852           46
385  3 85          BE    LASTIO                                                 5  2298  B Q12 S             46
386  3 86          MLC   @9@,LSTKEY                                             7  2303  M R49 ?18           46
387  3 87          MLC   LSTKEY                                                 4  2310  M ?18               46
388  3 88   REPAD  SBR   MOVE9S&6,0&X3                                          7  2314  H L34 0?0           46
389  3 89          MA    KEYFAC,MOVE9S&6                                        7  2321  # 802 L34           47
390  3 90   MOVE9S MLC   LSTKEY,0                                               7  2328  M ?18 000           47
391  3 91          SBR   MLCAST&6,0&X3                                          7  2335  H L62 0?0           47
392  3 92          MA    NRECLG,MLCAST&6                                        7  2342  # 808 L62           47
393  3 93          MA    @005@,MLCAST&6                                         7  2349  # R52 L62           47
394  3 94   MLCAST MLC   @*@,0                                                  7  2356  M R53 000           48
395  3 95          C     X3,LOAR3                                               7  2363  C 099 852           48
396  3 96          BE    LASTIO                                                 5  2370  B Q12 S             48
397  3 97          MA    RECLNG,X3                                              7  2375  # 805 099           48
398  3 98          B     REPAD                                                  4  2382  B L14               48
399  3 99   CLROVL CS    0                  CLEAR INIT. PHASE                   4  2386  / 000               48
400  4 00          SBR   CLROVL&3                                               4  2390  H L89               48
401  4 01          BW    CLROVL,INCRBL                                          8  2394  V L86 A00 1         49
402  4 02   SWOTAR SW    0                  SET WM S IN OUTPUT AREA             4  2402  , 000               49
403  4 03          A     @1@,WMRCCT#3                                           7  2406  A R54 R57           49
404  4 04          MA    RECLNG,SWOTAR&3                                        7  2413  # 805 M05           49
405  4 05          C     WMRCCT,BLKCT                                           7  2420  C R57 829           49
406  4 06          BU    SWOTAR                                                 5  2427  B M02 /             49
407  4 07          MLCWA LSTKEY,KEYX1                                           7  2432  L ?18 Z67           50
408  4 08          MLCWA LSTKEY,KEYX2                                           7  2439  L ?18 Z94           50
409  4 09   SETGM1 MLCWA CONTGM,0           SET GMWM S                          7  2446  L 499 000           50
410  4 10   SETGM2 MLCWA CONTGM,0                                               7  2453  L 499 000           50
411  4 11   SETGM3 MLCWA CONTGM,0                                               7  2460  L 499 000           50
412  4 12   LNKRET MLC   @000@,X1           CONVERT LINK TO NUMERIC             7  2467  M R60 089           51
413  4 13   CONVLK BCE   MOVEA,ALINK&X1,A                                       8  2474  B N16 Z/2 A         51
414  4 14          BCE   MOVEB,ALINK&X1,B                                       8  2482  B N27 Z/2 B         51
415  4 15          MLC   TAPEC,NLINK&X1                                         7  2490  M 811 Z|9           51
416  4 16   INCRX1 MA    @I9I@,X1                                               7  2497  # R63 089           51
417  4 17          BCE   CONVOK,X1,G                                            8  2504  B N38 089 G         52
418  4 18          B     CONVLK                                                 4  2512  B M74               52
419  4 19   MOVEA  MLC   TAPEA,NLINK&X1                                         7  2516  M 809 Z|9           52
420  4 20          B     INCRX1                                                 4  2523  B M97               52
421  4 21   MOVEB  MLC   TAPEB,NLINK&X1                                         7  2527  M 810 Z|9           52
422  4 22          B     INCRX1                                                 4  2534  B M97               52
423  4 23   CONVOK BCE   COMPXA,ALINK-2,A                                       8  2538  B O10 Z10 A         53
424  4 24          BCE   COMPXB,ALINK-2,B                                       8  2546  B O26 Z10 B         53
425  4 25          C     NSTRGC,@0001@      IS ONE STRING ON PRI. INPUT UNIT    7  2554  C 823 R67           53
426  4 26          BE    X2ISZ                                                  5  2561  B O38 S             53
427  4 27          B     LINKX1                                                 4  2566  B N70               53
428  4 28   LINKX1 MLC   LOAR1,X1           INIT INDEX REGISTERS                7  2570  M 846 089           53
429  4 29   LINKX2 MLC   LOAR2,X2                                               7  2577  M 849 094           54
430  4 30          MLC   LOFR3,X3                                               7  2584  M R48 099           54
431  4 31          MLC   @N@,LINKX2                                             7  2591  M R68 N77           54
432  4 32          B     RDTUX1             READ PRIMARY INPUT                  4  2598  B S60               54
433  4 33          B     RDTUX2             READ SECONDARY INPUT                4  2602  B U68               54
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SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

434  4 34          B     MNCOMP                                                      4  2606  B 865                54
435  4 35   COMPXA C     NSTRGA,@0001@                                               7  2610  C 815 R67            55
436  4 36          BE    X2ISZ                                                       5  2617  B O38 S              55
437  4 37          B     LINKX1                                                      4  2622  B N70                55
438  4 38   COMPXB C     NSTRGB,@0001@                                               7  2626  C 819 R67            55
439  4 39          BU    LINKX1                                                      5  2633  B N70 /              55
440  4 40   *                       THIS ROUTINE CHECKS THE NUMBER OF STRINGS
441  4 41   *                       ON THE SECONDARY INPUT UNIT.  IF EQUAL TO 0
442  4 42   *                       MERGING IS COMPLETED.  IF EQUAL TO ONE,
443  4 43   *                       THE FINAL MERGE PASS IS ABOUT TO BEGIN
444  4 44   *                       AND THE DEPADDING INSTRUCTIONS ARE
445  4 45   *                       INITIALIZED TO ELIMINATE THE PAD RECORDS.
446  4 46   X2ISZ  BCE   COMPZA,ALINK-1,A                                            8  2638  B O82 Z11 A          55
447  4 47          BCE   COMPZB,ALINK-1,B                                            8  2646  B P10 Z11 B          56
448  4 48          C     NSTRGC,@0000@      ARE NO STRINGS ON SEC. INPUT             7  2654  C 823 R45            56
449  4 49          BE    X1ISOU                                                      5  2661  B P81 S              56
450  4 50          C     NSTRGC,@0001@      IS ONE STRING                            7  2666  C 823 R67            56
451  4 51          BE    DRPPAD                                                      5  2673  B P38 S              56
452  4 52          B     LINKX1                                                      4  2678  B N70                56
453  4 53   COMPZA C     NSTRGA,@0000@                                               7  2682  C 815 R45            57
454  4 54          BE    X1ISOU                                                      5  2689  B P81 S              57
455  4 55          C     NSTRGA,@0001@                                               7  2694  C 815 R67            57
456  4 56          BE    DRPPAD                                                      5  2701  B P38 S              57
457  4 57          B     LINKX1                                                      4  2706  B N70                57
458  4 58   COMPZB C     NSTRGB,@0000@                                               7  2710  C 819 R45            57
459  4 59          BE    X1ISOU                                                      5  2717  B P81 S              58
460  4 60          C     NSTRGB,@0001@                                               7  2722  C 819 R67            58
461  4 61          BE    DRPPAD                                                      5  2729  B P38 S              58
462  4 62          B     LINKX1                                                      4  2734  B N70                58
463  4 63   DRPPAD MLC   @B@,PADCK1         INIT PAD DELETE INSTRUCTIONS             7  2738  M R69 /96            58
464  4 64          MLC   @B@,PADCK2                                                  7  2745  M R69 |57            58
465  4 65   LODGMD MLCWA 0,0                LOAD GM TO SINGLE REC OUTPUT             7  2752  L 000 000            59
466  4 66          MLC   @N@,BFULL2         NOP X3 INDEXING TO PREVENT               7  2759  M R68 |79            59
467  4 67          MLC   @N@,BFULL1                   BLOCKING OF OUTPUT             7  2766  M R68 S18            59
468  4 68          SW    SWDEBK                                                      4  2773  , Z13                59
469  4 69          B     LINKX1                                                      4  2777  B N70                59
470  4 70   X1ISOU RWD   2                  MERGING IS COMPLETED - SET UP FOR        5  2781  U %U2 R              59
471  4 71          RWD   3                       DEBLOCKING                          5  2786  U %U3 R              59
472  4 72          RWD   4                                                           5  2791  U %U4 R              60
473  4 73          SW    SWR2NO             PROHIBIT READING FROM SECONDARY          4  2796  , Y37                60
474  4 74          BW    COPY,SWDEBK        HAS DEBLOCKING BEEN DONE                 8  2800  V X11 Z13 1          60
475  4 75          B     DRPPAD             GO TO DROP PAD RECORDS                   4  2808  B P38                60
476  4 76   LASTIO MLNS  NLINK,IOCONL                                                7  2812  D Z09 Q23            60
477  4 77          B     SYSIO                                                       4  2819  B 500                60
478  4 78   IOCONL DCW   #1                                                          1  2823                       60
479  4 79          DC    #3                                                          3  2826                       61
480  4 80          DC    @W@                                                         1  2827                       61
481  4 81          BEF   SHRTP1                                                      5  2828  B Y38 K              61
482  4 82   BLKKEY MLC   BLANKS#20,LSTKEY                                            7  2833  M R89 ?18            61
483  4 83          MLC   BLANKS,KEYX1                                                7  2840  M R89 Z67            61
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SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD

484  4 84          MLC   BLANKS,KEYX2                                            7  2847  M R89 Z94           61
485  4 85          B     PRTMX3                                                  4  2854  B X88               62
486  4 86   *                                    AT HIS POINT THE INPUT XR S AND
487  4 87   *                                    I/O AREAS ARE INTERCHANGED TO
488  4 88   *                                    ALLOW PICKING UP OF THE PARTIAL
489  4 89   *                                    BLOCK BROUGHT IN FROM THE PRI.
490  4 90   RESETE MA    NRECLG,X1                                               7  2858  # 808 089           62
491  4 91          MLC   X1,X2                                                   7  2865  M 089 094           62
492  4 92          MA    BLKLNG#3,X2                                             7  2872  # R92 094           62
493  4 93          MA    @001@,X2                                                7  2879  # R95 094           62
494  4 94   SHFTAR MLC   0,0                SHIFT AREA 1 TO AREA 2               7  2886  M 000 000           62
495  4 95          MLC   ALINK,OLINK#3      CREATE NEW LINK                      7  2893  M Z12 R98           63
496  4 96          MLC   OLINK-1,ALINK                                           7  2900  M R97 Z12           63
497  4 97          MLC   OLINK,ALINK-2                                           7  2907  M R98 Z10           63
498  4 98          B     LNKRET                                                  4  2914  B M67               63
499  4 99   MVSQA3 MLC   SEQX3,NSTRGA                                            7  2918  M Z41 815           63
500  5 00          B     RESETD                                                  4  2925  B K51               63
501  5 01   MVSQB3 MLC   SEQX3,NSTRGB                                            7  2929  M Z41 819           64
502  5 02          B     RESETD                                                  4  2936  B K51               64
503  5 03          LTORG *&1                                                              2941
                   DCW   @ @                                                     1  2941              LIT     65
                         @0000@                                                  4  2945              LIT     65
       382  LOFR3        #03                                                     3  2948              AREA    65
                         @9@                                                     1  2949              LIT     65
                         @005@                                                   3  2952              LIT     65
                         @*@                                                     1  2953              LIT     65
                         @1@                                                     1  2954              LIT     65
       403  WMRCCT       #03                                                     3  2957              AREA    66
                         @000@                                                   3  2960              LIT     66
                         @I9I@                                                   3  2963              LIT     66
                         @0001@                                                  4  2967              LIT     66
                         @N@                                                     1  2968              LIT     66
                         @B@                                                     1  2969              LIT     66
       482  BLANKS       #20                                                    20  2989              AREA    66
       492  BLKLNG       #03                                                     3  2992              AREA    67
                         @001@                                                   3  2995              LIT     67
       495  OLINK        #03                                                     3  2998              AREA    67
504  5 04          DA    20X1                                                       2999   3018               70
505  5 05                1,1                                                        2999              FIELD   70
506  5 06   LSTKEY EQU   *                                                          3018
507  5 07          ORG   *&X00                                                            3100
508  5 08   *                                    COMPUTE PHASE 2 CONSTANTS
509  5 09   INCRBL MA    RECLNG,BLKLNG      COMPUTE BLOCK LENGTH                 7  3100  # 805 R92           74
510  5 10          A     @1@,COUNTR#3                                            7  3107  A E39 E42           74
511  5 11          C     COUNTR,BLKCT                                            7  3114  C E42 829           74
512  5 12          BU    INCRBL                                                  5  3121  B A00 /             74
513  5 13          MLC   &LSTKEY&1,HOAR1    COMPUTE H O OF AREA 1                7  3126  M E45 837           74
514  5 14          MLC   BLKLNG,GMAR1       COMPUTE GM ADDR. OF AREA 1           7  3133  M R92 855           75
515  5 15          MA    &LSTKEY&1,GMAR1                                         7  3140  # E48 855           75
516  5 16          MLC   GMAR1,LOAR1        COMPUTE L O OF AREA 1                7  3147  M 855 846           75
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

517  5 17          MA    @I9I@,LOAR1                                               7  3154  # E51 846             75
518  5 18          MLC   GMAR1,HOAR2        COMPUTE H O OF AREA 2                  7  3161  M 855 840             75
519  5 19          MA    @001@,HOAR2                                               7  3168  # E54 840             76
520  5 20          MLC   GMAR1,LOAR2                                               7  3175  M 855 849             76
521  5 21          MA    BLKLNG,LOAR2                                              7  3182  # R92 849             76
522  5 22          MLC   LOAR2,GMAR2                                               7  3189  M 849 858             76
523  5 23          MA    @001@,GMAR2                                               7  3196  # E54 858             76
524  5 24          MLC   GMAR2,HOAR3                                               7  3203  M 858 843             77
525  5 25          MA    @001@,HOAR3                                               7  3210  # E54 843             77
526  5 26          MLC   GMAR2,LOAR3                                               7  3217  M 858 852             77
527  5 27          MA    BLKLNG,LOAR3                                              7  3224  # R92 852             77
528  5 28          MLC   LOAR3,GMAR3                                               7  3231  M 852 861             77
529  5 29          MA    @001@,GMAR3                                               7  3238  # E54 861             78
530  5 30          MLC   KEYFAC,HOKEYF      COMPUTE FACTOR TO BE ADDED TO L O      7  3245  M 802 864             78
531  5 31   DECHOK A     @1@,HOKYCT#2            OF REC. TO GIVE H O OF KEY.       7  3252  A E39 E56             78
532  5 32          C     HOKYCT,KEYLNG                                             7  3259  C E56 681             78
533  5 33          BE    ENDCWK                                                    5  3266  B B82 S               78
534  5 34          MA    @I9I@,HOKEYF                                              7  3271  # E51 864             79
535  5 35          B     DECHOK                                                    4  3278  B B52                 79
536  5 36   ENDCWK MLC   HOAR3,SWOTAR&3     INIT. PHASE 2 INSTRUCTIONS             7  3282  M 843 M05             79
537  5 37          MLC   LOAR1,SHFTAR&3                                            7  3289  M 846 Q89             79
538  5 38          MLC   LOAR2,SHFTAR&6                                            7  3296  M 849 Q92             79
539  5 39          SW    KEYFAC&1                                                  4  3303  , 803                 79
540  5 40          MLC   GMAR1,SETGM1&6                                            7  3307  M 855 M52             80
541  5 41          MLC   GMAR2,SETGM2&6                                            7  3314  M 858 M59             80
542  5 42          MLC   GMAR3,SETGM3&6                                            7  3321  M 861 M66             80
543  5 43          MLC   HOAR1,IOCONJ&3                                            7  3328  M 837 S90             80
544  5 44          MLC   HOAR2,IOCONI&3                                            7  3335  M 840 U98             80
545  5 45          MLC   HOAR3,IOCONF&3                                            7  3342  M 843 W96             81
546  5 46          MLC   HOAR3,IOCONL&3                                            7  3349  M 843 Q26             81
547  5 47          MLC   GMAR3,LODGMD&3                                            7  3356  M 861 P55             81
548  5 48          MLC   HOAR3,LODGMD&6                                            7  3363  M 843 P58             81
549  5 49          MA    RECLNG,LODGMD&6                                           7  3370  # 805 P58             81
550  5 50          MLC   HOAR3,LOFR3        COMPUTE L O OF FIRST BUCKET IN A3      7  3377  M 843 R48             82
551  5 51          MA    @I9I@,LOFR3                                               7  3384  # E51 R48             82
552  5 52          MLC   LOFR3,LOFRK3                                              7  3391  M R48 Z44             82
553  5 53          MA    RECLNG,LOFR3                                              7  3398  # 805 R48             82
554  5 54          MLC   HOAR1,LOFR1                                               7  3405  M 837 Z47             82
555  5 55          MA    RECLNG,LOFR1                                              7  3412  # 805 Z47             83
556  5 56          MA    @I9I@,LOFR1                                               7  3419  # E51 Z47             83
557  5 57          MLC   HOAR2,LOFR2                                               7  3426  M 840 Z74             83
558  5 58          MA    @I9I@,LOFR2                                               7  3433  # E51 Z74             83
559  5 59          MA    RECLNG,LOFR2                                              7  3440  # 805 Z74             83
560  5 60          MA    HOAR3,MARKCW&3     INIT ANAL TRUNCATE CLEAR WM            7  3447  # 843 X01             84
561  5 61          MLC   @N@,PADCK1         DISABLE PAD DELETE                     7  3454  M E57 /96             84
562  5 62          MLC   @N@,PADCK2                                                7  3461  M E57 |57             84
563  5 63   *                     THIS ROUTINE DETERMINES WHICH UNITS ARE TO
564  5 64   *                     BE THE PRIMARY INPUT, THE SECONDARY INPUT
565  5 65   *                     AND THE OUTPUT.  THEY ARE CODED AS THE
566  5 66   *                     HIGH ORDER, CENTER, AND LOW ORDER POSITIONS
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SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD

567  5 67   *                  RESPECTIVELY, OF THE LINKAGE.THE CHARACTERS
568  5 68   *                  IN THE LINKAGE , A B AND C, REPRESENT THE
569  5 69   *                  INITIAL UNIT SET UP.  A IS THE INPUT UNIT,
570  5 70   *                  B IS THE OUTPUT UNIT UNLESS THE OUTPUT
571  5 71   *                  UNIT IS THE SAME AS THE INPUT UNIT, AND C
572  5 72   *                  IS THE REMAINING UNIT..
573  5 73          C     NSTRGB,NSTRGC                                           7  3468  C 819 823           84
574  5 74          BH    CBA                                                     5  3475  B D91 U             84
575  5 75          MLC   @BCA@,ALINK                                             7  3480  M E60 Z12           85
576  5 76          B     LNKDON                                                  4  3487  B D98               85
577  5 77   CBA    MLC   @CBA@,ALINK                                             7  3491  M E63 Z12           85
578  5 78   LNKDON MLC   NEXTID,NXTLNK      INIT. CALL FOR NEXT PROGRAM          7  3498  M 686 X76           85
579  5 79   A1LNG  A     @1@,TSTLNG#2       CLEAR WM S IN KEY HOLD AREA TO       7  3505  A E39 E65           85
580  5 80          C     TSTLNG,KEYLNG           ACCOMODATE THE KEY LENGTH        7  3512  C E65 681           85
581  5 81          BE    CLROVL                                                  5  3519  B L86 S             86
582  5 82   CWLKEY CW    LSTKEY                                                  4  3524  ) ?18               86
583  5 83          MA    @I9I@,CWLKEY&3                                          7  3528  # E51 E27           86
584  5 84          B     A1LNG                                                   4  3535  B E05               86
                   DCW   @1@                                                     1  3539            LIT      86
       510  COUNTR       #03                                                     3  3542            AREA     86
       513               &LSTKEY&1                                               3  3545  ?19       ADCON    86
       515               &LSTKEY&1                                               3  3548  ?19       ADCON    87
                         @I9I@                                                   3  3551            LIT      87
                         @001@                                                   3  3554            LIT      87
       531  HOKYCT       #02                                                     2  3556            AREA     87
                         @N@                                                     1  3557            LIT      87
                         @BCA@                                                   3  3560            LIT      87
                         @CBA@                                                   3  3563            LIT      87
       579  TSTLNG       #02                                                     2  3565            AREA     88
585  5 85          END   INCRBL                                                         / A00 080           89
579  5 79   A1LNG  A     @1@,TSTLNG#2       CLEAR WM S IN KEY HOLD AREA TO       7  3505  A E39 E65           85          *****
580  5 80          C     TSTLNG,KEYLNG           ACCOMODATE THE KEY LENGTH        7  3512  C E65 681           85
581  5 81          BE    CLROVL                                                  5  3519  B L86 S             86
582  5 82   CWLKEY CW    LSTKEY                                                  4  3524  ) ?18               86
583  5 83          MA    @I9I@,CWLKEY&3                                          7  3528  # E51 E27           86
584  5 84          B     A1LNG                                                   4  3535  B E05               86
                   DCW   @1@                                                     1  3539            LIT      86
       510  COUNTR       #03                                                     3  3542            AREA     86
       513               &LSTKEY&1                                               3  3545  ?19       ADCON    86
       515               &LSTKEY&1                                               3  3548  ?19       ADCON    87
                         @I9I@                                                   3  3551            LIT      87
                         @001@                                                   3  3554            LIT      87
       531  HOKYCT       #02                                                     2  3556            AREA     87
```

```
CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                                         1             0SYSR
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?                      2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039              ,0010011040                      3

                          SYSTEM READ ROUTINE                                        0SYSR               PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101  1 01   000    JOB   SYSTEM READ ROUTINE
 102  1 02          CTL   440
 103  1 03   COR1   EQU   1                                                           0001
 104  1 04   SWOVFL EQU   84                                                          0084
 105  1 05   X3     EQU   99                                                          0099
 106  1 06   COR101 EQU   101                                                         0101
 107  1 07   HDRARA EQU   181                                                         0181
 108  1 08   PAGECT EQU   199                                                         0199
 109  1 09   COR201 EQU   201                                                         0201
 110  1 10   COR400 EQU   400                                                         0400
 111  1 11   COR500 EQU   500                                                         0500
 112  1 12   COR704 EQU   704                                                         0704
 113  1 13   COR797 EQU   797                                                         0797
 114  1 14   COR800 EQU   800                                                         0800
 115  1 15   CR7999 EQU   7999                                                        7999
 116  1 16   *                                 THIS PROGRAM CONTAINS THREE
 117  1 17   *                                 SEGMENTS WHICH ARE THE SYSTEM
 118  1 18   *                                 LINKAGE, THE GENERALIZED I/O
 119  1 19   *                                 ROUTINES AND THE CARD BUILD.
 120  1 20   *
 121  1 21          ORG   COR400             SYSTEM LINKAGE ROUTINE                          0400
 122  1 22   *
 123  1 23   SYSLNK SBR   TEST&6             SYSTEM CALL ENTRY POINT               4  0400  H 444                4
 124  1 24          MA    FOUR,TEST&6        INIT. MOVE FOR LINK SAVE              7  0404  # 498 444            4
 125  1 25   READHD MLCWA GM2,HDRARA&14      SET GMWM FOR I/O                      7  0411  L 499 195            4
 126  1 26          MLC   LOADOP,IO          CHANGE I/O MODE TO LOAD               7  0418  M 511 547            4
 127  1 27          B     SYSIO              TRANSFER TO TAPE I/O ROUTINE          4  0425  B 500                4
 128  1 28          DCW   @1@                     TO READ HEADER                   1  0429                       4
 129  1 29          DC    &HDRARA                                                  3  0432  181                  4
 130  1 30          DC    @R@                                                      1  0433                       4
 131  1 31          SW    HDRARA&3                                                 4  0434  , 184                4
 132  1 32   TEST   C     HDRARA&13,0        COMPARE HEADER TO CALL LINK           7  0438  C 194 000            5
 133  1 33          BEF   H7                                                       5  0445  B 489 K              5
 134  1 34          BU    READHD             GO TO READ AGAIN IF UNEQUAL           5  0450  B 411 /              5
 135  1 35   MOVEOP MLC   HDRARA&5,EXECUT&3  IF EQUAL INIT. EXECUTE                7  0455  M 186 488            5
 136  1 36          MLC   HDRARA&2,IOCON4-1       AND PROGRAM READ I/O             7  0462  M 183 476            5
 137  1 37          B     SYSIO              READ PROGRAM FROM MASTER TAPE         4  0469  B 500                5
 138  1 38   IOCON4 DCW   @1000R@                                                  5  0477                       6
 139  1 39   SETMOV MLC   MOVEOP,IO          CHANGE MODE OF I/O BACK TO MOVE       7  0478  M 455 547            6
 140  1 40   EXECUT B     0                  EXECUTE PROGRAM JUST LOADED           4  0485  B 000                6
 141  1 41   H7     H                                                              1  0489  .                    6
 142  1 42   SEVEN  DC    @7@                SYSTEM ERROR - PROGRAM NOT FOUND      1  0490                       6
 143  1 43          B     H7                                                       4  0491  B 489                6
 144  1 44   IOERCT DCW   #1                 TAPE I/O ERROR COUNTER                1  0495                       6
 145  1 45   FOUR   DCW   @004@                                                    3  0498                       6
 146  1 46   GM2    DC    @}@                GROUP MARK                            1  0499                       7
 147  1 47   ZERO   EQU   FOUR-2                                                      0496
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

148  1 48          LTORG *                  ADDRESS GENERATED AT RIGHT MUST                    0500
149  1 49   *                                  NOT EXCEED 500 OR IT WILL BE
150  1 50   *                                      OVERLAYED BY THE FOLLOWING
151  1 51   *                                      ROUTINE.
152  1 52          ORG   COR500                                                                0500
153  1 53   *
154  1 54   *                                 GENERALIZED I/O ROUTINES
155  1 55   *
156  1 56   *                                 GENERALIZED TAPE I/O ROUTINE
157  1 57   SYSIO  SBR   BREG               TAPE I/O ENTRY POINT                   4  0500  H 652                7
158  1 58          MLC   X3,X3HOLD          SAVE X3                                7  0504  M 099 649            7
159  1 59   LOADOP MLCWA BREG,X3                                                  7  0511  L 652 099            7
160  1 60          MLC   4&X3,IO&7          SAVE I/O LINKAGE                       7  0518  M 0?4 554            7
161  1 61   REENTR MLC   ZERO,IOERCT        ZERO ERROR COUNT                       7  0525  M 496 495            8
162  1 62          BCE   IO,IO&7,R          IS I/O A READ                          8  0532  B 547 554 R          8
163  1 63          MLC   SEVEN,IOERCT       IF A WRITE PUT 7 IN ERROR COUNT        7  0540  M 490 495            8
164  1 64   IO     RT    1,0                PERFORM I/O                            8  0547  M %U1 000 R          8
165  1 65          SBR   INGM               SAVE ADDR. OF I/O GM &1                4  0555  H 799                8
166  1 66          MA    I9I,INGM           DECREMENT BY 1 SO EQUALS GM ADDR.      7  0559  # 655 799            9
167  1 67          BER   IOERR                                                     5  0566  B 589 L              9
168  1 68          SBR   EXIT&3,5&X3        INIT. RETURN TO USER                   7  0571  H 588 0?5            9
169  1 69          MLC   X3HOLD,X3          RESTORE USERS X3                       7  0578  M 649 099            9
170  1 70   EXIT   B     0                  RETURN TO USER                         4  0585  B 000                9
171  1 71   *                                 TAPE ERROR ROUTINE
172  1 72   IOERR  MLC   0&X3,BSP&3         INIT BACKSPACE COMMAND                 7  0589  M 0?0 599            9
173  1 73   BSP    BSP   0                                                         5  0596  U %U0 B             10
174  1 74          A     ONE,IOERCT         INCREMENT ERROR COUNT                  7  0601  A 626 495           10
175  1 75          BAV   H2                 IS COUNT 10                            5  0608  B 617 Z             10
176  1 76          B     IO                 RE-EXECUTE I/O IF NOT 10               4  0613  B 547               10
177  1 77   H2     BCE   ERRSKP,IO&7,W      IF 10 AND I/O WAS WRITE                8  0617  B 631 554 W         10
178  1 78          H                            PRESS START TO RETRY 10 MORE       1  0625  .                   10
179  1 79   ONE    DC    @1@                                                       1  0626                      10
180  1 80          B     REENTR                                                    4  0627  B 525               10
181  1 81   ERRSKP MLC   0&X3,SKPTP&3       INIT SKIP COMMAND                      7  0631  M 0?0 641           11
182  1 82   SKPTP  SKP   0                                                         5  0638  U %U0 E             11
183  1 83          B     REENTR                                                    4  0643  B 525               11
184  1 84   X3HOLD DCW   #3                                                        3  0649                      11
185  1 85   BREG   DCW   #3                                                        3  0652                      11
186  1 86   I9I    DCW   @I9I@              COMPLEMENT OF 1                        3  0655                      11
187  1 87   *
188  1 88   *                                 UNIT RECORD I/O ROUTINES
189  1 89   *
190  1 90   LINECT DCW   @0?@               NUMBER OF LINES PRINTED                2  0657                      11
191  1 91   LINTOT DCW   @5G@               NUMBER OF LINES PER PAGE               2  0659                      12
192  1 92          SBR   CLEAR&3            MESSAGE ENTRY POINT                    4  0660  H 780               12
193  1 93          CC    1                  RESTORE CARRIAGE                       2  0664  F 1                 12
194  1 94          W                        WRITE MESSAGE                          1  0666  2                   12
195  1 95          CS                       CLEAR PRINT AREA                       1  0667  /                   12
196  1 96          CS                                                              1  0668  /                   12
197  1 97   MRET   B     EJENTR             RETURN TO USER THRU EJECT              4  0669  B 708               12
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

198  1 98   *                          LOCATIONS 675 TO 686 ARE RESERVED
199  1 99   *                               FOR SORT PARAMETERS
200  2 00          ORG   COR704                                                   0704
201  2 01   EJECT  SBR   CLEAR&3            PAGE EJECT ENTRY POINT             4  0704  H 780              13
202  2 02   EJENTR SW    SWOVFL             TURN ON OVERFLOW SWITCH            4  0708  , 084              13
203  2 03          A     READOP,PAGECT      ADD 1 TO PAGE COUNTER              7  0712  A 785 199          13
204  2 04          ZA    READOP,LINECT      RESTORE LINE COUNTER               7  0719  ? 785 657          13
205  2 05          MCS   PAGECT,COR201&98   PUT PAGE COUNTER TO PRINT          7  0726  Z 199 299          13
206  2 06          MLC   COR101&79,COR201&93  PUT HEADING INFO. TO PRINT       7  0733  M 180 294          13
207  2 07          CC    1                  EJECT THE PAGE                     2  0740  F 1                13
208  2 08          CCB   INCRLC,S           SKIP A LINE AFTER THE HEADING      5  0742  F 755 S            14
209  2 09          SBR   CLEAR&3            PRINT ENTRY POINT                  4  0747  H 780              14
210  2 10          CW    SWOVFL             TURN OFF OVERFLOW SWITCH           4  0751  ) 084              14
211  2 11   INCRLC A     READOP,LINECT      ADD 1 TO LINE COUNT                7  0755  A 785 657          14
212  2 12          W                                                           1  0762  2                  14
213  2 13          CS                       CLEAR PRINT AREA                   1  0763  /                  14
214  2 14          CS                                                          1  0764  /                  14
215  2 15          C     LINTOT,LINECT      IS LINE COUNT MAX.                 7  0765  C 659 657          15
216  2 16          BE    EJENTR                                                5  0772  B 708 S            15
217  2 17   CLEAR  B     0                  RETURN TO USER                     4  0777  B 000              15
218  2 18   READ   SBR   READOP&3           CARD READ ENTRY POINT              4  0781  H 788              15
219  2 19   READOP R     0                  READ AND RETURN TO USER            4  0785  1 000              15
220  2 20          SBR   PNCHOP&3           PUNCH ENTRY POINT                  4  0789  H 796              15
221  2 21   PNCHOP P     0                  PUNCH AND RETURN TO USER           4  0793  4 000              15
222  2 22          LTORG *                                                          0797
223  2 23          ORG   *    ADDRESS AT RIGHT MUST NOT EXCEED 797                  0797
224  2 24          ORG   COR797                                                     0797
225  2 25   INGM   DCW   #3                 CONTAINS ADDR. OF GM FOR LAST I/O  3  0799                     16
226  2 26   GM     DCW   @}@                                                   1  0800                     16
227  2 27   *
228  2 28   *                          CARD BUILD ROUTINE
229  2 29   *
230  2 30   *                          THIS ROUTINE IS EXECUTED ONLY
231  2 31   *                               WHEN THE SYSTEM TAPE IS
232  2 32   *                               BEING CREATED FROM THE DECK.
233  2 33   BUILD  CS    COR1&79                                               4  0801  / 080              16
234  2 34          MLCWA INTRTN,COR1&54     LOAD TAPE LOAD LINKAGE TO LOW      7  0805  L 975 055          16
235  2 35          CHAIN 10                      CORE.                                          MACRO
236                MLCWA                                                       1  0812  L           GEN    16
237                MLCWA                                                       1  0813  L           GEN    16
238                MLCWA                                                       1  0814  L           GEN    16
239                MLCWA                                                       1  0815  L           GEN    17
240                MLCWA                                                       1  0816  L           GEN    17
241                MLCWA                                                       1  0817  L           GEN    17
242                MLCWA                                                       1  0818  L           GEN    17
243                MLCWA                                                       1  0819  L           GEN    17
244                MLCWA                                                       1  0820  L           GEN    17
245                MLCWA                                                       1  0821  L           GEN    17
246  2 36          RWD   1                                                     5  0822  U %U1 R            18
247  2 37          MLC   LOADOP,IO          CHANGE MODE OF TAPE I/O TO LOAD    7  0827  M 511 547          18
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SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  2 38          MLC   @N@,SETMOV          CRIPPLE CHANGE BACK TO MOVE MODE      7  0834  M 976 478           18
249  2 39          MLCWA @0000@,PAGECT                                             7  0841  L 980 199           18
250  2 40          SW    COR101                                                    4  0848  , 101               18
251  2 41          MLC   @DOCUMENTATION AIDS SYSTEM CREATION RUN@,COR101&66        7  0852  M |18 167           18
252  2 42          MLC   @PAGE@,COR101&79                                          7  0859  M |22 180           19
253  2 43          B     EJECT                                                     4  0866  B 704               19
254  2 44          CS    COR101&71                                                 4  0870  / 172               19
255  2 45          SW    COR101                                                    4  0874  , 101               19
256  2 46          B     SYSIO               WRITE RESIDENT MONITOR ON TAPE        4  0878  B 500               19
257  2 47          DCW   @1@                                                       1  0882                      19
258  2 48          DC    &COR1                                                     3  0885   001                19
259  2 49          DC    @W@                                                       1  0886                      19
260  2 50          MLCWA GM,GM2                                                    7  0887  L 800 499           19
261  2 51          CW    GM                                                        4  0894  ) 800               20
262  2 52          MLC   @ @,GM                                                    7  0898  M |23 800           20
263  2 53          CS    COR1&79                                                   4  0905  / 080               20
264  2 54          SW    COR1                                                      4  0909  , 001               20
265  2 55          B     READ                READ FIRST CARD OF MAINT. PROG        4  0913  B 781               20
266  2 56          B     COR1                EXECUTE THAT CARD                     4  0917  B 001               20
267  2 57   *                                  TAPE LOAD LINKAGE
268  2 58   *                                       WHEN THE USER PRESSES TAPE
269  2 59   *                                       LOAD THIS ROUTINE COMES IN
270  2 60          CS    CR7999              CLEAR STORAGE FROM HIGH TO 799        4  0921  / I9Z               20
271  2 61          SBR   COR1&3                                                    4  0925  H 004               21
272  2 62          C     COR1&3,COR1&54                                            7  0929  C 004 055           21
273  2 63          BU    COR1                                                      5  0936  B 001 /             21
274  2 64          MLC   MOVEOP,IO           CHANGE I/O MODE TO MOVE               7  0941  M 455 547           21
275  2 65          MLC   MOVEOP,SETMOV       UN CRIPPLE I/O MODE CHANGE            7  0948  M 455 478           21
276  2 66          SW    GM2                                                       4  0955  , 499               21
277  2 67          BEF   44                                                        5  0959  B 044 K             21
278  2 68          B     SYSLNK              CALL PROGRAM SELECTOR                 4  0964  B 400               22
279  2 69          DCW   @1CONA@                                                   5  0972                      22
280  2 70   INTRTN DCW   &COR800-1                                                 3  0975   799                22
                   DCW   @N@                                                       1  0976             LIT      22
                         @0000@                                                    4  0980             LIT      22
       251               @DOCUMENTATION AIDS SYSTEM CREATION RUN@                 38  1018             LIT      23
                         @PAGE@                                                    4  1022             LIT      24
                         @ @                                                       1  1023             LIT      24
281  2 71          END   BUILD                                                          / 801 080           25
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269  2 59   *                                       LOAD THIS ROUTINE COMES IN                                                    *****
270  2 60          CS    CR7999              CLEAR STORAGE FROM HIGH TO 799        4  0921  / I9Z               20
271  2 61          SBR   COR1&3                                                    4  0925  H 004               21
272  2 62          C     COR1&3,COR1&54                                            7  0929  C 004 055           21
273  2 63          BU    COR1                                                      5  0936  B 001 /             21
274  2 64          MLC   MOVEOP,IO           CHANGE I/O MODE TO MOVE               7  0941  M 455 547           21
275  2 65          MLC   MOVEOP,SETMOV       UN CRIPPLE I/O MODE CHANGE            7  0948  M 455 478           21
276  2 66          SW    GM2                                                       4  0955  , 499               21
277  2 67          BEF   44                                                        5  0959  B 044 K             21
278  2 68          B     SYSLNK              CALL PROGRAM SELECTOR                 4  0964  B 400               22
279  2 69          DCW   @1CONA@                                                   5  0972                      22
280  2 70   INTRTN DCW   &COR800-1                                                 3  0975   799                22
                   DCW   @N@                                                       1  0976             LIT      22
                         @0000@                                                    4  0980             LIT      22
       251               @DOCUMENTATION AIDS SYSTEM CREATION RUN@                 38  1018             LIT      23
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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                          1             1CONA
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?       2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040        3

                          PROGRAM SELECTOR                                        1CONA              PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101  1 01   000    JOB   PROGRAM SELECTOR
 102  1 02          CTL   440
 103  1 025  *              VERSION 2  LEVEL 0   JULY 25,1965
 104  1 03          DC    @$ADD     @                                                9  0341                       4
 105  1 04          DC    &START                                                   3  0344  800                  4
 106  1 05          DC    &START                                                   3  0347  800                  4
 107  1 06          DC    &HICORE&1                                                3  0350  !40                  4
 108  1 07   COR1   EQU   1                                                           0001
 109  1 08   SWMACH EQU   82                  SWITCH FOR MACHINE CODE                 0082
 110  1 09   SWLANG EQU   83                  SWITCH FOR LANGUAGE CODE                0083
 111  1 10   X1     EQU   89                                                          0089
 112  1 11   X2     EQU   94                                                          0094
 113  1 12   X3     EQU   99                                                          0099
 114  1 13   COR101 EQU   101                                                         0101
 115  1 14   PAGECT EQU   199                                                         0199
 116  1 15   COR201 EQU   201                                                         0201
 117  1 16   SYSLNK EQU   400                                                         0400
 118  1 17   MESSG  EQU   660                                                         0660
 119  1 18   MRET   EQU   669                                                         0669
 120  1 19   EJECT  EQU   704                                                         0704
 121  1 20   WRITE  EQU   747                                                         0747
 122  1 21   READ   EQU   781                                                         0781
 123  1 22   COR800 EQU   800                                                         0800
 124  1 23   *
 125  1 24   *                                  THIS PROGRAM DETERMINES WHICH
 126  1 25   *                                       PROGRAM IS TO BE CALLED AND
 127  1 26   *                                       INITIATES THE CALL FOR IT.
 128  1 27   *
 129  1 28          ORG   COR800                                                             0800
 130  1 29   START  C     COR1&5,@$DAJOB@                                          7  0800  C 006 X29            5
 131  1 30          BE    AREAOK                                                   5  0807  B 825 S              5
 132  1 31          CS    COR1&79             CLEAR READ AREA                      4  0812  / 080                5
 133  1 32          BLC   ENDJOB                                                   5  0816  B /24 A              5
 134  1 33          B     READ                READ FIRST CARD                      4  0821  B 781                5
 135  1 34   AREAOK CS    COR101&79           CLEAR PUNCH AREA                     4  0825  / 180                5
 136  1 35          CS    COR201&131          CLEAR PRINT AREA                     4  0829  / 332                5
 137  1 36          CS                                                             1  0833  /                    6
 138  1 37          SW    COR101                                                   4  0834  , 101                6
 139  1 38          MLCWA @      @,X1-3                                            7  0838  L X35 086            6
 140  1 39          CW    COR1&80,SWTEN                                            7  0845  ) 081 /63            6
 141  1 40          MLC   @DOCUMENTATION AIDS SYSTEM RUN   V 2, L 0@,COR101&60     7  0852  M X75 161            6
 142  1 41          MLC   @PAGE@,COR101&79                                         7  0859  M X79 180            6
 143  1 42          MLCWA @0000@,PAGECT                                            7  0866  L X83 199            7
 144  1 43          B     EJECT                                                    4  0873  B 704                7
 145  1 44          C     COR1&5,@$DAJOB@                                          7  0877  C 006 X89            7
 146  1 45          BU    NOJOB                                                    5  0884  B U57 /              7
 147  1 46   BYRETN SW    COR1                                                     4  0889  , 001                7
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

148  1 47          MLC   COR1&79,COR201&80                                           7  0893  M 080 281             7
149  1 48          B     WRITE              PRINT JOB CARD                           4  0900  B 747                 7
150  1 49          MLCWA @000@,X3           EXTRACT OPERANDS FROM $DAJOB CARD        7  0904  L X92 099             8
151  1 50          MLCWA @     @                                                     4  0911  L X97                 8
152  1 51          MLCWA @020  @                                                     4  0915  L Y02                 8
153  1 52          MLCWA @      @                                                    4  0919  L Y08                 8
154  1 53   COMACK BCE   OPEND,0&X1,,       SCAN FOR COMMA                           8  0923  B 961 0|0 ,           8
155  1 54   INCRX1 A     @I9I@,X1           DECR X1 BY 1                             7  0931  A Y11 089             8
156  1 55          C     X1,&COR1&9         IS X1 SET TO COL. 10                     7  0938  C 089 Y14             9
157  1 56          BU    COMACK                                                      5  0945  B 923 /               9
158  1 57          SW    SWTEN                                                       4  0950  , /63                 9
159  1 58          A     @I9I@,X1                                                    7  0954  A Y11 089             9
160  1 59   OPEND  SW    1&X1                                                        4  0961  , 0|1                 9
161  1 60          BW    OTHROP,SWNOID      IS THIS OPERAND NOT THE ID               8  0965  V |15 /62 1           9
162  1 61          SW    SWNOID                                                      4  0973  , /62                 9
163  1 62          CS    COR101&70                                                   4  0977  / 171                10
164  1 63          SW    COR101                                                      4  0981  , 101                10
165  1 64          MLC   COR1&72,COR101&72  SAVE PROG ID IN PUNCH AREA               7  0985  M 073 173            10
166  1 65   MOVBLK MLC   @ @,0&X1           BLANK LAST POS. OF LAST OPERAND          7  0992  M Y15 0|0            10
167  1 66          CW    1&X1               CLEAR WM IN LAST OPERAND                 4  0999  ) 0|1                10
168  1 67          BW    SECCD,SWTEN                                                 8  1003  V |53 /63 1          10
169  1 68          B     INCRX1                                                      4  1011  B 931                10
170  1 69   OTHROP MLC   &TABLE,X2          INIT. X2 WITH ADDRESS OF TABLE           7  1015  M Y18 094            11
171  1 70   LOOKUP C     0&X2,4&X1                                                   7  1022  C 0!0 0|4            11
172  1 71          BE    CODE               IS TABLE EQUAL TO OPERAND                5  1029  B /64 S              11
173  1 72          A     @I9D@,X2           SELECT NEXT TABLE ENTRY                  7  1034  A Y21 094            11
174  1 73          C     X2,&ENDTAB         IS END OF TABLE                          7  1041  C 094 Y24            11
175  1 74          BU    LOOKUP                                                      5  1048  B |22 /              11
176  1 75   SECCD  B     READ               IF $DAJOB INCORRECT CHECK FOR            4  1053  B 781                12
177  1 76          C     COR1&6,@$SYSTEM@        $SYSTEM IN NEXT CARD.               7  1057  C 007 Y31            12
178  1 77          BE    CALSYS                                                      5  1064  B V45 S              12
179  1 78          MLC   @LY - JOB TERMINATED@,COR201&56                             7  1069  M Y50 257            12
180  1 79          MLC   @$DAJOB CARD PUNCHED INCORRECT@                             4  1076  M Y79                12
181  1 80          MLC   @ERROR - @                                                  4  1080  M Y87                12
182  1 81          RWD   1                                                           5  1084  U %U1 R              12
183  1 82          B     WRITE              PRINT ERROR MESSAGE                      4  1089  B 747                13
184  1 83          B     START                                                       4  1093  B 800                13
185  1 84   SKPAGN B     WRITE                                                       4  1097  B 747                13
186  1 85          A     @1@,SKPCTR#2       SKIP TO CENTER OF PAGE                   7  1101  A Y88 Y90            13
187  1 86          C     SKPCTR,@30@                                                 7  1108  C Y90 Y92            13
188  1 87          BU    SKPAGN                                                      5  1115  B |97 /              13
189  1 88          B     H9                                                          4  1120  B /51                13
190  1 89   ENDJOB MLC   @END OF RUN@,COR201&72                                      7  1124  M Z02 273            14
191  1 90          MLC   &MRET&3,MESSG&3                                             7  1131  M Z05 663            14
192  1 91          B     MESSG                                                       4  1138  B 660                14
193  1 92          RWD   1                                                           5  1142  U %U1 R              14
194  1 93          B     SKPAGN                                                      4  1147  B |97                14
195  1 94   H9     H     999,999                                                     7  1151  . 999 999            14
196  1 95          B     H9                                                          4  1158  B /51                14
197  1 96   SWNOID DC    #1                 ON IF ID ALREADY EXTRACTED               1  1162                       15
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SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

198  1 97   SWTEN  DC    #1                  ON IF SCANNED TO COL. 10                    1  1163                     15
199  1 98   CODE   SBR   CODEB&3,0&X2        SAVE X2                                     7  1164  H S10 0!0          15
200  1 99          MA    @I9E@,CODEB&3       DECR BY 5                                   7  1171  # Z08 S10          15
201  2 00          SBR   CODEA&3,0&X2        SAVE X2                                     7  1178  H /99 0!0          15
202  2 01          MA    @I9F@,CODEA&3       DECR BY 4                                   7  1185  # Z11 /99          15
203  2 02          SW    CODEB&6                                                         4  1192  , S13              16
204  2 03   CODEA  MLC   0,CODEB&6           MOVE SWITCH ADDRESS TO CODE MOVE            7  1196  M 000 S13          16
205  2 04          CW    CODEB&6                                                         4  1203  ) S13              16
206  2 05   CODEB  MLC   0,COR1&79           MOVE CODE TO SWITCH                         7  1207  M 000 080          16
207  2 06          BW    CODEOK,SWTEN        ANY MORE OPERANDS                           8  1214  V S26 /63 1        16
208  2 07          B     MOVBLK                                                          4  1222  B 992              16
209  2 08   CODEOK BCE   SECCD,SWMACH,                                                   8  1226  B |53 082          17
210  2 09          BCE   SECCD,SWLANG,                                                   8  1234  B |53 083          17
211  2 10          BCE   CK0,SWLANG,0                                                    8  1242  B T10 083 0        17
212  2 11          BCE   CK1,SWLANG,1        CHECK VALIDITY OF MACHINE AND               8  1250  B T22 083 1        17
213  2 12          BCE   CK2,SWLANG,2             LANGUAGE COMBINATION.                  8  1258  B T42 083 2        18
214  2 13          BCE   CK3,SWLANG,3                                                    8  1266  B T58 083 3        18
215  2 14          BCE   CK4,SWLANG,4                                                    8  1274  B T94 083 4        18
216  2 15          BCE   CK5,SWLANG,5                                                    8  1282  B U02 083 5        18
217  2 16          BCE   COMBOK,SWLANG,6                                                 8  1290  B U97 083 6        19
218  2 17          BCE   CK0,SWLANG,7                                                    8  1298  B T10 083 7        19
219  2 18          B     SECCD                                                           4  1306  B |53              19
220  2 19   CK0    BCE   COMBOK,SWMACH,0                                                 8  1310  B U97 082 0        19
221  2 20          B     SECCD                                                           4  1318  B |53              19
222  2 21   CK1    BCE   COMBOK,SWMACH,1                                                 8  1322  B U97 082 1        20
223  2 22          BCE   COMBOK,SWMACH,4                                                 8  1330  B U97 082 4        20
224  2 23          B     VALERR                                                          4  1338  B U10              20
225  2 24   CK2    BCE   COMBOK,SWMACH,5                                                 8  1342  B U97 082 5        20
226  2 25          BCE   COMBOK,SWMACH,6                                                 8  1350  B U97 082 6        20
227  2 26   CK3    BCE   COMBOK,SWMACH,1                                                 8  1358  B U97 082 1        21
228  2 27          BCE   COMBOK,SWMACH,2                                                 8  1366  B U97 082 2        21
229  2 28          BCE   COMBOK,SWMACH,3                                                 8  1374  B U97 082 3        21
230  2 29          BCE   COMBOK,SWMACH,7                                                 8  1382  B U97 082 7        21
231  2 30          B     VALERR                                                          4  1390  B U10              21
232  2 31   CK4    BCE   COMBOK,SWMACH,8                                                 8  1394  B U97 082 8        22
233  2 32   CK5    BCE   COMBOK,SWMACH,9                                                 8  1402  B U97 082 9        22
234  2 33   VALERR B     READ                IS SECOND CARD $SYSTEM                      4  1410  B 781              22
235  2 34          C     COR1&6,@$SYSTEM@                                                7  1414  C 007 Z18          22
236  2 35          BE    CALSYS                                                          5  1421  B V45 S            22
237  2 36          MLC   @ANGUAGE COMBO. INVALID@,COR201&80                              7  1426  M Z40 281          22
238  2 37          MLC   @ERROR - MACHINE AND L@                                         4  1433  M Z61              23
239  2 38          MLC   @- JOB TERMINATED@,COR201&97                                    7  1437  M Z77 298          23
240  2 39          RWD   1                                                               5  1444  U %U1 R            23
241  2 40          B     WRITE                                                           4  1449  B 747              23
242  2 41          B     START                                                           4  1453  B 800              23
243  2 42   NOJOB  MLC   @BYPASSING TO $DAJOB CARD@,COR201&24                            7  1457  M !01 225          23
244  2 43          B     WRITE                                                           4  1464  B 747              23
245  2 44          B     EJECT                                                           4  1468  B 704              24
246  2 45   READNO BLC   ENDJOB                                                          5  1472  B /24 A            24
247  2 46          B     READ                BYPASS CARDS TO $DAJOB                      4  1477  B 781              24
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SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  2 47          C     COR1&5,@$DAJOB@                                                7  1481  C 006 !07             24
249  2 48          BE    BYRETN                                                         5  1488  B 889 S               24
250  2 49          B     READNO                                                         4  1493  B U72                 24
251  2 50   COMBOK B     READ               READ SECOND CARD                            4  1497  B 781                 24
252  2 51          CW    1&X1                                                           4  1501  ) 0|1                 25
253  2 52          SW    COR101,COR201                                                  7  1505  , 101 201             25
254  2 53   *                                 THE USER MAY HAVE THE SYSTEM CALL
255  2 54   *                                      A PROGRAM HE HAS ADDED TO
256  2 55   *                                      THE SYSTEM BY INSERTING AT
257  2 56   *                                      THIS POINT A COMPARE FOR
258  2 57   *                                      THE ID TO BE FOUND IN THE
259  2 58   *                                      USERS CONTROL CARD AND A
260  2 59   *                                      BRANCH TO A CALL FOR THAT
261  2 60   *                                      PROGRAM.
262  2 61          C     COR1&6,@$VERIFY@                                               7  1512  C 007 !14             25
263  2 62          BE    CALVER                                                         5  1519  B V69 S               25
264  2 63          C     COR1&6,@$SYSTEM@                                               7  1524  C 007 !21             25
265  2 64          BE    CALSYS                                                         5  1531  B V45 S               25
266  2 65          B     SYSLNK             CALL UPDATE PROGRAM                         4  1536  B 400                 25
267  2 66          DCW   @2UPDA@                                                        5  1544                        26
268  2 67   CALSYS MLC   @SYSTEM UPDATE RUN@,COR201&72                                  7  1545  M !38 273             26
269  2 68          B     WRITE                                                          4  1552  B 747                 26
270  2 69          B     WRITE                                                          4  1556  B 747                 26
271  2 70          B     SYSLNK             CALL SYSTEM MAINT. PROGRAM                  4  1560  B 400                 26
272  2 71          DCW   @6CONA@                                                        5  1568                        26
273  2 72   CALVER B     SYSLNK             CALL VERIFY PROGRAM                         4  1569  B 400                 26
274  2 73          DCW   @5VERA@                                                        5  1577                        27
275  2 74   *                                 EACH TABLE ENTRY IS COMPOSED OF
276  2 75   *                                      THREE PARTS.  THE CODE, THE
277  2 76   *                                      LOW ORDER POS. OF THE ADDR.
278  2 77   *                                      OF THE SWITCH INTO WHICH THE
279  2 78   *                                      CODE WILL BE MOVED , AND THE
280  2 79   *                                      CORRESPONDING OPERAND.
281  2 80   ENDTAB DCW   #1                                                             1  1578                        27
282  2 81                @927094@                                                       6  1584                        27
283  2 82                @927090@                                                       6  1590                        27
284  2 83                @827044@                                                       6  1596                        27
285  2 84                @827040@                                                       6  1602                        27
286  2 85                @727074@                                                       6  1608                        27
287  2 86                @727072@                                                       6  1614                        28
288  2 87                @727070@                                                       6  1620                        28
289  2 88                @627080@                                                       6  1626                        28
290  2 89                @52705 @                                                       6  1632                        28
291  2 90                @421620@                                                       6  1638                        28
292  2 91                @327010@                                                       6  1644                        28
293  2 92                @321410@                                                       6  1650                        29
294  2 93                @221440@                                                       6  1656                        29
295  2 94                @121460@                                                       6  1662                        29
296  2 95                @121401@                                                       6  1668                        29
297  2 96                @02360 @                                                       6  1674                        29
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

298  2 97                @73FAL @                                             6  1680                     29
299  2 98                @63SFL @                                             6  1686                     30
300  2 99                @53FAP @                                             6  1692                     30
301  3 00                @43MAP @                                             6  1698                     30
302  3 01                @33BASI@                                             6  1704                     30
303  3 02                @23AUTO@                                             6  1710                     30
304  3 03                @13SPS @                                             6  1716                     30
305  3 04  TABLE         @03BAL @                                             6  1722                     31
306  3 05         LTORG *&1                                                            1724
       130        DCW   @$DAJOB@                                              6  1729              LIT    32
       139              @      @                                              6  1735              LIT    32
       141              @DOCUMENTATION AIDS SYSTEM RUN   V 2, L 0@           40  1775              LIT    34
                        @PAGE@                                                4  1779              LIT    34
                        @0000@                                                4  1783              LIT    34
       145              @$DAJOB@                                              6  1789              LIT    34
                        @000@                                                 3  1792              LIT    34
       151              @     @                                               5  1797              LIT    35
       152              @020  @                                               5  1802              LIT    35
       153              @      @                                              6  1808              LIT    35
                        @I9I@                                                 3  1811              LIT    35
       156              &COR1&9                                               3  1814  010         ADCON  35
                        @ @                                                   1  1815              LIT    35
       170              &TABLE                                                3  1818  X22         ADCON  35
                        @I9D@                                                 3  1821              LIT    36
       174              &ENDTAB                                               3  1824  V78         ADCON  36
       177              @$SYSTEM@                                             7  1831              LIT    36
       179              @LY - JOB TERMINATED@                                19  1850              LIT    36
       180              @$DAJOB CARD PUNCHED INCORRECT@                      29  1879              LIT    37
       181              @ERROR - @                                            8  1887              LIT    37
                        @1@                                                   1  1888              LIT    37
       186  SKPCTR      #02                                                   2  1890              AREA   38
                        @30@                                                  2  1892              LIT    38
       190              @END OF RUN@                                         10  1902              LIT    38
       191              &MRET&3                                               3  1905  672         ADCON  38
                        @I9E@                                                 3  1908              LIT    38
                        @I9F@                                                 3  1911              LIT    38
       235              @$SYSTEM@                                             7  1918              LIT    38
       237              @ANGUAGE COMBO. INVALID@                             22  1940              LIT    39
       238              @ERROR - MACHINE AND L@                              21  1961              LIT    40
       239              @- JOB TERMINATED@                                   16  1977              LIT    40
       243              @BYPASSING TO $DAJOB CARD@                           24  2001              LIT    41
       248              @$DAJOB@                                              6  2007              LIT    41
       262              @$VERIFY@                                             7  2014              LIT    41
       264              @$SYSTEM@                                             7  2021              LIT    42
       268              @SYSTEM UPDATE RUN@                                  17  2038              LIT    42
307  3 06  HICORE DC    #1                                                    1  2039                     42
308  3 07         END   START                                                          / 800 080          43
                        @1@                                                   1  1888              LIT    37             *****
       186  SKPCTR      #02                                                   2  1890              AREA   38
                        @30@                                                  2  1892              LIT    38
       190              @END OF RUN@                                         10  1902              LIT    38
       191              &MRET&3                                               3  1905  672         ADCON  38
                        @I9E@                                                 3  1908              LIT    38
                        @I9F@                                                 3  1911              LIT    38
       235              @$SYSTEM@                                             7  1918              LIT    38
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```
CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                          1             2UPDA
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?       2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040        3

                          UPDATE VERSION 1 LEVEL 2  DA SYSTEM CONVERSION            2UPDA              PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    010  000    JOB   UPDATE VERSION 1 LEVEL 2  DA SYSTEM CONVERSION
 102    020         CTL   440
 103    025  *          VERSION 2  LEVEL 0   JULY 25,1965
 104    030         DCW   @$ADD     @         $ADD IN COL 1-9                   9  0341                      4
 105    050         DSA   START               STARTING ADDRESS                  3  0344  800                 4
 106    040         DSA   SYSIN               LOW CORE ADDRESS                  3  0347  800                 4
 107    060         DSA   HIGH                HIGH CORE ADDRESS                 3  0350  I2/                 4
 108    070         DCW   @   7-1-65@                                           9  0359                      4
 109    080         ORG   SYSIN                                                        0800
 110    090  *
 111    100  * START HOUSEKEEPING ROUTINE
 112    110  *
 113    120  START  SW    GM1,CARD&75        PREPARE TAPE OUTPUT AREA           7  0800  , H92 076           5
 114    130         MLC   UPDATE,PCH1&7      MOVE PROG ID TO HEADER             7  0807  M C12 108           5
 115    140         MLC   B56&4,SWUPDA       INITIALIZE TAPE OUP CTL WITH UNIT  7  0814  M S88 085           5
 116    150         RWD   UNIT2              REWIND                             5  0821  U %U2 R             5
 117    160         RWD   UNIT3              ALL                                5  0826  U %U3 R             5
 118    170         RWD   UNIT4              TAPES                              5  0831  U %U4 R             5
 119    180         B     PRINT                                                 4  0836  B 747               6
 120    190         BCE   SET,CODEB,4        IS THIS FAP OR                     8  0840  B 896 083 4         6
 121    200         BCE   SET,CODEB,5        MAP ASSEMBLY LANGUAGE              8  0848  B 896 083 5         6
 122    201         BCE   SET,MACH,0         LANGUAGE 360 TEST                  8  0856  B 896 082 0         6
 123    210         MLC   CARD5,CSEQ         NEITHER-INITIALIZE OUTPUT,TAPE2    7  0864  M B33 B59           6
 124    220         MLC   &SEQNOA,OUTSEQ     INPUT,AND TAPE4 INPUT ALSO CARD    7  0871  M H9Y B62           7
 125    230         MLC   &FLDA,ASEQ         INPUT SEQ FIELDS TO COMPARE AND    7  0878  M I0/ B65           7
 126    240         MLC   &FLDB,BSEQ         MOVE FROM 1-5                      7  0885  M I0U B68           7
 127    250         B     GO                                                    4  0892  B 924               7
 128    260  SET    MLC   CARD80,CSEQ        FAP-MAP SO INITIALIZE SEQUENCE     7  0896  M B36 B59           7
 129    270         MLC   &SEQNOB,OUTSEQ     FIELDS TO COMPARE AND MOVE FROM    7  0903  M I0X B62           7
 130    280         MLC   &FLDA1,ASEQ        FIELD POSITIONS 76-80              7  0910  M I1| B65           8
 131    290         MLC   &FLDB1,BSEQ                                           7  0917  M I1T B68           8
 132    300  *
 133    310  * END   HOUSEKEEPING ROUTINE
 134    320  *
 135    330  *
 136    340  * START MAIN PROGRAM PROCESSING
 137    350  *
 138    360  GO     BCE   A1,CARD,$          IS SOURCE DECK ON CARDS?           8  0924  B 963 001 $         8
 139    370         MLC   CSEQ,X3            YES-INITIALIZE CARD SEQ FIELD      7  0932  M B59 099           8
 140    380         SW    SWCD               SET CARD                           4  0939  , B37               8
 141    390         SW    SWCINP                    INPUT SWS                   4  0943  , B52               8
 142    400         B     CT                 CARD-TAPE ROUTINE                  4  0947  B Y47               9
 143    410         RWD   UNIT2              PREPARE FOR                        5  0951  U %U2 R             9
 144    420         MLC   BLANKS,SAVE        PASS 2                             7  0956  M H11 B75           9
 145    430  A1     C     CARD&5,END         TEST FOR                           7  0963  C 006 B91           9
 146    440         BE    TEST               NEXT                               5  0970  B |39 S             9
 147    450         C     CARD&6,SYSTEM      DA SYSTEM                          7  0975  C 007 C26           9
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

148    460         BE    TEST              CONTROL                                    5  0982  B |39 S              10
149    470         C     CARD&6,VERIFY     CARD                                       7  0987  C 007 C33            10
150    480         BE    TEST                                                         5  0994  B |39 S              10
151    490         C     CARD&7,ANAL                                                  7  0999  C 008 C05            10
152    500         BE    AVOID             GO TEST FOR CARD OR TAPE INPUT             5  1006  B |91 S              10
153    510         C     CARD&5,CHART                                                 7  1011  C 006 B97            10
154    520         BE    SFLTST            IF SFL INPUT COPY TAPE                     5  1018  B |83 S              11
155    530         C     CARD&6,UPDATE     UPDATE CONTROL CARD?                       7  1023  C 007 C12            11
156    540         BE    SCAN1             YES-PREPARE TO SCAN THE OPERANDS           5  1030  B |47 S              11
157    550         B     ERR1              BAD CONTROL CARD OR ILLIGAL CHAR           4  1035  B P78                11
158    560  TEST   SW    SWEOJ             PREPARE TO EXIT                            4  1039  , B51                11
159    570         B     EXIT                                                         4  1043  B M97                11
160    580  SCAN1  B     SCAN              GO SCAN THE UPDATE OPERANDS                4  1047  B L11                11
161    590         B     READ              READ A CARD- IF FIRST CARD AFTER           4  1051  B 781                12
162    600         BCE   TEST1,CARD,$      UPDATE CONTROL CARD IS A DA SYSTE          8  1055  B |67 001 $          12
163    610         B     CHANGE            CONTROL AND NOT A $DELETE CRD THN          4  1063  B /18                12
164    620  TEST1  C     CARD&6,DELETE     GO COPY TAPE - IF IT ISNT                  7  1067  C 007 C19            12
165    630         BE    CHANGE            THEY ARE CHNG CRDS SO PUT THEM ON          5  1074  B /18 S              12
166    640         B     B4                TAPE 4                                     4  1079  B /22                12
167    650  SFLTST BCE   B4,CODEB,6        TEST FOR SFL                               8  1083  B /22 083 6          13
168    660  AVOID  BW    NEXT,SWCINP       IF NOT CARD INPUT GO                       8  1091  V /03 B52 1          13
169    670         B     B4                                   COPY TAPE               4  1099  B /22                13
170    680  NEXT   MLC   MOD-2,SWUPDA      MOVE CURRENT OUTPUT TAPE TO CTL            7  1103  M Z93 085            13
171    690         SW    SWEOJ             PREPARE FOR EXIT                           4  1110  , B51                13
172    700         B     CLEAR             GO TO EXIT                                 4  1114  B N31                13
173    710  CHANGE B     CHGSUB            CHANGE CARDS TO TAPE4 ROUTINE              4  1118  B !72                13
174    720  B4     CW    SWCD              CLEAR SWITCH FOR SEQCKR                    4  1122  ) B37                14
175    730  *
176    740  * START MAINTENANCE
177    750  *
178    760  STARTM MLC   BLANKS,SAVE       INITIALIZE AND PREPARE                     7  1126  M H11 B75            14
179    770         MLC   ASEQ,X3           FOR                                        7  1133  M B65 099            14
180    780         MLC   OUTSEQ,X1         PASS 2                                     7  1140  M B62 089            14
181    790         MLC   BSEQ,X2                                                      7  1147  M B68 094            14
182    800         MLC   ZEROS,0&X2                                                   7  1154  M C38 0!0            14
183    810         MLC   ZEROS,0&X1                                                   7  1161  M C38 0|0            15
184    820         MLC   ZEROS,0&X3                                                   7  1168  M C38 0?0            15
185    830         BW    EJECT,SWLIST      SKIP TO NEW PAGE WHEN LISTING              8  1175  V 704 B38 1          15
186    840         CW    SWSQCK            CLEAR SEQ ERR SW                           4  1183  ) B43                15
187    850         SW    SWSPRT,GM2        DO NOT PRINT SEQ ERRORS                    7  1187  , B53 I73            15
188    860  B43    B     SYSIO             READ                                       4  1194  B 500                15
189    870         DCW   &IOCON2                                                      3  1200  200                  16
190    880         ORG   *-2               THE                                              1199
191    890         DC    &TAPEA            INPUT                                      3  1201  H93                  17
192    900         DC    @R@               TAPE                                       1  1202                       17
193    910         BEF   B44               END OF FILE TEST                           5  1203  B T21 K              17
194    920         B     SEQCKR            CHECK INPUT SEQUENCE                       4  1208  B R47                17
195    930         BW    B45,SWSQCK        SEQ ERROR TEST                             8  1212  V T61 B43 1          17
196    940         BCE   CLRGM,FLDA-4,}    TST FOR GM IN POS 1 OF TAPE A IN           8  1220  B T10 H93 }          17
197    950  B42    BW    B46,SWDEL         ARE WE DELETING INPUT RECORDS              8  1228  V T73 B42 1          18
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

198     960        BW    B47,SWALTR          ARE WE PERFORMING MAINTENANCE          8  1236  V U05 B46 1          18
199     970 B40    MLCWA FLDA1,OUTPUT&79     MOVE TAPE INPUT TO OUTPUT              7  1244  L I72 H91            18
200     980        MLCWA                     MOVE SEQ FLD OF INPUT TO OUTPUT        1  1251  L                    18
201     990 B5     BW    B50,SWSEQU          RESEQUENCE DESIRED                     8  1252  V X33 B40 1          18
202   1 000 B57    BW    B52,SWLIST          OR LIST                                8  1260  V X69 B38 1          19
203   1 010 B58    BW    B53,SWDECK          OR NEW SOURCE UPDATED DECK             8  1268  V X97 B39 1          19
204   1 020 B54    BW    B5C,SWCHG           INSURE THAT CHG STMENT WAS LISTED      8  1276  V Y27 B47 1          19
205   1 030 B56    B     SYSIO               WRITE                                  4  1284  B 500                19
206   1 040        DCW   &IOCON3             OUTPUT                                 3  1290  300                  19
207   1 050        ORG   *-2                 STATEMENT                                        1289
208   1 060        DC    &OUTPUT             ON                                     3  1291  H12                  20
209   1 070        DC    @W@                 TAPE 3                                 1  1292                       20
210   1 080        BEF   ERR5                END OF TAPE TEST                       5  1293  B Q55 K              20
211   1 090        BW    B41,SWA             LST OUTPUT-CHG-RD A NEW SOURCE         8  1298  V U13 B48 1          20
212   1 100        B     B43                 NO-RD NEW REC FRM TAPEA INPUT          4  1306  B /94                20
213   1 110 CLRGM  MLC   BLANKS-4,FLDA-4     ERASE THE GM IN POS 1 OF TAPEA IN      7  1310  M H07 H93            20
214   1 120        B     B42                 CONTINUE                               4  1317  B S28                21
215   1 130 *
216   1 140 B44    BW    B48,SWALTR          GOTO EOJ IF NO MAINTENANCE             8  1321  V T42 B46 1          21
217   1 150        WTM   UNIT3               WRITE A TAPE MARK ON OUTPUT            5  1329  U %U3 M              21
218   1 160        SW    SWEOJ               AND PREPARE                            4  1334  , B51                21
219   1 170        B     EXIT                TO EXIT                                4  1338  B M97                21
220   1 180 *
221   1 190 B48    MLC   NINES,0&X3          EOF-MAINTENANCE SO CONTINUE            7  1342  M B85 0?0            21
222   1 200        BW    B6,SWB              OUTPUT THE CURRENT CHG REC AND         8  1349  V V55 B49 1          22
223   1 210        B     B41                 THEN COPY CHG TAPE ON OUTPUT TAPE      4  1357  B U13                22
224   1 220 *
225   1 230 B45    BW    INSQER,SWALTR       SEQ ERR DURING MAINT- EXIT             8  1361  V X06 B46 1          22
226   1 240        B     B40                 IF NOT CONTINUE COPYING TAPE           4  1369  B S44                22
227   1 250 *
228   1 260 B46    C     0&X3,SAVE           IS THIS LAST DELETE STATEMENT?         7  1373  C 0?0 B75            22
229   1 270        BE    B49                 YES-                                   5  1380  B T94 S              22
230   1 280        BL    ERR2                2ND DELETE CR OPERAND NOT ON INPU      5  1385  B Q17 T              23
231   1 290        B     B43                 KEEP SEARCHING INPUT TAPE              4  1390  B /94                23
232   1 300 *
233   1 310 B49    CW    SWDEL,SWCOMP        SUCESSFUL DELETION-STOP SEARCHING      7  1394  ) B42 B45            23
234   1 320        B     B43                 BUT READ ONE MORE RECORD               4  1401  B /94                23
235   1 330 *
236   1 340 B47    BW    B6,SWB              DO WE PROCESS THE CURRENT CHG          8  1405  V V55 B49 1          23
237   1 350 B41    BW    RT4,SWTAPE          ARE CHG REG ON TAPE                    8  1413  V U68 B54 1          23
238   1 360        MLC   X1,STOR                                                    7  1421  M 089 G75            24
239   1 370        MLC   STOR1,X1            MOVE STARTING ADDRESS TO X1            7  1428  M E21 089            24
240   1 380        MLCWA BLOCK&X1,TAPEB&79   RD REC INTO CHANGE INPUT AREA          7  1435  L 0VV 05T            24
241   1 390        MLCWA                                                            1  1442  L                    24
242   1 400        MA    C3ETEY,X1                                                  7  1443  # H04 089            24
243   1 410        MLC   X1,STOR1            SAVE INDEX REG 1                       7  1450  M 089 E21            24
244   1 420        MLC   STOR,X1             RESTORE ORIGINAL ADDRESS               7  1457  M G75 089            25
245   1 430        B     DTEST               TEST FOR DELETE CARD                   4  1464  B U82                25
246   1 440 RT4    B     SYSIO               READ                                   4  1468  B 500                25
247   1 450        DCW   &IOCON4             A                                      3  1474  400                  25
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  1 460         ORG   *-2                 NEW                                          1473
249  1 470         DC    &TAPEB              ONE                                   3  1475  I74                 26
250  1 480         DC    @R@                 FROM TAPE4                            1  1476                      26
251  1 490         BEF   B55                 EOF                                   5  1477  B X58 K             26
252  1 500  DTEST  C     TAPEB&6,DELETE      OR A DELETE CARD                      7  1482  C I80 C19           26
253  1 510         BE    B555                YES-GO CHECK SEQ OF THE OPERANDS      5  1489  B U98 S             26
254  1 520         B     B6                  NO-GO PROCESS THE DATA                4  1494  B V55               26
255  1 530  B555   SW    SWONE               PREPARE TO SEARCH FOR 1ST OPERAND     4  1498  , B50               27
256  1 540         MLC   TAPEB&19,DSAVE      MOVE DELETE CARD WITHOUT $            7  1502  M I93 G68           27
257  1 550         C     TAPEB&13,SAVE       IS 1ST OP IN SEQUENCE WITH INPUT      7  1509  C I87 B75           27
258  1 560         BH    DELERR              NO-ERROR EXIT                         5  1516  B V32 U             27
259  1 570         MLC   TAPEB&13,0&X2       PUT 1ST OP IN THE SEQ FIELD           7  1521  M I87 0!0           27
260  1 580         B     B6                                                        4  1528  B V55               27
261  1 590  DELERR MLCWA DSAVE,PRT1&102      MOVE DELETE CARD TO PRINT             7  1532  L G68 304           28
262  1 600         NOP                                                             1  1539  N                   28
263  1 610         MLCWA ERR6D,PRT1&113      MOVE FLAG TO PRINT                    7  1540  L F64 315           28
264  1 620         B     PRINT               PRINT THE ERROR STATEMENT             4  1547  B 747               28
265  1 630         B     ERR2                EXIT FROM UPDATE        T             4  1551  B Q17               28
266  1 640  *
267  1 650  B6     C     0&X3,0&X2           COMPARE INPUT AND CHANGE RECORDS      7  1555  C 0?0 0!0           28
268  1 660         BE    B60                 GO TEST FOR DELETE OR EXIT            5  1562  B W11 S             28
269  1 670         BH    B65                 PROCESS THE INPUT RECORD              5  1567  B W94 U             29
270  1 680         BW    DELERR,SWONE                                              8  1572  V V32 B50 1         29
271  1 690         MLCWA FLDB1,OUTPUT&79     CHANGE                                7  1580  L 05T H91           29
272  1 700         MLCWA                     RECORD                                1  1587  L                   29
273  1 710         MLC   AST,PRT1&83         MOVE FLAG TO PRINT AREA               7  1588  M B70 285           29
274  1 730         CW    SWB                 PREPARE TO                            4  1595  ) B49               29
275  1 740         SW    SWA                 OUTPUT                                4  1599  , B48               29
276  1 750         SW    SWCHG               REMEMBER THE CHG STATEMENT            4  1603  , B47               30
277  1 760         B     B5                  GO OUTPUT THE STATEMENT               4  1607  B S52               30
278  1 800  *
279  1 810  B60    C     DELETE,DSAVE-13     IS THIS A $DELETE CARD?               7  1611  C C19 G55           30
280  1 820         BE    B64                 YES                                   5  1618  B W43 S             30
281  1 830         C     0&X3,NINES          NO-TEST FOR LAST RECORD               7  1623  C 0?0 B85           30
282  1 840         BE    B44&8               YES-GO TO END OF JOB EXIT             5  1630  B T29 S             30
283  1 850         SW    SWB                 DO NOT READ ANOTHER CHANGE CARD       4  1635  , B49               30
284  1 860         B     B43                 EQUAL CHG SO DELETE INPUT REC         4  1639  B /94               31
285  1 870  *
286  1 880  B64    SW    SWDEL               DELETE CARD                           4  1643  , B42               31
287  1 890         CW    SWONE,SWB           CLEAR SEARCH AND SOURCE INPUT SWS     7  1647  ) B50 B49           31
288  1 900         MLC   DSAVE,PRT1&102      MOVE DELETE STATMNT TO PRINT AREA     7  1654  M G68 304           31
289  1 910         B     PRINT               PRINT THE DELETE CARD                 4  1661  B 747               31
290  1 920         MLC   TAPEB&19,SAVE       SAVE 2ND OP                           7  1665  M I93 B75           31
291  1 930         MLC   TAPEB&19,TAPEB&4    PREPARE TO DELETE INPUT RECORDS       7  1672  M I93 I78           32
292  1 940         SW    SWCOMP              MUST FIND INPUT SEQ NO FOR 2ND OP     4  1679  , B45               32
293  1 950         MLC   ZEROS,DSAVE-13      ERRASE DELETE STATEMENT SEQ NO        7  1683  M C38 G55           32
294  1 960         B     B42                 START THE SEARCH                      4  1690  B S28               32
295  1 970  *
296  1 980  B65    CW    SWA                 PROCESS THE SOURCE RECORD             4  1694  ) B48               32
297  1 990         SW    SWB                 AND PREPARE TO READ ANOTHER           4  1698  , B49               32
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

298  2 000         B     B40                GO OUTPUT THE INPUT RECORD           4  1702  B S44               32
299  2 010  INSQER B     PRINT              SPACE THE CARR ONE                   4  1706  B 747               33
300  2 020         MLCWA FLDA1,PRT1&79      MOVE IN THE ERROR STATEMENT          7  1710  L I72 281           33
301  2 021         MLCWA                                                         1  1717  L                   33
302  2 030         MLCWA ERR6D,PRT1&100     MOVE IN THE FLAG                     7  1718  L F64 302           33
303  2 031         B     PRINT              PRINT THE STATEMENT                  4  1725  B 747               33
304  2 032         B     ERR2               GO TO ERROR EXIT                     4  1729  B Q17               33
305  2 040  B50    MLC   0&X1,PRT1&88       MOVE OLD SEQ NO TO PRINT AREA        7  1733  M 0|0 290           33
306  2 050         MLC   SEQ,0&X1           AND REPLACE IT WITH THE NEW ONE      7  1740  M B80 0|0           34
307  2 060         A     &10,SEQ            BUMP THE SEQ COUNTER                 7  1747  A I1V B80           34
308  2 070         B     B57                CONTINUE                             4  1754  B S60               34
309  2 080  *
310  2 090  B55    MLC   NINES,0&X2         EOF ON CHG TAPE SO PREPARE TO        7  1758  M B85 0!0           34
311  2 100         B     B6                 COPY TAPEA ONTO OUTPUT               4  1765  B V55               34
312  2 110  *
313  2 120  B52    MLCWA OUTPUT&79,PRT1&79  MOVE OUTPUT STATEMENT TO PRINT       7  1769  L H91 281           34
314  2 130         MLCWA                    WITH THE SEQ FIELD                   1  1776  L                   34
315  2 140         BW    NOPRT,SWSQCK       DO NOT PRT SEQ ERR DURING MAINT      8  1777  V ?26 B43 1         35
316  2 150  PRT    B     PRINT                                                   4  1785  B 747               35
317  2 160         CW    SWCHG              ONLY PRINT ONE TIME                  4  1789  ) B47               35
318  2 170         B     B58                CONTINUE                             4  1793  B S68               35
319  2 180  *
320  2 190  B53    MLCWA PCH2,JOBCD         MOVE JOBCD BEFORE PUNCHING           7  1797  L 180 F54           35
321  2 200         MLCWA OUTPUT&79,PCH2     MOVE OUTPUT TO PUNCH AREA            7  1804  L H91 180           35
322  2 210         MLCWA                    WITH THE SEQ FIELD                   1  1811  L                   35
323  2 220         B     PUNCH              PUNCH THE CARD                       4  1812  B 789               36
324  2 230         MLCWA JOBCD,PCH2         REPLACE THE JOBCD IN THE HEADER      7  1816  L F54 180           36
325  2 240         B     B54                CONTINUE                             4  1823  B S76               36
326  2 250  B5C    MLCWA OUTPUT&79,PRT1&79  MOVE CHANGE STATEMENT TO PRNT ARA    7  1827  L H91 281           36
327  2 260         MLCWA                                                         1  1834  L                   36
328  2 270         B     PRINT              PRINT THE CHG STATEMENT              4  1835  B 747               36
329  2 280         CW    SWCHG              RESET THE CHG SW                     4  1839  ) B47               36
330  2 290         B     B56                CONTINUE                             4  1843  B S84               37
331  2 300  *
332  2 310  * END  MAIN PROGRAM
333  2 320  *
334  2 330  *
335  2 340  * CARD TO TAPE ROUTINE
336  2 350  *
337  2 360  CT     SBR   CTOUT&3                                                 4  1847  H Y65               37
338  2 370         MLC   C3SEV9,X1          COUNTER AND X1                       7  1851  M H01 089           37
339  2 380         B     CDTOTP             GO TO CARD TO TAPE ROUTINE           4  1858  B Y66               37
340  2 390  CTOUT  B     0                                                       4  1862  B 000               37
341  2 400  CDTOTP SBR   ENDCTX&3                                                4  1866  H !71               37
342  2 410  CTSTAR BCE   WRTAPE,CARD,$      IS THIS A CONTROL CARD               8  1870  B Z32 001 $         37
343  2 420         B     SEQCKR             GO CHECK THE SEQUENCE                4  1878  B R47               38
344  2 430  ERRSW  NOP   ERR2,SWSQCK,1      EXIT DURING CHG CDS ONLY             8  1882  N Q17 B43 1         38
345  2 440         MLCWA CARD&79,BLOCK&X1   MOVE CARD IMAGE                      7  1890  L 080 0VV           38
346  2 450         MLCWA                               TO BLOCK AREA             1  1897  L                   38
347  2 460  DELENT A     C1ONE,L2CTR1       BUMP COUNTER                         7  1898  A G90 H06           38
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

348  2 470         C     L1WORK,L2CTR1      LAST RECORD TEST                          7  1905  C G70 H06            38
349  2 480         BE    WRTAPE             YES                                       5  1912  B Z32 S              38
350  2 490         B     READ               READ A CARD                               4  1917  B 781                39
351  2 500         MA    C3ETEY,X1          ADJ BLOCK ADDRESS                         7  1921  # H04 089            39
352  2 510         B     CTSTAR             LOOP                                      4  1928  B Y70                39
353  2 520  *
354  2 530  *     WRITE TAPE FROM BLOCK AREA WHEN SOURCE INPUT
355  2 540  WRTAPE BW    OTHER,SWCT         EXIT TO CHG CD WRITE                      8  1932  V J31 B41 1          39
356  2 550         C     L2CTR1,C2REST      THE 51ST CARD IS A CTL CARD ON A          7  1940  C H06 G96            39
357  2 560         BE    ENDWR              EQ COMP SO GO TO CT EXIT                  5  1947  B !33 S              39
358  2 570  GOTAPE MLC   L2CTR1,L2WORK      STORE NO OF RECS IN BLOCK CTR             7  1952  M H06 G72            40
359  2 580         MLC   C2REST,L2CTR1      RESET THE CTR                             7  1959  M G96 H06            40
360  2 590         MLC   C3SEV9,X1          INITIALIZE INDEX REG 1                    7  1966  M H01 089            40
361  2 600         BW    CHGTPE,SWCT        CHANGE OR SOURCE CARDS                    8  1973  V K59 B41 1          40
362  2 610  MVEREC MLCWA BLOCK&X1,OUTPUT&79   MOVE DATA TO OUTPUT                     7  1981  L 0VV H91            40
363  2 620         MLCWA                                                              1  1988  L                    40
364  2 630         B     SYSIO              WRITE                                     4  1989  B 500                41
365  2 640  MOD    DCW   &IOCON2                THE                                   3  1995  200                  41
366  2 650         ORG   *-2                    OUTPUT                                      1994
367  2 660         DC    &OUTPUT                 RECORD                               3  1996  H12                  42
368  2 670         DC    @W@                                                          1  1997                       42
369  2 680         BEF   ERR3               END OF TAPE TEST                          5  1998  B Q36 K              42
370  2 690         A     C1ONE,L2CTR1       BUMP COUNTER                              7  2003  A G90 H06            42
371  2 700         C     L2WORK,L2CTR1      HAS LAST REC BEEN WRITTEN                 7  2010  C G72 H06            42
372  2 710         BE    ENDWR              YES                                       5  2017  B !33 S              42
373  2 720         MA    C3ETEY,X1          ADJ ADDRESS OF BLOCK AREA                 7  2022  # H04 089            43
374  2 730         B     MVEREC             GO WRITE NEXR RECORD                      4  2029  B Z81                43
375  2 740  ENDWR  BCE   ENDCT,CARD,$       EXIT IF THIS IS A CONTROL CARD            8  2033  B !63 001 $          43
376  2 750         MLC   C2REST,L2CTR1      NO-THEN PREPARE TO PROCESS                7  2041  M G96 H06            43
377  2 760         MLC   C3SEV9,X1          INITIALIZE INDEX REG 1                    7  2048  M H01 089            43
378  2 770         B     READ               READ A CARD                               4  2055  B 781                43
379  2 780         B     CTSTAR             CONTINUE                                  4  2059  B Y70                44
380  2 790  *
381  2 800  ENDCT  WTM   UNIT2              WTM ON 2 OR 4                             5  2063  U %U2 M              44
382  2 810  ENDCTX B     0                                                            4  2068  B 000                44
383  2 820  *
384  2 830  * CHANGE CARDS TO TAPE OR CORE
385  2 840  *
386  2 850  CHGSUB SBR   RETURN&3                                                     4  2072  H J30                44
387  2 860         MLC   CSEQ,X3            INITIALIZE                                7  2076  M B59 099            44
388  2 870         SW    SWCT,SWALTR        FOR CHANGE                                7  2083  , B41 B46            44
389  2 880         MLC   C1VEE,ERRSW        CARDS TO TAPE                             7  2090  M G94 Y82            44
390  2 890         MLC   C2REST,L2CTR1                                                7  2097  M G96 H06            45
391  2 900         MLC   C1FOUR-2,MOD-2     MOVE TAPE UNIT FOUR TO OUTPUT CTL         7  2104  M G91 Z93            45
392  2 910         MLC   C3SEV9,X1                                                    7  2111  M H01 089            45
393  2 920         B     CDTOTP             PROCESS THE CHANGE CARDS                  4  2118  B Y66                45
394  2 930         RWD   UNIT4              THEN PREPARE FOR MAINTENANCE              5  2122  U %U4 R              45
395  2 940  RETURN B     0                                                            4  2127  B 000                45
396  2 950  OTHER  C     CARD&6,DELETE      IS THIS A DELETE CARD                     7  2131  C 007 C19            46
397  2 960         BE    MVDEL              YES                                       5  2138  B J55 S              46
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SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

398  2 970         BCE   ENDCHG,CARD,$       IS IT ANOTHER TYPE OF DA CTL CD       8  2143  B J94 001 $         46
399  2 980         B     GOTAPE              YES WRITE OUTPUT AND EXIT             4  2151  B Z52               46
400  2 990  *
401  3 000  *
402  3 010  *
403  3 020  MVDEL  MLCWA CARD&79,BLOCK&X1     MOVE THE DELETE CARD                 7  2155  L 080 0VV           46
404  3 030         MLCWA                        TO BLOCK AREA                      1  2162  L                   46
405  3 040         MLC   CARD&13,0&X3        MOVE FIRST OPERAND TO SEQ FLD         7  2163  M 014 0?0           46
406  3 050         SW    SWDEL               REMEMBER DELETE CARD                  4  2170  , B42               47
407  3 060         B     SEQCKR              CHECK OPERAND SEQUENCE                4  2174  B R47               47
408  3 070         BW    ERR2,SWSQCK         IF ERROR THEN EXIT                    8  2178  V Q17 B43 1         47
409  3 080         CW    SWDEL               GOOD DELETE CARD                      4  2186  ) B42               47
410  3 090         B     DELENT              PUT IT IN BLOCK AREA                  4  2190  B Y98               47
411  3 100  ENDCHG BW    EOF,SWTAPE          WAS TAPE FOUR USED                    8  2194  V K81 B54 1         47
412  3 110  EOFCOM CW    SWCT,SWFLAG         RESET CT AND FLAG SWS                 7  2202  ) B41 B44           47
413  3 120         BCE   FAP,CODEB,4         FAP OR MAP                            8  2209  B K48 083 4         48
414  3 130         BCE   FAP,CODEB,5           LANGUAGE                            8  2217  B K48 083 5         48
415  3 131         BCE   FAP,MACH,0          TEST FOR 360                          8  2225  B K48 082 0         48
416  3 140         MLC   NINES,BLOCK-75&X1     PUT NS IN SEQ FLD                   7  2233  M B85 IY0           48
417  3 150         SW    BLOCK-4&X1                                                4  2240  , 0V/               48
418  3 160         B     ENDCTX                                                    4  2244  B !68               48
419  3 170  FAP    MLCWA NINES,BLOCK&X1      PUT NINES IN MAP OR FAP SEQ FLD       7  2248  L B85 0VV           49
420  3 180         B     ENDCTX                                                    4  2255  B !68               49
421  3 190  CHGTPE SW    SWTAPE              REMEMBER TAPE FOUR WAS USED           4  2259  , B54               49
422  3 200         B     MVEREC              THEN PROCESS REMAINING RECORDS        4  2263  B Z81               49
423  3 210  EOF2   WTM   UNIT4                                                     5  2267  U %U4 M             49
424  3 220         RWD   UNIT4                                                     5  2272  U %U4 R             49
425  3 230         B     EOFCOM                                                    4  2277  B K02               49
426  3 240  EOF    C     C2REST,L2CTR1       ARE ALL DATA ON TAPE                  7  2281  C G96 H06           50
427  3 250         BE    EOF2                YES WRITE END OF FILE                 5  2288  B K67 S             50
428  3 260         MLC   C1FOUR-2,ENDCT&3     MOVE UNIT4 TO WRITE TM               7  2293  M G91 !66           50
429  3 270         CW    SWCT,SWFLAG                                               7  2300  ) B41 B44           50
430  3 280         B     GOTAPE              NO  OUTPUT REMAINING RECORDS          4  2307  B Z52               50
431  3 290  *
432  3 300  * SCAN ROUTINE
433  3 310  *
434  3 320  SCAN   SBR   OUT&3                                                     4  2311  H M20               50
435  3 330         SW    SWUPDA              SET WM IN SWUPDA                      4  2315  , 085               50
436  3 340         CW    SWCINP              DO NOT UNLOAD A2 WHEN MAINT           4  2319  ) B52               51
437  3 350         B     EJECT               SKIP TO NEW PAGE                      4  2323  B 704               51
438  3 360         MLCWA CARD&79,PRT1&79     BEFORE                                7  2327  L 080 281           51
439  3 370         MLCWA                     PRINTING                              1  2334  L                   51
440  3 380         B     PRINT               UPDATE CTL CARD                       4  2335  B 747               51
441  3 390         B     PRINT               SPACE AFTER PRINTING                  4  2339  B 747               51
442  3 400         SBR   X1,0                INITIALIZE X1                         7  2343  H 089 000           51
443  3 410         A     C2THIR,X1           TO START SCAN                         7  2350  A G98 089           52
444  3 420  SCANC  C     0&X1,LIST           DO WE LIST                            7  2357  C 0|0 G79           52
445  3 430         BE    SETL                YES                                   5  2364  B M40 S             52
446  3 440         C     0&X1,DECK           DO WE PUNCH                           7  2369  C 0|0 G87           52
447  3 450         BE    SETD                YES                                   5  2376  B M21 S             52
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SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD

448  3 460         C     0&X1,SEQU          DO WE RESEQUENCE                       7  2381  C 0|0 G83            52
449  3 470         BE    SETS               YES                                    5  2388  B M29 S              53
450  3 480  COMMA  BCE   CONTU,0&X1,,       IS THIS THE END OF THE SCAN            8  2393  B M55 0|0 ,          53
451  3 490         BCE   OUT,0&X1,          YES                                    8  2401  B M17 0|0            53
452  3 500         SW    SWPASS             DO NOT PRINT CARD AGAIN IN ERR MS      4  2409  , B56                53
453  3 510         B     ERR1               BAD CONTROL CARD                       4  2413  B P78                53
454  3 520  OUT    B     0                  RETURN TO MAIN PROGRAM                 4  2417  B 000                53
455  3 530  SETD   SW    SWDECK             PUNCH THE CARD                         4  2421  , B39                53
456  3 540         B     CONT                                                      4  2425  B M44                54
457  3 550  SETS   SW    SWSEQU             RESEQUENCE THE SEQ FIELD               4  2429  , B40                54
458  3 560         A     C1PL4,X1           MOVE POINTER OVER ENCE                 7  2433  A G88 089            54
459  3 570  SETL   SW    SWLIST             LIST THE OUTPUT RECORD                 4  2440  , B38                54
460  3 580  CONT   A     C1PL1,X1           MOVE POINTER AND LOOK FOR COMMA        7  2444  A G89 089            54
461  3 590         B     COMMA                                                     4  2451  B L93                54
462  3 600  CONTU  A     C1PL4,X1           LOOK FOR NEXT OPERAND                  7  2455  A G88 089            54
463  3 610         B     SCANC                                                     4  2462  B L57                55
464  3 620  *
465  3 630  * END OF JOB AND EXIT ROUTINE
466  3 640  *
467  3 650  EXIT1  MLCWA CARD&79,PRT1&79    MOVE END TO PRINT AREA                 7  2466  L 080 281            55
468  3 660         B     PRINT              PRNT THE DAEND CONTROL CARD            4  2473  B 747                55
469  3 670  RWU3   RWU   UNIT3              REWIND THE OUTPUT TAPE                 5  2477  U %U3 U              55
470  3 680         MLCWA MSG3,PRT1&37       MOVE OPERATOR MSG TO PRINT             7  2482  L G40 239            55
471  3 690         B     MESSG              PRINT THE MESSAGE                      4  2489  B 660                55
472  3 700         B     RWDA1              READ IN THE CONTROLLER                 4  2493  B N60                55
473  3 710  EXIT   RWD   UNIT3              REWIND                                 5  2497  U %U3 R              56
474  3 720         RWD   UNIT4              TAPE3 AND 4                            5  2502  U %U4 R              56
475  3 730         BW    RWD2,SWCINP        AND MAYBE 2 -IF INPUT WAS NOT ON       8  2507  V N74 B52 1          56
476  3 740         RWU   UNIT2              CARDS THEN UNLOAD A2                   5  2515  U %U2 U              56
477  3 750         MLCWA MSG2,PRT1&37       MOVE OPERATOR MSG TO PRINT             7  2520  L G02 239            56
478  3 760         B     MESSG              PRINT THE MESSAGE                      4  2527  B 660                56
479  3 770  CLEAR  CW    GM1,CARD&75        PREPARE TO EXIT                        7  2531  ) H92 076            57
480  3 780         CW    PCH2-4,GM2                                                7  2538  ) 176 I73            57
481  3 790         MLC   BLANKS,SAVE        ERRASE GM IF PRESENT                   7  2545  M H11 B75            57
482  3 800         BW    EJOB,SWEOJ         IS THIS A GOOD EXIT                    8  2552  V N83 B51 1          57
483  3 810  RWDA1  RWD   UNIT1              REWIND SYSTEM TAPE                     5  2560  U %U1 R              57
484  3 820         B     SYSLNK             AND READ                               4  2565  B 400                57
485  3 830         DCW   @1CONA@            THE CONTROLLER                         5  2573                       58
486  3 840  RWD2   RWD   UNIT2                                                     5  2574  U %U2 R              58
487  3 850         B     CLEAR                                                     4  2579  B N31                58
488  3 860  EJOB   BW    CLRPCH,SWDECK      DID WE PUNCH                           8  2583  V P48 B39 1          58
489  3 870         C     CARD&5,END         IS THIS AN END CARD?                   7  2591  C 006 B91            58
490  3 880         BE    EXIT1              YES                                    5  2598  B M66 S              58
491  3 890         C     CARD&5,CHART       IS    IS A CHART CARD?                 7  2603  C 006 B97            59
492  3 900         BE    COL83              TEST FOR SFL BEFORE EXITING            5  2610  B O77 S              59
493  3 910         C     CARD&7,ANAL        IS THIS AN ANALYZE CARD?               7  2615  C 008 C05            59
494  3 920         BE    RDANAL             CALL ANALYZE                           5  2622  B O85 S              59
495  3 930         C     CARD&6,SYSTEM      IS THIS A SYSTEM CARD?                 7  2627  C 007 C26            59
496  3 940         BE    RDSYS              CALL SYSTEM                            5  2634  B P11 S              59
497  3 950         C     CARD&6,VERIFY      IS THIS A VERIFY CARD?                 7  2639  C 007 C33            60
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

498  3 960         BE    RDVER              CALL VERIFY                          5  2646  B P25 S             60
499  3 970         MLCWA CARD&79,PRT1&79    BAD CONTROL CARD OR ILL CHAR         7  2651  L 080 281           60
500  3 980         B     PRINT              PRINT BAD CARD                       4  2658  B 747               60
501  3 990         MLCWA ERR1D,PRT1&82           WITH ERROR MESSAGE              7  2662  L D21 284           60
502  4 000         B     PRINT              PRINT THE BAD STATEMENT              4  2669  B 747               60
503  4 010         B     RWU3                                                    4  2673  B M77               60
504  4 020  COL83  BCE   RDCHR,CODEB,6      IS THIS SFL LANGUAGE?                8  2677  B P39 083 6         61
505  4 030  RDANAL BCE   SYS360,MACH,0                                           8  2685  B P02 082 0         61
506  4 040         B     SYSLNK                                                  4  2693  B 400               61
507  4 050         DCW   @3ANAA@                                                 5  2701                      61
508  4 060  SYS360 B     SYSLNK                                                  4  2702  B 400               61
509  4 070         DCW   @3ANAB@                                                 5  2710                      61
510  4 080  RDSYS  RWU   UNIT3              PREPARE TO STACK JOBS                5  2711  U %U3 U             61
511  4 090         B     SYSLNK             BEFORE CALLING                       4  2716  B 400               62
512  4 100         DCW   @6CONA@            SYSTEM MAINTENANCE                   5  2724                      62
513  4 110  RDVER  RWU   UNIT3              OR THE                               5  2725  U %U3 U             62
514  4 120         B     SYSLNK             VERIFY                               4  2730  B 400               62
515  4 130         DCW   @5VERA@            PROGRAMS                             5  2738                      62
516  4 140  RDCHR  B     SYSLNK             SFL LANGUAGE SO SKIP THE             4  2739  B 400               62
517  4 150         DCW   @4CHRA@            ANALYZE PROGRAM AND CALL CHART       5  2747                      62
518  4 160  CLRPCH SBR   CLREXT&3                                                4  2748  H P77               63
519  4 170         MLCWA PCH2,JOBCD         SAVE THE JOBCD INFO                  7  2752  L 180 F54           63
520  4 180         CS    PCH2               CLEAR THE PUNCH AREA                 4  2759  / 180               63
521  4 190         B     PUNCH              RUN OUT THE LAST PUNCHED CARD        4  2763  B 789               63
522  4 200         MLCWA JOBCD,PCH2         RESTORE JOBCD TO THE PUNCH AREA      7  2767  L F54 180           63
523  4 210  CLREXT B     0                                                       4  2774  B 000               63
524  4 220  *
525  4 230  * ERROR MESSAGE ROUTINE
526  4 240  *
527  4 250  *
528  4 260  ERR1   SBR   LAST1&3            WHICH ROUTINE HAD THE ERROR?         4  2778  H G46               63
529  4 270         BW    PASS,SWPASS        HAS CTL CD BEEN PRINTED              8  2782  V Q02 B56 1         64
530  4 280         MLCWA CARD&79,PRT1&79    PRINT THE BAD CARD                   7  2790  L 080 281           64
531  4 290         MLCWA                                                         1  2797  L                   64
532  4 300         B     PRINT                                                   4  2798  B 747               64
533  4 310  PASS   MLCWA ERR1D,PRT1&82                                           7  2802  L D21 284           64
534  4 320         B     PRINT              THE ERROR MSG                        4  2809  B 747               64
535  4 330         B     EXIT               EXIT FROM UPDATE                     4  2813  B M97               64
536  4 340  *
537  4 350  *
538  4 360  *
539  4 370  ERR2   SBR   LAST2&3                                                 4  2817  H G49               65
540  4 380         MLCWA ERR2D,PRT1&48                                           7  2821  L D70 250           65
541  4 390         B     PRINT              PRINT ERROR MSG                      4  2828  B 747               65
542  4 400         B     EXIT                                                    4  2832  B M97               65
543  4 410  *
544  4 420  ERR3   SBR   LAST3&3                                                 4  2836  H G52               65
545  4 430         MLCWA ERR3D,PRT1&47                                           7  2840  L E18 249           65
546  4 440         B     MESSG                                                   4  2847  B 660               65
547  4 450         H     6                  TAPE 2 TOO SHORT RESTART JOB         4  2851  . 006               66
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

548  4 460  *
549  4 470  ERR5   MLCWA ERR5D,PRT1&52                                          7  2855  L E74 254           66
550  4 480         B     MESSG                                                  4  2862  B 660               66
551  4 490         RWD   UNIT2              REWIND                              5  2866  U %U2 R             66
552  4 491         CW    SWCOMP,SWCHG       RESET                               7  2871  ) B45 B47           66
553  4 492         CW    SWDEL,SWONE             ALL                            7  2878  ) B42 B50           66
554  4 493         CW    SWA,SWB                      SWITCHES                  7  2885  ) B48 B49           67
555  4 500         RWD   UNIT3                   ALL                            5  2892  U %U3 R             67
556  4 510         RWD   UNIT4                     TAPES                        5  2897  U %U4 R             67
557  4 520         BW    CLRPCH,SWDECK      RUN CARDS OUT OF PUNCH IF SWDECK    8  2902  V P48 B39 1         67
558  4 530         H     6,6                                                    7  2910  . 006 006           67
559  4 540         MLC   C3SEV9,STOR1       RESET BLOCK COUNTER TO 079          7  2917  M H01 E21           67
560  4 550         BW    RSTSEQ,SWSEQU      RESET SEQ CTR IF SEQ SW IS ON       8  2924  V R36 B40 1         68
561  4 560         B     STARTM                RESTART MAINTENANCE            4  2932  B /26               68
562  4 570  RSTSEQ MLC   @00010@,SEQ      RESET SEQ CTR                         7  2936  M I2| B80           68
563  4 580         B     STARTM             GO TO RESTART MAINT                 4  2943  B /26               68
564  4 590  *
565  4 600  * SEQUENCE CHECK ROUTINE
566  4 610  *
567  4 620  SEQCKR SBR   EXODUS&3                                               4  2947  H ?92               68
568  4 630         BW    B75,SWCT           CHG CDS SEQ CHECKING                8  2951  V ?53 B41 1         68
569  4 640         BW    B76,SWDEL          TEST DELCD SEQ DURING INPUT         8  2959  V A13 B42 1         69
570  4 650         C     0&X3,SAVE          TEST SEQUENCE NO                    7  2967  C 0?0 B75           69
571  4 660         BL    B77                GOOD SEQ                            5  2974  B ?78 T             69
572  4 670         BE    TRY1                                                   5  2979  B A68 S             69
573  4 680  B73    SW    SWSQCK             ERROR-SET SEQCK SWITCH              4  2984  , B43               69
574  4 690         MLC   0&X3,SAVE          MVE BAD SEQ NO TO SRTR NEW SEQ CK   7  2988  M 0?0 B75           69
575  4 700         BW    EXODUS,SWSPRT      EITHER PRINT OR EXIT                8  2995  V ?89 B53 1         70
576  4 710         MLCWA CARD&79,PRT1&79    PRINT THE ERROR STATEMENT           7  3003  L 080 281           70
577  4 720         MLCWA                                                        1  3010  L                   70
578  4 730  SEQPRT MLCWA ERR6D,PRT1&100     FLAG STATEMENT AS A SEQ ERR         7  3011  L F64 302           70
579  4 740         B     PRINT                                                  4  3018  B 747               70
580  4 750         B     EXODUS             EXIT                                4  3022  B ?89               70
581  4 760  NOPRT  BW    PRT,SWCHG          GO PRINT                            8  3026  V X85 B47 1         70
582  4 770         MLCWA ERR6D,PRT1&100     MOVE FLAG TO PRINT                  7  3034  L F64 302           71
583  4 780         CW    SWSQCK             RESET SEQCK SWITCH                  4  3041  ) B43               71
584  4 790         B     PRINT                                                  4  3045  B 747               71
585  4 800         B     B58                CONTINUE                            4  3049  B S68               71
586  4 810  B75    C     0&X3,SAVE          CHECK SEQ OF CHG CD                 7  3053  C 0?0 B75           71
587  4 820         BE    B78                CAUTION                             5  3060  B ?93 S             71
588  4 830         BH    B80                ERR DURING CHG CDS TO TAPE          5  3065  B A96 U             71
589  4 840         BW    B79,SWDEL          IS IT A DELETE CARD                 8  3070  V A41 B42 1         72
590  4 850  B77    MLC   0&X3,SAVE          SAVE THE CURRENT SEQ NO             7  3078  M 0?0 B75           72
591  4 860  B74    CW    SWFLAG             NO MORE EQUAL CONDITIONS            4  3085  ) B44               72
592  4 870  EXODUS B     0                  RETURN                              4  3089  B 000               72
593  4 880  B78    BW    DELPRT,SWDEL       IS THIS EQ  CAUSED BY DELETE CARD   8  3093  V B08 B42 1         72
594  4 890         BW    B74,SWFLAG         NO-WAS LAST CD A DELETE CARD        8  3101  V ?85 B44 1         72
595  4 900         B     B73                NO-EQUAL SEQ NOS GO TO ERROR        4  3109  B R84               73
596  4 910  B76    C     0&X3,SAVE          IS DELETE LST OP IN SEQUENCE        7  3113  C 0?0 B75           73
597  4 920         BH    B7A                IS THIS SEARCH FOR 1ST OPERAND?     5  3120  B A29 U             73
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

598  4 930         B     B74                                                      4  3125  B ?85                73
599  4 940  B7A    BW    B74,SWCOMP          IF YES-GO CLEAR FLAG                 8  3129  V ?85 B45 1          73
600  4 950         B     B73                 IF NO GO TO ERROR                    4  3137  B R84                73
601  4 960  B79    SW    SWFLAG              PREPARE FOR EQUAL CONDITION          4  3141  , B44                73
602  4 970         MLC   CARD&13,SAVE        SAVE 1ST OPERAND                     7  3145  M 014 B75            74
603  4 980         C     CARD&19,SAVE        COMPARE 2ND OPERAND WITH 1ST OPER    7  3152  C 020 B75            74
604  4 990         BH    DELPRT              2ND OPERAND SMALLER GO TO ERROR      5  3159  B B08 U              74
605  5 000         B     EXODUS              RETURN                               4  3164  B ?89                74
606  5 050  TRY1   BW    PERMIT,SWBLNK       PRINT FIRST BLANK STATEMENT          8  3168  V A92 B55 1          74
607  5 060         BW    B73,SWSPRT          ONLY PRINT DURING C-T                8  3176  V R84 B53 1          74
608  5 070         SW    SWBLNK              ONLY ONE TIME THRU HERE              4  3184  , B55                75
609  5 080         B     B73                                                      4  3188  B R84                75
610  5 090  PERMIT B     EXODUS                                                   4  3192  B ?89                75
611  5 100  B80    BW    DELPRT,SWDEL        PRINT ALL OF THE DELETE CARD         8  3196  V B08 B42 1          75
612  5 110         B     B73                 ERR DURING CHANGE CARD               4  3204  B R84                75
613  5 120  DELPRT SW    SWSQCK              SET ERROR SW ON                      4  3208  , B43                75
614  5 130         MLC   0&X3,SAVE           SAVE THE ERROR SEQ NUMBER            7  3212  M 0?0 B75            75
615  5 140         MLCWA BLOCK&X1,PRT1&79    MOVE DELETE ERR CD TO PRINT          7  3219  L 0VV 281            76
616  5 150         MLCWA                                                          1  3226  L                    76
617  5 160         B     SEQPRT              PRINT THE ERROR STATEMENT            4  3227  B ?11                76
618  5 170  *
619  5 180  * START DATA DEFINATION
620  5 190  *
621  5 200  CARD5  DSA   5                   LOW END OF SEQ FLD FOR AUTO,SPS      3  3233  005                  76
622  5 210  CARD80 DSA   80                  LOW END OF SEQ FLD FOR FAP,MAP       3  3236  080                  76
623  5 220  CARD   EQU   1                   HIGH END OF CARD INPUT AREA             0001
624  5 230  X1     EQU   89                  IDENIFY                                 0089
625  5 240  X2     EQU   94                  INDEX                                   0094
626  5 250  X3     EQU   99                  REGISTERS                               0099
627  5 251  MACH   EQU   82                                                          0082
628  5 260  CODEB  EQU   83                  SOURCE LANGUAGE CODE                    0083
629  5 270  IOCON2 EQU   200                 TAPE ADD 2                              0200
630  5 280  IOCON3 EQU   300                 TAPE ADD 3                              0300
631  5 290  IOCON4 EQU   400                 TAPE ADD 4                              0400
632  5 300  SYSIO  EQU   500                 SYSTEM READ ADDRESS FOR TAPE I/O        0500
633  5 310  SYSLNK EQU   400                 SYSTEM READ ADDRESS FOR SYSTEM RD       0400
634  5 320  PCH1   EQU   101                 HIGH END OF PUNCH AREA                  0101
635  5 330  PCH2   EQU   180                 LOW END OF PUNCH AREA                   0180
636  5 340  PRT1   EQU   202                 HIGH END OF PRINT AREA                  0202
637  5 350  SYSIN  EQU   800                 ORG AT 800                              0800
638  5 360  PRINT  EQU   747                 SYSTEM PRINT ROUTINE ADDRESS            0747
639  5 370  PUNCH  EQU   789                 SYSTEM PUNCH ROUTINE ADDRESS            0789
640  5 380  READ   EQU   781                 SYSTEM CARD READ ROUTINE ADDRESS        0781
641  5 390  EJECT  EQU   704                 SYSTEM PRINTER EJECT ROUTINE ADD        0704
642  5 400  SWUPDA EQU   085                 UPDATE CARD SWITCH                      0085
643  5 410  UNIT1  EQU   %U1                 TAPE UNIT 1                             %U1
644  5 420  UNIT2  EQU   %U2                 TAPE UNIT 2                             %U2
645  5 430  UNIT3  EQU   %U3                 TAPE UNIT 3                             %U3
646  5 440  UNIT4  EQU   %U4                 TAPE UNIT 4                             %U4
647  5 450  MESSG  EQU   660                                                         0660
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

648  5 460  SWCD   DC    #1                 ON WHEN SOURCE CARD INPUT               1  3237                     76
649  5 470  SWLIST DC    #1                 UPDATE LIST OPTION SWITCH               1  3238                     76
650  5 480  SWDECK DC    #1                 UPDATE DECK OPTION SWITCH               1  3239                     76
651  5 490  SWSEQU DC    #1                 UPDATE SEQUENCE OPTION SWITCH           1  3240                     76
652  5 500  SWCT   DC    #1                 ON DURING CHG CDS TO TAPE               1  3241                     76
653  5 510  SWDEL  DC    #1                 ON WHEN DELETE CARD IS READ             1  3242                     76
654  5 520  SWSQCK DC    #1                 ON WHEN SEQUENCE ERROR                  1  3243                     76
655  5 530  SWFLAG DC    #1                 ON AFTER A DELETE CD                    1  3244                     76
656  5 540  SWCOMP DC    #1                 ON DURING DELETION                      1  3245                     76
657  5 550  SWALTR DC    #1                 ON WHEN MAINT IS PERFORMED              1  3246                     76
658  5 560  SWCHG  DC    #1                 ON WHEN PROCESSING A CHG STMENT         1  3247                     76
659  5 570  SWA    DC    #1                 ON TO READ A CHG STMENT                 1  3248                     76
660  5 580  SWB    DC    #1                 ON TO READ A SOURCE STMENT              1  3249                     76
661  5 590  SWONE  DC    #1                 ON DURING DELETION                      1  3250                     76
662  5 600  SWEOJ  DC    #1                 ON WHEN JOB IS COMPLETED                1  3251                     76
663  5 610  SWCINP DC    #1                 ON WHEN SOURCE CARD INPUT               1  3252                     76
664  5 620  SWSPRT DC    #1                 ON DURING MAINT-SUPPRESS ERR PRT        1  3253                     76
665  5 630  SWTAPE DC    #1                 ON WHEN 50 OR MORE CHANGE CDS           1  3254                     76
666  5 640  SWBLNK DC    #1                 ON WHEN 2 OR MORE BLANK SEQNOS          1  3255                     76
667  5 650  SWPASS DC    #1                 BYPASS PRINT SWITCH                     1  3256                     76
668  5 660  CSEQ   DCW   #3                 ADDRESS OF CARD AREA SEQ FLD            3  3259                     77
669  5 670  OUTSEQ DCW   #3                 ADDRESS OF OUTPUT AREA SEQ FLD          3  3262                     77
670  5 680  ASEQ   DCW   #3                 ADDRESS OF INPUT TAPE SEQ FLD           3  3265                     77
671  5 690  BSEQ   DCW   #3                 ADDRESS OF CHG TAPE SEQ FLD             3  3268                     77
672  5 700  AST    DCW   @**@               FLAG FOR SEQ ERROR CONDITIONS           2  3270                     77
673  5 710  SAVE   DCW   #5                 SEQUENCE NUMBER SAVE AREA               5  3275                     77
674  5 720  SEQ    DCW   00010              SEQUENCE NUMBER COUNTER                 5  3280                     77
675  5 730  NINES  DCW   99999                                                      5  3285                     78
676  5 740  END    DCW   @$DAEND@                                                   6  3291                     78
677  5 750  CHART  DCW   @$CHART@                                                   6  3297                     78
678  5 760  ANAL   DCW   @$ANALYZE@                                                 8  3305                     78
679  5 770  UPDATE DCW   @$UPDATE@                                                  7  3312                     78
680  5 780  DELETE DCW   @$DELETE@                                                  7  3319                     78
681  5 790  SYSTEM DCW   @$SYSTEM@                                                  7  3326                     79
682  5 800  VERIFY DCW   @$VERIFY@                                                  7  3333                     79
683  5 810  ZEROS  DCW   @00000@                                                    5  3338                     79
684  5 820         DCW   @ERROR. BAD DA SYSTEM CONTROL CARD OR INVALID CHARA@      50  3388                     81
685  5 830  ERR1D  DC    @CTER IN COLUMN 1. RUN TERMINATED.@                       33  3421                     82
686  5 840  ERR2D  DCW   @ERROR. OUT OF SEQUENCE CONDITION. RUN TERMINATED.@       49  3470                     84
687  5 850  ERR3D  DCW   @ERROR. TAPE 2 TOO SHORT. REPLACE IT AND RESTART.@        48  3518                     86
688  5 860  STOR1  DCW   079                                                        3  3521                     86
689  5 870         DCW   @ERROR. TAPE 3 TOO SHORT. MOUNT NEW TAPE. PRESS STA@      50  3571                     88
690  5 880  ERR5D  DC    @RT.@                                                      3  3574                     88
691  5 890         DCW   #52                80 POSITIONS                           52  3626                     90
692  5 900  JOBCD  DC    #28                FOR JOBCD                              28  3654                     91
693  5 910  ERR6D  DCW   @SEQ ERR **@                                              10  3664                     91
694  5 920  MSG2   DCW   @DISMOUNT MASTER TAPE 2. MOUNT SCRATCH.@                  38  3702                     92
695  5 930  MSG3   DCW   @DISMOUNT MASTER TAPE 3. MOUNT SCRATCH.@                  38  3740                     93
696  5 940  LAST1  DCW   #3                 IDENIFY                                 3  3743                     94
697  5 950  LAST2  DCW   #3                 ERROR                                   3  3746                     94
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SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD

698  5 960  LAST3  DCW   #3                 EXITS                                3  3749                     94
699  5 970  DSAVE  DCW   #19                DELETE STATEMENT SAVE AREA          19  3768                     94
700  5 980  L1WORK DCW   47    BLOCKING FACTOR CTR-BLOCK AREA MUST BE CHANGED    2  3770                     94
701  5 990  L2WORK DCW   00   WHEN THE L1WORK CTR IS CHANGED                     2  3772                     94
702  6 000  STOR   DCW   #3                 SAVE INDEX REG1                      3  3775                     94
703  6 010  LIST   DCW   @LIST@             CHECK THE                            4  3779                     95
704  6 020  SEQU   DCW   @SEQU@                    UPDATE CTL                    4  3783                     95
705  6 030  DECK   DCW   @DECK@                           CARD PARAMETERS        4  3787                     95
706  6 040  C1PL4  DCW   &4                 A CONSTANT 4 POSITIVE                1  3788                     95
707  6 050  C1PL1  DCW   &1                 A CONSTANT 1 POSITIVE                1  3789                     95
708  6 060  C1ONE  DCW   1                  A CONSTANT 1                         1  3790                     95
709  6 070  C1FOUR DCW   &IOCON4            TAPE UNIT FOUR                       3  3793  400                95
710  6 080  C1VEE  DCW   @V@                THE LETTER V                         1  3794                     96
711  6 090  C2REST DCW   00                 A CONSTANT 00                        2  3796                     96
712  6 100  C2THIR DCW   &13                A CONSTANT 13 POSITIVE               2  3798                     96
713  6 110  C3SEV9 DCW   079                A CONSTANT 079                       3  3801                     96
714  6 120  C3ETEY DCW   080                A CONSTANT 080                       3  3804                     96
715  6 130  L2CTR1 DCW   00                 RECORD COUNTER                       2  3806                     96
716  6 140  BLANKS DCW   #5                 CONSTANT OF FIVE BLANKS              5  3811                     96
717  6 150  OUTPUT DA    1X80               OUTPUT AREA                             3812   3891              97
718  6 160  SEQNOA       1,5                SEQ FIELD FOR AUTO,SPS                  3816               FIELD  97
719  6 170  SEQNOB       76,80              SEQ FIELD FOR FAP,MAP                   3891               FIELD  97
720  6 180  GM1    DC    @}@                GROUP MARK                           1  3892                     98
721  6 190  TAPEA  DA    1X80               INPUT FILE READIN AREA                  3893   3972              98
722  6 200  FLDA         1,5                SEQ FLD                                 3897               FIELD  98
723  6 210  FLDA1        76,80              SEQ FLD                                 3972               FIELD  98
724  6 220  GM2    DC    @}@                NO SEQ ERRORS OR OVER 80 INPUT CH    1  3973                     99
725  6 230  TAPEB  DA    1X80               CHANGE CARD TAPE INPUT AREA             3974   4053              99
726  6 240  FLDB         1,5                SEQ FLD                                 3978               FIELD  99
727  6 250  FLDB1        76,80              SEQ FLD                                 4053               FIELD  99
728  6 260         DC    #1                 SPACE FOR GM DURING TAPE READIN      1  4054                    100
729  6 270  BLOCK  DA    48X80    FIRST OP MUST ALWAYS BE LARGER THAN L1WORK        4055   7894             108
730  6 280         LTORG *&1                                                               7896
           124     DCW   &SEQNOA                                                 3  7898  H16         ADCON 108
           125           &FLDA                                                   3  7901  H97         ADCON 108
           126           &FLDB                                                   3  7904  I78         ADCON 108
           129           &SEQNOB                                                 3  7907  H91         ADCON 108
           130           &FLDA1                                                  3  7910  I72         ADCON 108
           131           &FLDB1                                                  3  7913  05T         ADCON 109
                         &10                                                     2  7915              LIT   109
           562           @00010@                                                 5  7920              LIT   109
731  6 290  HIGH   EQU   *&1                 LAST CORE PLUS ONE                     7921
732  6 300         END   START                                                            / 800 080         110
723  6 210  FLDA1        76,80              SEQ FLD                                 3972               FIELD  98          *****
724  6 220  GM2    DC    @}@                NO SEQ ERRORS OR OVER 80 INPUT CH    1  3973                     99
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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                                    1              3ANAA
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?                 2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040                  3

                          PHASE I PASS 1 ANALYSIS                                       3ANAA              PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    010  000    JOB   PHASE I PASS 1 ANALYSIS
 102    020         CTL   440  1
 103    030         DC    @$ADD     @                                                9  0341                       4
 104    040         DC    &SYSOR                                                     3  0344  800                  4
 105    050         DC    &START                                                     3  0347  800                  4
 106    060         DC    &HIGH                                                      3  0350  I48                  4
 107    070         ORG   SYSOR                                                              0800
 108    080  SYSOR  EQU   800                                                           0800
 109    090  POS2   EQU   2                                                             0002
 110    100  POS10  EQU   10  START OF OPTION FIELD ON CONTROL CARD                     0010
 111    110  X1     EQU   089                                                           0089
 112    120  X2     EQU   094                                                           0094
 113    130  X3     EQU   099                                                           0099
 114    140  MACH   EQU   82   MACHINE                                                  0082
 115    150  LANG   EQU   83   LANGUAGE                                                 0083
 116    160  SWCRS  EQU   81   CROSS REFERENCE-SWITCH                                   0081
 117    170  SWOPAN EQU   85   OPERAND REFERENCE-SWITCH                                 0085
 118    180  SWUPD  EQU   85   UNLOAD INPUT TAPE-SWITCH                                 0085
 119    190  SWAN   EQU   86   CROSS OR OPERAND REPORTS REQUESTED-SWITCH                0086
 120    200  SWCNT  EQU   86   FREQUENCY REPORT-SWITCH                                  0086
 121    210  EXCDIC EQU   3200   START EXECUTION HERE AFTER DICT READ IN CORE           3200
 122    220  LENGTH EQU   3999   LENGTH OF DICT ENTRY INFO FOR PASS 2                   3999
 123    230  IOCON3 EQU   300                                                           0300
 124    240  IOCON4 EQU   400                                                           0400
 125    250  SYSLNK EQU   400                                                           0400
 126    260  SYSIO  EQU   500                                                           0500
 127    270  MESSG  EQU   660                                                           0660
 128    280  EJECT  EQU   704                                                           0704
 129    290  PRINT  EQU   747                                                           0747
 130    300  DICOP  EQU   3998   FIRST DICT ENTRY-6                                     3998
 131    310  POINTS EQU   3900   ORG BINARY POINTS AT 3900                              3900
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

132    320         JOB   PHASE I  PASS 1 OF ANALYSIS
133    330  *
134    340  *                *** INITIALYZE
135    350  *
136    360  START  SW    GRP1                                                       4  0800  , F08                5
137    370         BEF   *&1    SET INDICATOR ON IF OFF                             5  0804  B 809 K              5
138    380         SBR   X1,0                                                       7  0809  H 089 000            5
139    390         SBR   X2                                                         4  0816  H 094                5
140    400         SBR   X3                                                         4  0820  H 099                5
141    410         MN    SWUPD,RTAPE&8   INPUT UNIT                                 7  0824  D 085 N89            5
142    420         MN    SWUPD,RWDTP4&3     REWIND INPUT TAPE                       7  0831  D 085 P48            5
143    430         MLC   @N@,SWAN   SET INITIALLY NO OPTIONS                        7  0838  M R77 086            6
144    440         MLC   @ANALYSIS@,109                                             7  0845  M R85 109            6
145    450         BW    SAV85,SWUPD    BR TO SAVE UNLOAD TAPE SW                   8  0852  V 864 085 1          6
146    460         B     CLWMK                                                      4  0860  B 868                6
147    470  SAV85  SW    SWTAP3     SET TAPE UNLOAD SW IN ANOTHER POSIT&ON          4  0864  , C86                6
148    480  CLWMK  CW    SWCRS,SWUPD                                                7  0868  ) 081 085            6
149    490         CW    SWCNT                                                      4  0875  ) 086                7
150    500  *
151    510  *                *** DETERMINE IF OPTIONAL REPORTS ARE REQUESTED
152    520  *
153    530         BCE   SYS,POS2,C   $CHART - NO OPTIONS                           8  0879  B |28 002 C          7
154    540         B     EJECT                                                      4  0887  B 704                7
155    550         MLC   80,281                                                     7  0891  M 080 281            7
156    560         B     PRINT   PRINT CONTROL CARD                                 4  0898  B 747                7
157    570  DETOP  BCE   SYS,POS10&X1,   BLANK POS10 - NO OPTIONS                   8  0902  B |28 0/0            7
158    580         BCE   DET,POS10&X1,C   POS10 C - COUNT OR CROSS OPTION           8  0910  B 930 0/0 C          8
159    590         BCE   OP,POS10&X1,O    POS10 O - OPERAND OPTION                  8  0918  B 987 0/0 O          8
160    600         B     ERROR            BR TO ILLEGAL OPTION PRINT                4  0926  B O84                8
161    610  DET    SBR   X1,4&X1                                                    7  0930  H 089 0|4            8
162    620         BCE   COUNT,POS10&X1,T   TEST FOR COUNT OPTION                   8  0937  B 957 0/0 T          8
163    630         BCE   CROSS,POS10&X1,S   TEST FOR CROSS OPTION                   8  0945  B 972 0/0 S          9
164    640         B     ERROR             BR TO ILLEGAL OPTION PRINT               4  0953  B O84                9
165    650  COUNT  SW    SWCNT    SET COUNT OPTION SWITCH                           4  0957  , 086                9
166    660  ON1    SBR   X1,2&X1                                                    7  0961  H 089 0|2            9
167    670         B     DETOP   RETURN TO CHECK FOR OTHER OPTIONS                  4  0968  B 902                9
168    680  CROSS  SW    SWCRS    SET CROSS OPTION SWITCH                           4  0972  , 081                9
169    690         MLC   @Y@,SWAN   Y INDICATES TO PASS 3 -REPORTS REQUESTED        7  0976  M R86 086            9
170    700         B     ON1                                                        4  0983  B 961               10
171    710  OP     SBR   X1,6&X1                                                    7  0987  H 089 0|6           10
172    720         BCE   CONTS,POS10&X1,D   TEST LAST POS OF OPERAND OPTION         8  0994  B |06 0/0 D         10
173    730         B     ERROR                                                      4  1002  B O84               10
174    740  CONTS  SBR   X1,2&X1                                                    7  1006  H 089 0|2           10
175    750         MLC   @Y@,SWAN   Y INDICATES TO PASS 3 -REPORTS REQUESTED        7  1013  M R86 086           10
176    760         SW    SWOPAN   SET OPERAND OPTION SWITCH                         4  1020  , 085               11
177    770         B     DETOP                                                      4  1024  B 902               11
178    780  *
179    790  *                *** DETERMINE SYSTEM AND LANGUAGE
180    800  *
181    810  SYS    BCE   RTMFAP,MACH,9      7090/7094 MAP OR FAP TEST               8  1028  B /04 082 9         11
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SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD

182    820         BCE   RTMFAP,MACH,8      7040/7044 MAP OR FAP TEST              8  1036  B /04 082 8          11
183    830         BCE   RTAUTO,MACH,7      7070/7072/7074 AUTOCODER TEST          8  1044  B W09 082 7          11
184    840         BCE   RT7080,MACH,6      7080 AUTOCODER TEST                    8  1052  B Z86 082 6          12
185    850         BCE   RT7080,MACH,5      705  AUTOCODER TEST                    8  1060  B Z86 082 5          12
186    860         BCE   RTSPS2,MACH,4      1620 SPS TEST                          8  1068  B M30 082 4          12
187    870         BCE   RTAUTO,MACH,3      1410/7010 AUTOCODER TEST               8  1076  B W09 082 3          12
188    880         BCE   RTAUTO,MACH,2      1440 AUTOCODER TEST                    8  1084  B W09 082 2          13
189    890         BCE   RTSPS1,LANG,1      1401/1460 SPS TEST                     8  1092  B K45 083 1          13
190    900         B     RTAUTO           OTHERWISE BR TO AUTOCODER ROUTINE        4  1100  B W09                13
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

191     910        JOB   PHASE I  PASS 1 OF ANALYSIS   MAP AND FAP ROUTINE
192     920  *
193     930  *
194     940  *                -RTMFAP- THIS ROUTINE DETERMINES IF A TABLE
195     950  *                         LOOKUP IS NECESSARY FOR THE SOURCE
196     960  *                         CARD IMAGE. THE START OF THE OPE-AND
197     970  *                         IS DETERMINED,CHANNEL SUBSTITUTIONS
198     980  *                         ARE DROPPED,AND INDIRECT ADDRESS&NG *
199     990  *                         IS DROPPED AND THE RECORD IS FLAGGED
200   1 000  *
201   1 010  *
202   1 020  RTMFAP MLC   @D@,SET    D IN SET FOR MAP OR FAP                      7  1104  M R87 D64           14
203   1 030         MA    @001@,ADJADR&6     ADJUSTMENT FOR TABLE LOOKUP          7  1111  # R90 Q89           14
204   1 040         MLC   @007@,BINPTS       TO HANDLE 7090/7040                  7  1118  M R93 I02           14
205   1 050         MLC   @I9C@,KSIZE                                             7  1125  M R96 F27           14
206   1 060  STARTD MLC   BL5,OPCODE&5    BLANK OUT OPCODE INITIALLY              7  1132  M C94 D85           14
207   1 070         MLC   BL5,LABEL&5   BLANK OUT LABEL FIELD                     7  1139  M C94 D75           15
208   1 080         MLC   @ @,INDCD       BLANK OUT INDIRECT ADR FLAG POSITION    7  1146  M R97 D68           15
209   1 090         MLC   @ @,MACCD       BLANK OUT PROG MACRO FLAG POSITION      7  1153  M R97 D69           15
210   1 100         SBR   X1,0                                                    7  1160  H 089 000           15
211   1 110         SBR   X2                                                      4  1167  H 094               15
212   1 120         B     RTAPE    READ RECORD ON INPUT TAPE                      4  1171  B N81               15
213   1 130         SW    CARD&7   SET WORD MARK IN OP CODE START IN COL. 8       4  1175  , E35               16
214   1 140         BCE   CODET,CARD,*   TEST FOR COMMENTS CARD                   8  1179  B U66 E28 *         16
215   1 150  CTLAB  BCE   ADD1,CARD&X2,   START OF LABEL BLANKS-TEST              8  1187  B S06 EK8           16
216   1 160         MLC   CARD&5,LABEL&5&X1   MOVE LABEL TO RECORD                7  1195  M E33 DX5           16
217   1 170         B     CONT9                                                   4  1202  B S32               16
218   1 180  ADD1   BCE   CONT9,X1,C   7 CHAR MAX LABEL                           8  1206  B S32 089 C         16
219   1 190         MA    @I9I@,X1                                                7  1214  # ?00 089           17
220   1 200         A     @1@,X2                                                  7  1221  A ?01 094           17
221   1 210         B     CTLAB  CONTINUE LEADING BLANK COUNT                     4  1228  B /87               17
222   1 220  CONT9  SBR   X1,0                                                    7  1232  H 089 000           17
223   1 230         SBR   X2                                                      4  1239  H 094               17
224   1 240         BCE   EXCEPT,CARD&7,    TEST FOR BLANK OPERATION CODE         8  1243  B U92 E35           17
225   1 250         BCE   EXCEPT,CARD&7,*   *** EXCEPTION TO INDIRECT ADR         8  1251  B U92 E35 *         18
226   1 260  CONTCK BCE   CODEI,CARD&7&X1,*   TEST FOR INDIRECT ADDRESSING        8  1259  B T10 ET5 *         18
227   1 270         BCE   MOVEOP,CARD&7&X1,   TEST FOR END OF OPERATION CODE      8  1267  B T42 ET5           18
228   1 280         BCE   SETSW,CARD&7&X1,,   TEST FOR END OF OPERATION CODE      8  1275  B T02 ET5 ,         18
229   1 290         BCE   SETSW,CARD&7&X1,%   TEST FOR END OF OPERATION CODE      8  1283  B T02 ET5 %         19
230   1 300         SBR   X1,1&X1    COUNT OF OPCODE CHARACTERS IN X1             7  1291  H 089 0|1           19
231   1 310         B     CONTCK                                                  4  1298  B S59               19
232   1 320  SETSW  SW    SWITCH    SET SW TO SKIP START OF OPERAND COUNT         4  1302  , C88               19
233   1 330         B     MOVEOP                                                  4  1306  B T42               19
234   1 340  CODEI  MLC   @I@,INDCD  CODE I FOR INDIRECT ADDRESSING               7  1310  M ?02 D68           19
235   1 350         MLC   CARD&6&X1,OPCODE-1&X1   MOVE OPERATION CODE-            7  1317  M ET4 DX9           20
236   1 360         MLC   X1,X2                   IN OP CODE RECORD WITHOUT-      7  1324  M 089 094           20
237   1 370         SBR   X1,1&X1                 SAVE X1 IN X2 BUMP X1           7  1331  H 089 0|1           20
238   1 380         B     CONTCK                  RETURN TO FIND OPERAND START    4  1338  B S59               20
239   1 390  MOVEOP BCE   OVER,INDCD,I             IF CODE I - SKIP OPCOD MOVE    8  1342  B T64 D68 I         20
240   1 400         MLC   CARD&6&X1,OPCODE-1&X1    MOVE OP CODE TO OPCODE REC     7  1350  M ET4 DX9           21
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SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD

241  1 410         MLC   X1,X2      SAVE CHARACTER COUNT IN X2                    7  1357  M 089 094             21
242  1 420  OVER   BWZ   POS,SWITCH,1  IF SW ON DONT TEST FOR OPERAND START       8  1364  V T99 C88 1           21
243  1 430  INCX   C     X1,@008@   LIMIT-OPERAND CAN NOT START PAST COL 16       7  1372  C 089 ?05             21
244  1 440         BE    POS                                                      5  1379  B T99 S               21
245  1 450         SBR   X1,1&X1                                                  7  1384  H 089 0|1             22
246  1 460         BCE   INCX,CARD&7&X1,   1ST NON BLANK IS OPERAND START         8  1391  B T72 ET5             22
247  1 470  POS    SBR   X1,8&X1  STARTED TEST AT POS 8 SO ADJUST BY 8            7  1399  H 089 0|8             22
248  1 480         MLC   X1,OPANCD   SAVE START OF OPERAND FOR SCAN               7  1406  M 089 D55             22
249  1 490         CW    SWITCH    CLEAR SW TO SKIP OPERAND COUNT                 4  1413  ) C88                 22
250  1 500         B     TABLOK    BR TO TABLE LOOKUP SUBROUTINE                  4  1417  B P97                 22
251  1 510         C     @000@,LOC         NO LOC    COULD MEAN OPCODE NOT -      7  1421  C ?08 D89             23
252  1 520         BU    CONTU             FOUND IN TABLE BECAUSE LAST CHAR-      5  1428  B U58 /               23
253  1 530         MLC   OPCODE&X2,WORK-5&X2  CHANNEL SUB,SAVE OPCODE             7  1433  M DQ0 DL3             23
254  1 540         MLC   @ @,OPCODE-1&X2  DROP LAST CHAR AND TRY AGAIN            7  1440  M R97 DP9             23
255  1 550         B     TABLOK                                                   4  1447  B P97                 23
256  1 560         MLC   WORK-5&X2,OPCODE&X2  RESTORE ORIGINAL OPCODE             7  1451  M DL3 DQ0             23
257  1 570  CONTU  CW    CARD&7   CLEAR WORD MARK                                 4  1458  ) E35                 24
258  1 580         B     TEST2    BR TO TEST FOR PROG MACRO                       4  1462  B V03                 24
259  1 590  CODET  MLC   @T@,ANCODE   CODE T FOR TRANSPARENT                      7  1466  M ?09 D86             24
260  1 600         MLC   @   @,LOC   BLANK OUT TABLE LOCATION                     7  1473  M ?12 D89             24
261  1 610         CW    CARD&7      CLEAR START OF OPCODE WORD MARK              4  1480  ) E35                 24
262  1 620         B     WTAPE   BR TO WRITE EXPANDED IMAGE ON TAPE               4  1484  B O17                 24
263  1 630         B     STARTD  NO TABLE LOOKUP PERFORMED-BR TO READ RECORD      4  1488  B /32                 24
264  1 640  EXCEPT SBR   X1,3&X1    OPCODE *** AND BLANK ARE EXCEPTIONS           7  1492  H 089 0|3             25
265  1 650         B     CONTCK                                                   4  1499  B S59                 25
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

266  1 660         JOB   PHASE I PASS 1 OF ANALYSIS    PROGRAMMER MACRO RT
267  1 670  *
268  1 680  *
269  1 690  *                   -TEST2- THIS ROUTINE TESTS FOR MACRO WRITTEN BY
270  1 700  *                           A  PROGRAMMER. ALL INSTRUCTIONS W&THIN
271  1 710  *                           THE MACRO ARE FLAGGED
272  1 720  *
273  1 730  *
274  1 740  TEST2  BCE   MACROM,ANCODE,%   TEST FOR BEGIN PROG MACRO                  8  1503  B V31 D86 %         26
275  1 750         BCE   ENDMOD,ANCODE,)   TEST FOR END PROG MACRO                    8  1511  B V46 D86 )         26
276  1 760         BWZ   BLANK,SWMODE,1    TEST IF IN PROG MACRO MODE                 8  1519  V V80 C87 1         26
277  1 770         B     WRITE                                                      4  1527  B W01               26
278  1 780  MACROM SW    SWMODE       SET PROG MACRO MODE SW                        4  1531  , C87               26
279  1 790         SBR   X3,1&X3      COUNT BEGIN PROG MACRO IN CASE NESTING        7  1535  H 099 0?1           26
280  1 800         B     BLANK                                                      4  1542  B V80               27
281  1 810  ENDMOD MA    @I9I@,X3     COUNT END PROG MACRO IN CASE NESTING          7  1546  # ?00 099           27
282  1 820         C     X3,@000@     IF X3 IS 0 -OUT OF PROG MACRO MODE            7  1553  C 099 ?08           27
283  1 830         BE    SWOFF       BR TO TURN SW OFF                              5  1560  B V69 S             27
284  1 840         B     BLANK                                                      4  1565  B V80               27
285  1 850  SWOFF  CW    SWMODE    TURN OFF PROG MACRO SW                           4  1569  ) C87               27
286  1 860         SBR   X3,0                                                       7  1573  H 099 000           27
287  1 870  BLANK  MLC   @1@,ANCODE    CHANGE ANALYSIS CODE DONT SCAN               7  1580  M ?01 D86           28
288  1 880         MLC   @   @,LOC                                                  7  1587  M ?12 D89           28
289  1 890         MLC   BL5,LABEL&5   BLANK OUT LABEL ON RECORD                    7  1594  M C94 D75           28
290  1 900  WRITE  B     WTAPE                                                      4  1601  B O17               28
291  1 910         B     STARTD         RETURN TO RTMFAP ROUTINE                    4  1605  B /32               28
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

292  1 920         JOB   PHASE I  PASS 1 OF ANALYSIS   AUTOCODER ROUTINE
293  1 930  *
294  1 940  *
295  1 950  *                 -RTAUTO- DETERMINES TRANSPARENT CARD IMAGES,
296  1 960  *                          PUTS START OF OPERAND ON RECORD,
297  1 970  *                          DETERMINES IF SPS IS MIXED WITH
298  1 980  *                          AUTOCODER,AND CHECKS FOR BLANKS
299  1 990  *                          OPERATION CODES
300  2 000  *
301  2 010  *
302  2 020  RTAUTO MLC   @A@,SET   A IN SET FOR AUTOCODER                    7  1609  M ?13 D64           29
303  2 030         MLC   @21@,OPANCD  START OF OPERAND INFORMATION FOR 0CAN   7  1616  M ?15 D55           29
304  2 040  STARTA B     RTAPE     READ RECORD ON INPUT TAPE                 4  1623  B N81               29
305  2 050         MLC   BL5,OPCODE&4   BLANK OUT OPCODE INITIALLY           7  1627  M C94 D84           29
306  2 060         MLC   BL10,LABEL&9   BLANK OUT LABEL FIELD                7  1634  M D04 D79           29
307  2 070         SW    CARD&15,CARD&5                                      7  1641  , E43 E33           29
308  2 080         BCE   CODET1,CARD&5,*   TEST FOR COMMENTS CARD            8  1648  B X70 E33 *         30
309  2 090         SBR   X1,0                                                7  1656  H 089 000           30
310  2 100         SBR   X2                                                  4  1663  H 094               30
311  2 110  CNTLAB BCE   ADDONE,CARD&5&X2,   START OF LABEL BLANK-TEST       8  1667  B W86 EL3           30
312  2 120         MLC   CARD&14,LABEL&9&X1   MOVE LABEL TO RECORD           7  1675  M E42 DX9           30
313  2 130         B     CONT15                                              4  1682  B X12               30
314  2 140  ADDONE BCE   CONT15,X2-1,1   10 CHAR MAX LABEL                   8  1686  B X12 093 1         31
315  2 150         MA    @I9I@,X1                                            7  1694  # ?00 089           31
316  2 160         A     @1@,X2                                              7  1701  A ?01 094           31
317  2 170         B     CNTLAB   CONTINUE LEADING BLANK TEST                4  1708  B W67               31
318  2 180  CONT15 BCE   BKOP,CARD&15,    TEST FOR BLANK OPCODE              8  1712  B X55 E43           31
319  2 190         BCE   RTDROP,MACH,3    IF 1410 GO TO DROP LAST CHAR SUB   8  1720  B Y35 082 3         32
320  2 200         BCE   RTDROP,MACH,7    IF 7070 GO TO DROP LAST CHAR SUB   8  1728  B Y35 082 7         32
321  2 210         MLC   CARD&19,OPCODE&4  MOVE OPERATION CODE IN OPCODE     7  1736  M E47 D84           32
322  2 220  CONTT  B     TABLOK          BR TO TABLE LOOKUP SUBROUTINE       4  1743  B P97               32
323  2 230         BCE   CHANGE,ANCODE,.   . CODE TO INDICATE CHANGE MODE SPS  8  1747  B Y13 D86 .         32
324  2 240  BKOP   CW    CARD&15,CARD&5  USE ANALYSIS CODE OF PREVIOUS       7  1755  ) E43 E33           33
325  2 250         B     WTAPE     INSTRUCTION-NO TABLE LOOKUP               4  1762  B O17               33
326  2 260         B     STARTA    RETURN TO READ NEXT RECORD                4  1766  B W23               33
327  2 270  CODET1 MLC   ANCODE,SAVANA   SAVE ANALYSIS CODE                  7  1770  M D86 F18           33
328  2 280         MLC   @T@,ANCODE   CODE COMMENTS CARDS AS T-TRANSPARENT   7  1777  M ?09 D86           33
329  2 290         MLC   @   @,LOC    BLANK OUT TABLE LOCATION              7  1784  M ?12 D89           33
330  2 300         CW    CARD&15,CARD&5                                      7  1791  ) E43 E33           34
331  2 310         B     WTAPE                                               4  1798  B O17               34
332  2 320         MLC   SAVANA,ANCODE   RESTORE ANALYSIS CODE               7  1802  M F18 D86           34
333  2 330         B     STARTA                                              4  1809  B W23               34
334  2 340  CHANGE MLC   @ @,ANCODE  BLANK OUT ANALYSIS CODE                 7  1813  M R97 D86           34
335  2 350         CW    CARD&15,CARD&5                                      7  1820  ) E43 E33           34
336  2 360         B     WTAPE                                               4  1827  B O17               35
337  2 370         B     RTSPS1   BR TO CHANGE SET TO E                      4  1831  B K45               35
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SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD

338  2 380         JOB   PHASE I PASS 1 OF ANALYSIS    DROP SUBSTITUTION RT
339  2 390  *
340  2 400  *
341  2 410  *                  -RTDROP- IN 7070 AND 1410 AUTOCODER LANGUAGE
342  2 420  *                           CHANNEL SUBSTITUTIONS MAY ADDED TO THE
343  2 430  *                           OPERATION CODE. THESE SUBSTITUTIONS
344  2 440  *                           MUST BE DROPPED BEFORE A TABLE LOOKUP
345  2 450  *                           IS PERFORMED ON THIS OPERATION CODE.
346  2 460  *                           THIS ROUTINE DROPS THESE CHANNEL
347  2 470  *                           SUBSTITUTIONS AND 1410 OPCODE CHAR N
348  2 480  *                           WHICH IS USED TO NOP INSTRUCTIONS IF
349  2 490  *                           IT PRECEEDS OPCODE
350  2 500  *
351  2 510  *
352  2 520  RTDROP SBR   X1,0                                                   7  1835  H 089 000           36
353  2 530  BACK   BCE   HITBL,CARD&15&X1,   1ST BLANK IS END OF OPCODE         8  1842  B Y69 EU3           36
354  2 540         SBR   X1,1&X1             COUNT OPCODE CHARACTERS            7  1850  H 089 0|1           36
355  2 550         C     X1,@005@            MAXIMUM OPCODE CHARACTERS- SIX     7  1857  C 089 ?18           36
356  2 560         BU    BACK                                                   5  1864  B Y42 /             36
357  2 570  HITBL  BCE   NON,MACH,7     SKIP 1410 CHECK FOR N IF 7070 SYS       8  1869  B Y85 082 7         37
358  2 580         BCE   TESTNO,CARD&15,N  TEST IF 1ST OPCODE CHAR IS N        8  1877  B Z60 E43 N         37
359  2 590  NON    MA    @I9I@,X1                                               7  1885  # ?00 089           37
360  2 600         MLC   CARD&15&X1,STORE-4&X1  MOVE OP CODE TO WORK AREA       7  1892  M EU3 DS8           37
361  2 610  CHECKL BCE   DROPNU,STORE-4&X1,1    TEST FOR CHANNEL 1 SUB          8  1899  B Z35 DS8 1         37
362  2 620         BCE   DROPNU,STORE-4&X1,2    TEST FOR CHANNEL 2 SUB          8  1907  B Z35 DS8 2         38
363  2 630         BCE   DROPNU,STORE-4&X1,3    TEST FOR CHANNEL 3 SUB          8  1915  B Z35 DS8 3         38
364  2 640         BCE   DROPNU,STORE-4&X1,4    TEST FOR CHANNEL 4 SUB          8  1923  B Z35 DS8 4         38
365  2 650         B     MOVE                                                   4  1931  B Z42               38
366  2 660  DROPNU MA    @I9I@,X1    REDUCE X1 TO MOVE OPCODE WITHOUT SUB       7  1935  # ?00 089           38
367  2 670  MOVE   MLC   BL5,OPCODE&4                                           7  1942  M C94 D84           39
368  2 680         MLC   STORE-4&X1,OPCODE&X1  OP CODE LESS SUB IN OPCODE       7  1949  M DS8 DY0           39
369  2 690         B     CONTT                   RETURN TO AUTOCODER ROUT&NE    4  1956  B X43               39
370  2 700  TESTNO BCE   NON,CARD&16,O   TEST FOR EXCEPTION NOP                 8  1960  B Y85 E44 O         39
371  2 710         MLC   CARD&15&X1,STORE-5&X1  IF NOT NOP THEN MOVE OP&ODE-    7  1968  M EU3 DS7           39
372  2 720         MA    @I9H@,X1                WITHOUT PREFIX-N               7  1975  # ?21 089           40
373  2 730         B     CHECKL       BR TO CHECK FOR CHANNEL SUBSTITUTION      4  1982  B Y99               40
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

374  2 740         JOB   PHASE I PASS 1 OF ANALYSIS    7080/705 AUTO ROUTINE
375  2 750  *
376  2 760  *
377  2 770  *                  -RT7080- DETERMINES TRANSPARENT CARD IMAGES,
378  2 780  *                           PUTS START OF OPERAND ON RECORD &OR
379  2 790  *                           SCAN,DETERMINES IF BLANK OPERATION
380  2 800  *                           CODES MEANS DATA DEFINING,OR COMMENTS
381  2 810  *                           OR CONTINUATION OF PREVIOUS MACRO
382  2 820  *
383  2 830  *
384  2 840  RT7080 MLC   @B@,SET     B IN SET FOR 7080/705 AUTOCODER            7  1986  M ?22 D64           41
385  2 850         MLC   @23@,OPANCD   START OF OPERAND INFORMATION FOR SCAN      7  1993  M ?24 D55           41
386  2 860  STARTB B     RTAPE        READ RECORD ON INPUT TAPE                  4  2000  B N81               41
387  2 870         MLC   @ @,MACCD    BLANK OUT PROG MACRO FLAG POSITION         7  2004  M R97 D69           41
388  2 880         MLC   BL5,OPCODE&5   BLANK OUT OPCODE INITIALLY               7  2011  M C94 D85           41
389  2 890         MLC   BL10,LABEL&9   BLANK OUT LABEL                          7  2018  M D04 D79           41
390  2 900         BCE   CODET2,CARD&73,C   TEST FOR COMMENTS CARD               8  2025  B J73 F01 C         42
391  2 910         C     CARD&22,BLCOMP   TEST FOR COMMENTS CARD                 7  2033  C E50 D22           42
392  2 920         BE    CODET2                                                  5  2040  B J73 S             42
393  2 930         SW    CARD&15,CARD&5                                          7  2045  , E43 E33           42
394  2 940         SW    CARD&20                                                 4  2052  , E48               42
395  2 950         SBR   X1,0                                                    7  2056  H 089 000           42
396  2 960         SBR   X2                                                      4  2063  H 094               43
397  2 970  TESTLB BCE   ADD,CARD&5&X2,    START OF LABEL BLANKS-TEST            8  2067  B !86 EL3           43
398  2 980         MLC   CARD&14,LABEL&9&X1   MOVE LABEL TO RECORD               7  2075  M E42 DX9           43
399  2 990         B     CONT13                                                  4  2082  B J12               43
400  3 000  ADD    BCE   CONT13,X2-1,1      10 CHAR MAX LABEL                    8  2086  B J12 093 1         43
401  3 010         MA    @I9I@,X1                                                7  2094  # ?00 089           43
402  3 020         A     @1@,X2                                                  7  2101  A ?01 094           44
403  3 030         B     TESTLB  CONTINUE LEADING BLANK COUNT                    4  2108  B !67               44
404  3 040  CONT13 BCE   BKZONE,CARD&15,    TEST FOR BLANK OPCODE                8  2112  B K16 E43           44
405  3 050         MLC   CARD&19,OPCODE&4   MOVE OPERATION CODE TO OPCODE        7  2120  M E47 D84           44
406  3 060         B     TABLOK           BR TO TABLE LOOKUP SUBROUTINE          4  2127  B P97               44
407  3 070         BCE   CLAWM,CARD&21,   IF COL. 22 BLANK DONT APPEND NU        8  2131  B J54 E49           44
408  3 080         MLC   CARD&21,OPCODE&5   MOVE REGISTER NUMBER TO RECORD       7  2139  M E49 D85           45
409  3 090         BCE   MOVE0,OPCODE&4,                                         8  2146  B K34 D84           45
410  3 100  CLAWM  CW    CARD&15,CARD&5                                          7  2154  ) E43 E33           45
411  3 110         CW    CARD&20                                                 4  2161  ) E48               45
412  3 120         B     WTAPE                                                   4  2165  B O17               45
413  3 130         B     STARTB                                                  4  2169  B !00               45
414  3 140  CODET2 MLC   ANCODE,SAVANA   SAVE ANALYSIS CODE                      7  2173  M D86 F18           46
415  3 150         MLC   @T@,ANCODE   CODE COMMENTS CARD T-TRANSPARENT           7  2180  M ?09 D86           46
416  3 160         MLC   @   @,LOC    BLANK OUT TABLE LOCATION                   7  2187  M ?12 D89           46
417  3 170         CW    CARD&15,CARD&5                                          7  2194  ) E43 E33           46
418  3 180         B     WTAPE     WR EXPAND RECORD-NO TABLE LOOKUP              4  2201  B O17               46
419  3 190         MLC   SAVANA,ANCODE   RESTORE ANALYSIS CODE                   7  2205  M F18 D86           46
420  3 200         B     STARTB    RETURN TO READ NEXT RECORD ON TAPE            4  2212  B !00               47
421  3 210  BKZONE MZ    @ @,ANCODE   BLANK OUT ANCODE FOR CONTINUATION CARD     7  2216  Y R97 D86           47
422  3 220         MLC   @   @,LOC   BLANK OUT DICT LOCATION                     7  2223  M ?12 D89           47
423  3 230         B     CLAWM                                                   4  2230  B J54               47
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SEQ PG LIN  LABEL  OP    OPERANDS                                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD

424  3 240  MOVE0  MLC   @0@,OPCODE&4                                                     7  2234  M ?25 D84           47
425  3 250         B     CLAWM                                                            4  2241  B J54               47
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

426  3 260         JOB   PHASE I  PASS 1 OF ANALYSIS   1401 SPS ROUTINE
427  3 270  *
428  3 280  *
429  3 290  *                   -RTSPS1- DETERMINES TRANSPARENT CARD IMAGES,
430  3 300  *                            PUTS START OF OPERAND ON RECORD FOR
431  3 310  *                            SCAN,CHECKS FOR LANGUAGE MODE CHANGE
432  3 320  *
433  3 330  *
434  3 340  RTSPS1 MLC   @E@,SET   E IN SET FOR 1401 SPS                          7  2245  M ?26 D64           48
435  3 350         MLC   @17@,OPANCD   START OF OPERAND INFORMATION FOR SCAN      7  2252  M ?28 D55           48
436  3 360  STARTE B     RTAPE       READ RECORD - INPUT TAPE 3                   4  2259  B N81               48
437  3 370         MLC   BL5,OPCODE&4  BLANK OUT OPCODE INITIALLY                 7  2263  M C94 D84           48
438  3 380         SW    CARD&13,CARD&7                                           7  2270  , E41 E35           48
439  3 390         BCE   CODEC3,CARD&7,*   TEST FOR COMMENTS CARD                 8  2277  B L71 E35 *         49
440  3 400         MLC   CARD&12,LABEL&5   MOVE LABEL TO RECORD                   7  2285  M E40 D75           49
441  3 410         MLC   CARD&15,OPCODE&2  MOVE OPERATION CODE IN OPCODE          7  2292  M E43 D82           49
442  3 420         B     TABLOK            BR TO TABLE LOOKUP SUBROUTINE          4  2299  B P97               49
443  3 430         BCE   CHSET,ANCODE,.    . CODE INDICATE CHANGE MODE TO AUTO    8  2303  B L49 D86 .         49
444  3 440         BCE   CKANA,ANCODE,,    , CODE IS LOAD OR MOVE INSTRUCTION     8  2311  B M00 D86 ,         50
445  3 450         MN    ANCODE,SAVE   MOVE ANALYSIS CODE TO TEST POS             7  2319  D D86 C85           50
446  3 460         BCE   *&5,SAVE,3                                               8  2326  B L38 C85 3         50
447  3 470         B     *&8                                                      4  2334  B L45               50
448  3 480         MZ    @ @,ANCODE   DATADEFINING BLANK ZONE FOR NO SCAN        7  2338  Y R97 D86           50
449  3 490         B     CONT20                                                   4  2345  B L85               50
450  3 500  CHSET  MLC   @ @,ANCODE   BLANK OUT ANALYSIS CODE                    7  2349  M R97 D86           51
451  3 510         CW    CARD&13,CARD&7                                           7  2356  ) E41 E35           51
452  3 520         B     WTAPE                                                    4  2363  B O17               51
453  3 530         B     RTAUTO   BR TO CHANGE SET TO A                           4  2367  B W09               51
454  3 540  CODEC3 MLC   @T@,ANCODE  CODE COMMENTS CARD T- FOR TRANSPARENT        7  2371  M ?09 D86           51
455  3 550         MLC   @   @,LOC   BLANK OUT TABLE LOCATION                     7  2378  M ?12 D89           51
456  3 560  CONT20 CW    CARD&13,CARD&7                                           7  2385  ) E41 E35           52
457  3 570         B     WTAPE     BR TO WR AND EXPAND CARD IMAGE ON TAPE         4  2392  B O17               52
458  3 580         B     STARTE   GO TO READ NEXT RECORD ON INPUT TAPE            4  2396  B K59               52
459  3 590  CKANA  BCE   IO,CARD&16,%   % IN COL. MEANS IO INSTRUCTION            8  2400  B M19 E44 %         52
460  3 600         MLC   @-@,ANCODE   OTHERWISE IT IS A MOVE INSTRUCTION          7  2408  M ?29 D86           52
461  3 610         B     CONT20                                                   4  2415  B L85               52
462  3 620  IO     MLC   @K@,ANCODE   CHANGE ANACOD TO K FOR INPUT-OUTP0T         7  2419  M ?30 D86           53
463  3 630         B     CONT20                                                   4  2426  B L85               53
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

464  3 640         JOB   PHASE I PASS 1 OF ANALYSIS    1620 SPS ROUTINE
465  3 650  *
466  3 660  *
467  3 670  *                  -RTSPS2- DETERMINES TRANSPARENT 1620 CARD
468  3 680  *                           IMAGES,PUTS START OF OPERAND ON RECORD
469  3 690  *                           FOR SCAN,CHECKS FOR IMMEDIATE
470  3 700  *                           INSTRUCTIONS FOR SCAN
471  3 710  *
472  3 720  *
473  3 730  RTSPS2 MLC   @C@,SET     C IN SET FOR 1620 SPS                           7  2430  M ?31 D64            54
474  3 740         MLC   @16@,OPANCD   START OF OPERAND INFORMATION F6R SCAN       7  2437  M ?33 D55            54
475  3 750  STARTC B     RTAPE        READ RECORD - INPUT TAPE 3                   4  2444  B N81                54
476  3 760         MLC   @ @, IMEDCD   BLANK OUT IMMEDIATE INSTRUCTION &LAG        7  2448  M R97 D53            54
477  3 770         MLC   BL5,OPCODE&4  BLANK OUT OPCODE INITIALLY                  7  2455  M C94 D84            54
478  3 780         SW    CARD&11,CARD&5                                            7  2462  , E39 E33            54
479  3 790         BCE   CODEC4,CARD&5,*    TEST FOR COMMENTS CARD                 8  2469  B N52 E33 *          55
480  3 800         MLC   CARD&10,LABEL&5   MOVE SOURCE LABEL TO RECORD             7  2477  M E38 D75            55
481  3 810         SBR   X1,1                                                      7  2484  H 089 001            55
482  3 820  COUNTC BCE   FLAGM,CARD&11&X1,M   TEST FOR IMMEDIATE INSTRUCTIONS      8  2491  B N41 ET9 M          55
483  3 830         BCE   MOVEC,CARD&11&X1,   FIRST BLANK - END OF OPCODE           8  2499  B N26 ET9            55
484  3 840         SBR   X1,1&X1    COUNT OP CODE CHARACTERS                       7  2507  H 089 0|1            56
485  3 850         C     X1,@004@   MAXIMUM 1620 OPCODE CHARACTERS-FIVE            7  2514  C 089 ?36            56
486  3 860         BU    COUNTC                                                    5  2521  B M91 /              56
487  3 870  MOVEC  MLC   CARD&14,OPCODE&3   MOVE OPERATION CODE IN OPCODE          7  2526  M E42 D83            56
488  3 880         B     TABLOK               BR TO TABLE LOOKUP SUBROUTINE        4  2533  B P97                56
489  3 890         B     CONT30                                                    4  2537  B N66                56
490  3 900  FLAGM  MLC   @I@,IMEDCD       FLAG AS IMMEDIATE INSTRUCTION            7  2541  M ?02 D53            57
491  3 910         B     MOVEC                                                     4  2548  B N26                57
492  3 920  CODEC4 MLC   @T@,ANCODE    CODE COMMENTS CARD T- FOR TRANSPARENT       7  2552  M ?09 D86            57
493  3 930         MLC   @   @,LOC     BLANK OUT TABLE LOCATION                    7  2559  M ?12 D89            57
494  3 940  CONT30 CW    CARD&11,CARD&5                                            7  2566  ) E39 E33            57
495  3 950         B     WTAPE         WR EXPAND RECORD-NO TABLE LOOKUP            4  2573  B O17                57
496  3 960         B     STARTC        RETURN TO READ NEXT RECORD ON TAPE          4  2577  B M44                58
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SEQ PG LIN  LABEL  OP    OPERANDS                                                   SFX CT  LOCN  INSTRUCTION TYPE  CARD

497  3 970         JOB   PHASE I PASS 1 OF ANALYSIS     READ TAPE SUBROUTINE
498  3 980  *
499  3 990  *
500  4 000  *                  -RTAPE- THIS SUBROUTINE READS A RECORD FROM
501  4 010  *                          INPUT TAPE 2 OR 3 INTO CARD
502  4 020  *
503  4 030  *
504  4 040  RTAPE  SBR   ENDRD&3                                                         4  2581  H O16                59
505  4 050         B     SYSIO                                                           4  2585  B 500                59
506  4 060         DCW   &IOCON3                                                         3  2591  300                  59
507  4 070         ORG   *-2                                                                      2590
508  4 080         DC    &CARD                                                           3  2592  E28                  60
509  4 090         DC    @R@                                                             1  2593                       60
510  4 100         BEF   UNLOAD                                                          5  2594  B P13 K              60
511  4 110         A     @1@,SEQNU                                                       7  2599  A ?01 D27            60
512  4 120         MLC   SEQNU,SEQ                                                       7  2606  M D27 D52            60
513  4 130  ENDRD  B     0                                                               4  2613  B 000                60
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

514  4 140         JOB   PHASE I  PASS 1 OF ANALYSIS   WRITE  TAPE SUBROUTINE
515  4 150  *
516  4 160  *
517  4 170  *                   -WTAPE- THIS SUBROUTINE WRITES A RECORD FROM
518  4 180  *                           RECORD ONTO UNIT4
519  4 190  *
520  4 200  *
521  4 210  WTAPE  SBR   RETURN&3                                               4  2617  H O38               61
522  4 220         B     SYSIO                                                  4  2621  B 500               61
523  4 230         DCW   &IOCON4                                                3  2627  400                 61
524  4 240         ORG   *-2                                                          2626
525  4 250         DC    &RECORD                                                3  2628  D48                 62
526  4 260         DC    @W@                                                    1  2629                      62
527  4 270         BEF   ROVFL                                                  5  2630  B O39 K             62
528  4 280  RETURN B     0                                                      4  2635  B 000               62
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

529  4 290         JOB   PHASE I PASS 1 OF ANALYSIS    MESSAGES
530  4 300  *
531  4 310  *
532  4 320  ROVFL  MLC   @TAPE 4 TOO SHORT. MOUNT NEW TAPE--PRESS START@,246      7  2639  M ?81 246           63
533  4 330         B     MESSG                                                    4  2646  B 660               63
534  4 340         H     6,6                                                      7  2650  . 006 006           63
535  4 350         RWD   3    RE-ENTRY POINT FOR RESTART                          5  2657  U %U3 R             63
536  4 360         RWD   2                                                        5  2662  U %U2 R             63
537  4 370         RWD   4                                                        5  2667  U %U4 R             63
538  4 380         BCE   STARTD,SET,D  IF SET D AVOID TABLE ADJUSTMENT            8  2672  B /32 D64 D         64
539  4 390         B     SYS                                                      4  2680  B |28               64
540  4 400  *
541  4 410  *
542  4 420  *
543  4 430  *
544  4 440  ERROR  B     EJECT                                                    4  2684  B 704               64
545  4 450         MLC   @ERROR. ILLEGAL OPTION. RUN TERMINATED.@,239             7  2688  M A19 239           64
546  4 460         B     PRINT                                                    4  2695  B 747               64
547  4 470         RWD   1                                                        5  2699  U %U1 R             64
548  4 480         B     SYSLNK                                                   4  2704  B 400               64
549  4 490         DCW   @1CONA@                                                  5  2712                      65
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

550  4 500         JOB   PHASE I PASS 1 OF ANALYSIS    END OF PASS1 ACTIVEITY
551  4 510  *
552  4 520  *
553  4 530  *
554  4 540  *
555  4 550  UNLOAD BW    UNLTP,SWTAP3   UNLOAD INPUT TAPE IF WM IN 3              8  2713  V P25 C86 1         66
556  4 560         B     RWDTP4                                                  4  2721  B P45               66
557  4 570  UNLTP  MLC   @DISMOUNT TAPE 3. MOUNT SCRATCH TAPE.@,238              7  2725  M A55 238           66
558  4 580         B     MESSG                                                   4  2732  B 660               66
559  4 590         RWU   3                                                       5  2736  U %U3 U             66
560  4 600         B     *&6                                                     4  2741  B P50               66
561  4 610  RWDTP4 RWD   3                                                       5  2745  U %U3 R             66
562  4 620         WTM   4                                                       5  2750  U %U4 M             67
563  4 630         RWD   4                                                       5  2755  U %U4 R             67
564  4 640         CW    GRP1                                                    4  2760  ) F08               67
565  4 650         BWZ   RSEC,SWCNT,1   IF COUNT REPORT REQUESTED CALL PASS 2     8  2764  V P81 086 1         67
566  4 660         B     SYSLNK                                                  4  2772  B 400               67
567  4 670         DCW   @3ANAV@        CALL IN PASS 3                           5  2780                      67
568  4 680  RSEC   MLC   BINPTS,LENGTH   LENGTH OF DICT ENTRY FOR PASS 2         7  2781  M I02 I99           67
569  4 690         B     SYSLNK                                                  4  2788  B 400               68
570  4 700         DCW   @3ANAU@   CALL IN PASS 2                                5  2796                      68
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

571  4 710         JOB   PHASE I PASS 1 OF ANALYSIS   TABLE LOOKUP SUBROUTINE
572  4 720  *
573  4 730  *
574  4 740  *                 -TABLOK- THIS SUBROUTINE COMPARES THE SOURCE
575  4 750  *                          CARD OPERATION CODE WITH OPERATION
576  4 760  *                          CODES IN THE TABLE. IF AN EQUAL IS
577  4 770  *                          FOUND THE ANALYSIS CODE IS PICKED UP
578  4 780  *                          FROM THE TABLE AND THE LOCATION
579  4 790  *                          IT WAS FOUND
580  4 800  *
581  4 810  *
582  4 820  TABLOK SBR   EXIT5&3                                                  4  2797  H R57                69
583  4 830         MLC   X1,XSAV1   SAVE INDEX REGISTERS                         7  2801  M 089 D41            69
584  4 840         MLC   X2,XSAV2                                                7  2808  M 094 D44            69
585  4 850         MLC   X3,XSAV3                                                7  2815  M 099 D47            69
586  4 860         SBR   X1,0      ZERO X1                                       7  2822  H 089 000            69
587  4 870         SBR   LOC                                                     4  2829  H D89                69
588  4 880         BWZ   F,SW1ST,1   TEST FIRST TIME SWITCH                      8  2833  V A56 D23 1          70
589  4 890         SBR   X3,0      ZERO X3                                       7  2841  H 099 000            70
590  4 900  SETLO  MLC   X3,X2         LOW CELL # X2 SET IT WITH X3              7  2848  M 099 094            70
591  4 910         MLC   LOC,HOLD                                                7  2855  M D89 F33            70
592  4 920  STEPUP SBR   X1,3&X1  UP X1 BY 3 FOR BINARY POINTS                   7  2862  H 089 0|3            70
593  4 930         MA    BINPTS&X1,X3   INCREMENT X3 BY BINARY POINT             7  2869  # I|2 099            71
594  4 940         MA    LOCPTS&X1,LOC    INCREMENT LOC BY LOCPTS                7  2876  # FT6 D89            71
595  4 950  ADJADR C     DICOP&X3,OPCODE&4  MATCH OPCODE TO TABLE                7  2883  C II8 D84            71
596  4 960         BE    FOUND              IF EQUAL GO TO EXTRACT               5  2890  B R26 S              71
597  4 970         BCE   NOFIND,X1-1,4   X1 IS 42 IF ALL BINARY POINTS USED      8  2895  B R58 088 4          71
598  4 980         BH    SETLO              IF HIGH GO SET NEW LOW PARAM         5  2903  B Q48 U              71
599  4 990         MLC   X2,X3              IF LO SET NEW HIGH BINARY PARAM      7  2908  M 094 099            72
600  5 000         MLC   HOLD,LOC           IF LO SET NEW HIGH LOC PARAM         7  2915  M F33 D89            72
601  5 010         B     STEPUP             GO TO GET NEXT BINARY POINT          4  2922  B Q62                72
602  5 020  FOUND  MLC   DICOP&1&X3,ANCODE  MOVE ANALYSIS CODE TO RECORD         7  2926  M II9 D86            72
603  5 030  DONE   MLC   XSAV1,X1  RESTORE CONTENTS OF INDEX REGISTERS           7  2933  M D41 089            72
604  5 040         MLC   XSAV2,X2                                                7  2940  M D44 094            72
605  5 050         MLC   XSAV3,X3                                                7  2947  M D47 099            73
606  5 060  EXIT5  B     0                                                       4  2954  B 000                73
607  5 070  NOFIND MLC   @ @,ANCODE   BLANK OUT ANALYSIS CODE                    7  2958  M R97 D86            73
608  5 080         MLC   @000@,LOC    ZERO OUT LOC                               7  2965  M ?08 D89            73
609  5 090         B     DONE                                                    4  2972  B R33                73
610  5 100         LTORG *&1                                                            2977
                   DCW   @N@                                                     1  2977              LIT     74
           144           @ANALYSIS@                                              8  2985              LIT     74
                         @Y@                                                     1  2986              LIT     74
                         @D@                                                     1  2987              LIT     74
                         @001@                                                   3  2990              LIT     74
                         @007@                                                   3  2993              LIT     74
                         @I9C@                                                   3  2996              LIT     74
                         @ @                                                     1  2997              LIT     75
                         @I9I@                                                   3  3000              LIT     75
                         @1@                                                     1  3001              LIT     75
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

                         @I@                                                   1  3002              LIT     75
                         @008@                                                 3  3005              LIT     75
                         @000@                                                 3  3008              LIT     75
                         @T@                                                   1  3009              LIT     75
                         @   @                                                 3  3012              LIT     76
                         @A@                                                   1  3013              LIT     76
                         @21@                                                  2  3015              LIT     76
                         @005@                                                 3  3018              LIT     76
                         @I9H@                                                 3  3021              LIT     76
                         @B@                                                   1  3022              LIT     76
                         @23@                                                  2  3024              LIT     76
                         @0@                                                   1  3025              LIT     77
                         @E@                                                   1  3026              LIT     77
                         @17@                                                  2  3028              LIT     77
                         @-@                                                   1  3029              LIT     77
                         @K@                                                   1  3030              LIT     77
                         @C@                                                   1  3031              LIT     77
                         @16@                                                  2  3033              LIT     77
                         @004@                                                 3  3036              LIT     78
       532               @TAPE 4 TOO SHORT. MOUNT NEW TAPE--PRESS START@      45  3081              LIT     80
       545               @ERROR. ILLEGAL OPTION. RUN TERMINATED.@             38  3119              LIT     81
       557               @DISMOUNT TAPE 3. MOUNT SCRATCH TAPE.@               36  3155              LIT     82
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD

611  5 110         JOB   PHASE I PASS 1 ANALYSIS BINARY POINTS
612  5 120  *
613  5 130  *                             THIS ROUTINE IS DONE ONLY ONCE TO
614  5 140  *                             CALCULATE BINARY POINTS FOR THE
615  5 150  *                             TABLE LOOKUP
616  5 160  F      SBR   X1,0                                                      7  3156  H 089 000             83
617  5 170         CW    SW1ST  CLEAR FIRST TIME SWITCH                            4  3163  ) D23                 83
618  5 180         MN    MACH,X1     MOVE MACHINE NUMBER IN X1 TO CALL IN-         7  3167  D 082 089             83
619  5 190         MLC   CALLTB-1&X1,CALL   APPROPRIATE DICTIONARY                 7  3174  M F|8 A89             83
620  5 200         B     SYSLNK                                                    4  3181  B 400                 83
621  5 210  CALL   DCW   @3ANA @       READS DICT INTO CORE AT 4000                5  3189                        83
622  5 220         ORG   EXCDIC        ORG BINARY POINTS IN 3900                          3200
623  5 230         MLC   799,AEND    MOVE DICT HIGH ADDRESS IN AEND                7  3200  M 799 F30             84
624  5 240         MN    BINPTS,CHK&7   MOVE DICT SIZE OF ENTRY IN CHK&7           7  3207  D I02 C12             84
625  5 250         MA    KSTART,AEND    SUB COMPLEMENT OF 1200 FROM HIGH ADR       7  3214  # F24 F30             84
626  5 260  REDUX  MA    KSIZE,AEND   SUB KSIZE FROM TOTAL SIZE TO COUNT-          7  3221  # F27 F30             84
627  5 270         A     @1@,SIZ       NUMBER OF DICTIONARY ENTRIES                7  3228  A C78 F21             84
628  5 280         C     AEND,@000@                                                7  3235  C F30 C81             85
629  5 290         BU    REDUX                                                     5  3242  B B21 /               85
630  5 300         CW    X2-2                                                      4  3247  ) 092                 85
631  5 310         SBR   X3,3                                                      7  3251  H 099 003             85
632  5 320  MULT   S     X2&1                                                      4  3258  S 095                 85
633  5 330         A     SIZ,X1&1    ADD DICT. SIZE TO SELF 5 TIMES AND-           7  3262  A F21 090             85
634  5 340         A     X1&1        ACCUMULATE ANSWER IN X1                       4  3269  A 090                 85
635  5 350         A     X1&1        BY MOVING FIRST 3 CHAR OF ANSWER  WE-         4  3273  A 090                 86
636  5 360         A     SIZ,X1&1    HAVE DIVIDED BY 2                             7  3277  A F21 090             86
637  5 370         MLC   X1,LOCPTS&X3    X1 NOW CONTAINS DICT. LOCATION POINT      7  3284  M 089 FC6             86
638  5 380  AGAIN  MA    X1,BINPTS&X3      MULTIPLY BY KSIZE TO CALCULATE-         7  3291  # 089 I?2             86
639  5 390         SBR   X2,1&X2           BINARY POINTS                           7  3298  H 094 0!1             86
640  5 400  CHK    BCE   *&5,X2,0   IF X2 IS 0 WE HAVE COMPLETED MULTIPLY          8  3305  B C17 094 0           87
641  5 410         B     AGAIN                                                     4  3313  B B91                 87
642  5 420         BCE   FIN,X3-1,4    IF X3 IS 42 14 BINARY PTS CALCULATED        8  3317  B C55 098 4           87
643  5 430         SBR   X3,3&X3                                                   7  3325  H 099 0?3             87
644  5 440         C     @001@,X1                                                  7  3332  C C84 089             87
645  5 450         BE    MULT                                                      5  3339  B B58 S               87
646  5 460         MLC   X1,SIZ                                                    7  3344  M 089 F21             88
647  5 470         B     MULT                                                      4  3351  B B58                 88
648  5 480  FIN    SW    X2-2                                                      4  3355  , 092                 88
649  5 490         SBR   X1,0                                                      7  3359  H 089 000             88
650  5 500         SBR   X2,0                                                      7  3366  H 094 000             88
651  5 510         B     SETLO-7            RETURN TO TABLOK                       4  3373  B Q41                 88
652  5 520         LTORG *&1                                                             3378
                   DCW   @1@                                                       1  3378             LIT     89
                         @000@                                                     3  3381             LIT     89
                         @001@                                                     3  3384             LIT     89
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

653  5 530         JOB   PHASE I  PASS 1 ANALYSIS
654  5 540  *       DECLARATIVE INSTRUCTIONS.
655  5 550  *
656  5 560  SAVE   DCW   #1   SPS ANCODE TEST POSITION                            1  3385                     90
657  5 570  SWTAP3 DC    #1   SAVE UNLOAD INPUT TAPE SWITCH                       1  3386                     90
658  5 580  SWMODE DC    #1   PROGAMMER MACRO MODE SWITCH                         1  3387                     90
659  5 590  SWITCH DC    #1   SWITCH TO SKIP START OF OPERAND COUNT 7090          1  3388                     90
660  5 600  BL5    DCW   #6    USED TO BLANK OUT OPCODE                           6  3394                     90
661  5 610  BL10   DCW   #10   USED TO BLANK OUT LABEL                           10  3404                     90
662  5 620  BLCOMP DCW   #18   COMPARE FIELD FOR 7080 COMMENTS TEST              18  3422                     90
663  5 630  SW1ST  DCW   #1   FIRST TIME SWITCH                                   1  3423                     90
664  5 640  SEQNU  DCW   @0000@   GENERATED SEQ. NO.                              4  3427                     91
665  5 650  STORE  DCW   #5      WORK AREA                                        5  3432                     91
666  5 660  WORK   DCW   #6         WORK AREA                                     6  3438                     91
667  5 670  XSAV1  DCW   #3    SAVE INDEX REGISTERS HERE                          3  3441                     91
668  5 680  XSAV2  DCW   #3                                                       3  3444                     91
669  5 690  XSAV3  DCW   #3                                                       3  3447                     91
670  5 700  RECORD DA    1X160                                                       3448   3607              91
671  5 710  SEQ          1,5    GENERATED SEQ. NO.                                   3452             FIELD   92
672  5 720  IMEDCD       6,6    IMMEDIATE FLAG POSITION-1620                         3453             FIELD   92
673  5 730  OPANCD       7,8     START OF OPERAND                                    3455             FIELD   92
674  5 740  SET          17,17  SYSTEM-AUTO,1620 SPS,1401 SPS,MAP OR FAP,7080        3464             FIELD   92
675  5 750  INDCD        21,21  INDIRECT ADDRESSING FLAG POSITION                    3468             FIELD   92
676  5 760  MACCD        22,22  PROGRAMMER MACRO POSITION                            3469             FIELD   92
677  5 770  LABEL        23,23   SOURCE CARD LABEL                                   3470             FIELD   93
678  5 780  OPCODE       33,33  OPERATION CODE                                       3480             FIELD   93
679  5 790  ANCODE       39,39  ANALYSIS ASSIGNED CODE                               3486             FIELD   93
680  5 800  LOC          40,42  LOCATION IN DICTIONARY                               3489             FIELD   93
681  5 810  CARD         81,81  SOURCE CARD IMAGE                                    3528             FIELD   93
682  5 820  GRP1   DC    @}@                                                      1  3608                     94
683  5 830  CALLTB DCW   @E@      1401 DICTIONARY                                 1  3609                     94
684  5 840         DCW   @E@      1440                                            1  3610                     94
685  5 850         DCW   @F@      1410                                            1  3611                     94
686  5 860         DCW   @G@      1620                                            1  3612                     94
687  5 870         DCW   @H@      705                                             1  3613                     95
688  5 880         DCW   @H@      7080                                            1  3614                     95
689  5 890         DCW   @I@      7070                                            1  3615                     95
690  5 900         DCW   @J@      7040                                            1  3616                     95
691  5 910         DCW   @J@      7090                                            1  3617                     95
692  5 920  SAVANA DCW   #1       POSITION TO SAVE ANALYSIS CODE                  1  3618                     95
693  5 930  SIZ    DCW   #3  POSITION TO CALCULATE NO. OF DICT ENTRIES            3  3621                     95
694  5 940  KSTART DCW   @00?@      CONSTANT 1200                                 3  3624                     96
695  5 950  KSIZE  DCW   @I9D@   DICT ENTRY SIZE-6                                3  3627                     96
696  5 960  AEND   DCW   @000@   END OF DICT ADDRESS POS                          3  3630                     96
697  5 970  HOLD   DCW   #3     USED TO HOLD DICT LOCATION                        3  3633                     96
698  5 980  LOCPTS DCW   @000@                                                    3  3636                     96
699  5 990         DCW   #45     14 LOCATION POINTS                              45  3681                     98
700  6 000         ORG   POINTS   ORG BINARY POINTS AT 3900                                 3900
701  6 010  BINPTS DCW   @006@   LENGTH OF DICT ENTRY                             3  3902                     99
702  6 020         DCW   #45   14 BINARY POINTS                                  45  3947                    101
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                              PHASE I  PASS 1 ANALYSIS                                   3ANAA              PAGE   21

SEQ PG LIN  LABEL  OP     OPERANDS                                                   SFX CT  LOCN  INSTRUCTION TYPE  CARD

703  6 030  HIGH   EQU    *&1                                                                3948
704  6 040         END    START                                                                    / 800 080          102
690  5 900         DCW    @J@      7040                                                   1  3616                      95              *****
691  5 910         DCW    @J@      7090                                                   1  3617                      95
692  5 920  SAVANA DCW    #1       POSITION TO SAVE ANALYSIS CODE                         1  3618                      95
693  5 930  SIZ    DCW    #3  POSITION TO CALCULATE NO. OF DICT ENTRIES                   3  3621                      95
694  5 940  KSTART DCW    @00?@      CONSTANT 1200                                        3  3624                      96
695  5 950  KSIZE  DCW    @I9D@   DICT ENTRY SIZE-6                                       3  3627                      96
696  5 960  AEND   DCW    @000@   END OF DICT ADDRESS POS                                 3  3630                      96
697  5 970  HOLD   DCW    #3     USED TO HOLD DICT LOCATION                               3  3633                      96
698  5 980  LOCPTS DCW    @000@                                                           3  3636                      96
699  5 990         DCW    #45     14 LOCATION POINTS                                     45  3681                      98
700  6 000         ORG    POINTS   ORG BINARY POINTS AT 3900                                        3900
701  6 010  BINPTS DCW    @006@   LENGTH OF DICT ENTRY                                    3  3902                      99
702  6 020         DCW    #45   14 BINARY POINTS                                         45  3947                     101
```

SEQ PG LIN LABEL OP   OPERANDS   SFX CT LOCN INSTRUCTION TYPE CARD

```
CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                                1             3ANAB
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?             2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040              3

                          PHASE I PASS 1 FOR SYSTEM 360                               3ANAB             PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    010  000    JOB   PHASE I PASS 1 FOR SYSTEM 360
 102    020         CTL   440  1
 103    025  *              VERSION 2  LEVEL 0   JULY 25,1965
 104    030         DC    @$ADD     @                                                  9  0341                        4
 105    040         DC    &SYSOR                                                       3  0344  800                   4
 106    050         DC    &START                                                       3  0347  800                   4
 107    060         DC    &HIGH                                                        3  0350  I54                   4
 108    070         ORG   SYSOR                                                                  0800
 109    080  SYSOR  EQU   800                                                             0800
 110    090  POS2   EQU   2                                                               0002
 111    100  POS10  EQU   10  START OF OPTION FIELD ON CONTROL CARD                       0010
 112    110  X1     EQU   089                                                             0089
 113    120  X2     EQU   094                                                             0094
 114    130  X3     EQU   099                                                             0099
 115    140  SWCRS  EQU   81   CROSS REFERENCE-SWITCH                                     0081
 116    150  SWOPAN EQU   85   OPERAND REFERENCE-SWITCH                                   0085
 117    160  SWUPD  EQU   85   UNLOAD INPUT TAPE-SWITCH                                   0085
 118    170  SWAN   EQU   86   CROSS OR OPERAND REPORTS REQUESTED-SWITCH                  0086
 119    180  SWCNT  EQU   86   FREQUENCY REPORT-SWITCH                                    0086
 120    190  LENGTH EQU   3999   LENGTH OF DICT ENTRY INFO FOR PASS 2                     3999
 121    200  IOCON3 EQU   300                                                             0300
 122    210  IOCON4 EQU   400                                                             0400
 123    220  SYSLNK EQU   400                                                             0400
 124    230  SYSIO  EQU   500                                                             0500
 125    240  MESSG  EQU   660                                                             0660
 126    250  EJECT  EQU   704                                                             0704
 127    260  PRINT  EQU   747                                                             0747
 128    270  DICOP  EQU   3998   FIRST DICT ENTRY-6                                       3998
 129    280  POINTS EQU   3900   ORG BINARY POINTS AT 3900                                3900
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

130    290         JOB   PHASE I  PASS 1 OF ANALYSIS
131    300  *
132    310  *                *** INITIALYZE
133    320  *
134    330  START  SW    GRP1                                                    4  0800  , P39                5
135    340         BEF   *&1    SET INDICATOR ON IF OFF                          5  0804  B 809 K              5
136    350         SBR   X1,0                                                    7  0809  H 089 000            5
137    360         SBR   X2                                                      4  0816  H 094                5
138    370         SBR   X3                                                      4  0820  H 099                5
139    380         MN    SWUPD,RTAPE&8   INPUT UNIT                              7  0824  D 085 !01            5
140    390         MN    SWUPD,RWDTP4&3     REWIND INPUT TAPE                    7  0831  D 085 J52            5
141    400         MLC   @N@,SWAN   SET INITIALLY NO OPTIONS                     7  0838  M L80 086            6
142    410         MLC   @ANALYSIS@,109                                          7  0845  M L88 109            6
143    420         BW    SAV85,SWUPD    BR TO SAVE UNLOAD TAPE SW                8  0852  V 864 085 1          6
144    430         B     CLWMK                                                   4  0860  B 868                6
145    440  SAV85  SW    SWTAP3     SET TAPE UNLOAD SW IN ANOTHER POSIT&ON       4  0864  , N47                6
146    450  CLWMK  CW    SWCRS,SWUPD                                             7  0868  ) 081 085            6
147    460         CW    SWCNT                                                   4  0875  ) 086                7
148    470  *
149    480  *                *** DETERMINE IF OPTIONAL REPORTS ARE REQUESTED
150    490  *
151    500         BCE   SYS,POS2,C   $CHART - NO OPTIONS                        8  0879  B |28 002 C          7
152    510         B     EJECT                                                   4  0887  B 704                7
153    520         MLC   80,281                                                  7  0891  M 080 281            7
154    530         B     PRINT   PRINT CONTROL CARD                              4  0898  B 747                7
155    540  DETOP  BCE   SYS,POS10&X1,   BLANK POS10 - NO OPTIONS                8  0902  B |28 0/0            7
156    550         BCE   DET,POS10&X1,C   POS10 C - COUNT OR CROSS OPTION        8  0910  B 930 0/0 C          8
157    560         BCE   OP,POS10&X1,O    POS10 O - OPERAND OPTION               8  0918  B 987 0/0 O          8
158    570         B     ERROR           BR TO ILLEGAL OPTION PRINT              4  0926  B !88                8
159    580  DET    SBR   X1,4&X1                                                 7  0930  H 089 0|4            8
160    590         BCE   COUNT,POS10&X1,T   TEST FOR COUNT OPTION                8  0937  B 957 0/0 T          8
161    600         BCE   CROSS,POS10&X1,S   TEST FOR CROSS OPTION                8  0945  B 972 0/0 S          9
162    610         B     ERROR             BR TO ILLEGAL OPTION PRINT            4  0953  B !88                9
163    620  COUNT  SW    SWCNT    SET COUNT OPTION SWITCH                        4  0957  , 086                9
164    630  ON1    SBR   X1,2&X1                                                 7  0961  H 089 0|2            9
165    640         B     DETOP   RETURN TO CHECK FOR OTHER OPTIONS               4  0968  B 902                9
166    650  CROSS  SW    SWCRS    SET CROSS OPTION SWITCH                        4  0972  , 081                9
167    660         MLC   @Y@,SWAN   Y INDICATES TO PASS 3 -REPORTS REQUESTED     7  0976  M L89 086            9
168    670         B     ON1                                                     4  0983  B 961               10
169    680  OP     SBR   X1,6&X1                                                 7  0987  H 089 0|6           10
170    690         BCE   CONTS,POS10&X1,D   TEST LAST POS OF OPERAND OPTION      8  0994  B |06 0/0 D         10
171    700         B     ERROR                                                   4  1002  B !88               10
172    710  CONTS  SBR   X1,2&X1                                                 7  1006  H 089 0|2           10
173    720         MLC   @Y@,SWAN   Y INDICATES TO PASS 3 -REPORTS REQUESTED     7  1013  M L89 086           10
174    730         SW    SWOPAN   SET OPERAND OPTION SWITCH                      4  1020  , 085               11
175    740         B     DETOP                                                   4  1024  B 902               11
176    750  SYS    B     SYSLNK                                                  4  1028  B 400               11
177    760         DCW   @3ANAK@    360 ANALYSIS DICTIONARY                      5  1036                      11
178    770         ORG   1200                                                              1200
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

179    780         JOB   PHASE I PASS 1 ANALYSIS BINARY POINTS
180    790  *
181    800  *                             THIS ROUTINE IS DONE ONLY ONCE TO
182    810  *                             CALCULATE BINARY POINTS FOR THE
183    820  *                             TABLE LOOKUP
184    830         SBR   X1,0                                                       7  1200  H 089 000            12
185    840         MLC   799,AEND    MOVE DICT HIGH ADDRESS IN AEND                  7  1207  M 799 P54            12
186    850         MN    BINPTS,CHK&7   MOVE DICT SIZE OF ENTRY IN CHK&7             7  1214  D I02 T19            12
187    860         MA    KSTART,AEND    SUB COMPLEMENT OF 1200 FROM HIGH ADR         7  1221  # P45 P54            12
188    870  REDUX  MA    KSIZE,AEND   SUB KSIZE FROM TOTAL SIZE TO COUNT-            7  1228  # P51 P54            12
189    880         A     @1@,SIZ      NUMBER OF DICTIONARY ENTRIES                   7  1235  A L90 P42            13
190    890         C     AEND,@000@                                                 7  1242  C P54 L93            13
191    900         BU    REDUX                                                      5  1249  B S28 /              13
192    910         CW    X2-2                                                       4  1254  ) 092                13
193    920         SBR   X3,3                                                       7  1258  H 099 003            13
194    930  MULT   S     X2&1                                                       4  1265  S 095                13
195    940         A     SIZ,X1&1    ADD DICT. SIZE TO SELF 5 TIMES AND-             7  1269  A P42 090            14
196    950         A     X1&1        ACCUMULATE ANSWER IN X1                         4  1276  A 090                14
197    960         A     X1&1        BY MOVING FIRST 3 CHAR OF ANSWER  WE-           4  1280  A 090                14
198    970         A     SIZ,X1&1    HAVE DIVIDED BY 2                               7  1284  A P42 090            14
199    980         MLC   X1,LOCPTS&X3    X1 NOW CONTAINS DICT. LOCATION POINT        7  1291  M 089 PF0            14
200    990  AGAIN  MA    X1,BINPTS&X3      MULTIPLY BY KSIZE TO CALCULATE-           7  1298  # 089 I?2            14
201  1 000         SBR   X2,1&X2           BINARY POINTS                             7  1305  H 094 0!1            15
202  1 010  CHK    BCE   *&5,X2,0   IF X2 IS 0 WE HAVE COMPLETED MULTIPLY            8  1312  B T24 094 0          15
203  1 020         B     AGAIN                                                      4  1320  B S98                15
204  1 030         BCE   FIN,X3-1,4    IF X3 IS 42 14 BINARY PTS CALCULATED          8  1324  B T62 098 4          15
205  1 040         SBR   X3,3&X3                                                    7  1332  H 099 0?3            15
206  1 050         C     @001@,X1                                                   7  1339  C L96 089            16
207  1 060         BE    MULT                                                       5  1346  B S65 S              16
208  1 070         MLC   X1,SIZ                                                     7  1351  M 089 P42            16
209  1 080         B     MULT                                                       4  1358  B S65                16
210  1 090  FIN    SW    X2-2                                                       4  1362  , 092                16
211  1 100         MLC   @01@,FORMCL      START OF CARD IMAGE IN COL. 1              7  1366  M L98 I49            16
212  1 110         MLC   @71@,FORMCL&2   END OF CARD IMAGE IN COL. 72                7  1373  M M00 I51            17
213  1 120         MLC   @16@,FORMCL&4    START OF CONTINUATION CARD INCOL.16        7  1380  M M02 I53            17
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

214  1 130         JOB   PHASE I  PASS 1            SYSTEM 360
215  1 140  START0 B     RTAPE     BR TO READ A RECORD FROM INPUT TAPE           4  1387  B Z93                18
216  1 150         SBR   X1,0                                                    7  1391  H 089 000            18
217  1 160         SBR   X2                                                      4  1398  H 094                18
218  1 170         SBR   X3                                                      4  1402  H 099                18
219  1 180  CKBEGN SBR   X2,1&X2                                                 7  1406  H 094 0!1            18
220  1 190         C     X2,@080@                                                7  1413  C 094 M05            18
221  1 200         BE    TESTCD                                                  5  1420  B V75 S              18
222  1 210         BCE   *&5,CARD&X2-1,I    TEST FOR ICTL FORMAT CONTROL         8  1425  B U37 ON8 I          19
223  1 220         B     CKBEGN                                                  4  1433  B U06                19
224  1 230         C     CARD&2&X2,@ICTL@                                        7  1437  C OO1 M09            19
225  1 240         BU    TESTCD                                                  5  1444  B V75 /              19
226  1 250         SBR   X2,3&X2                                                 7  1449  H 094 0!3            19
227  1 260  STOPAN SBR   X2,1&X2                                                 7  1456  H 094 0!1            19
228  1 270         C     X2,@070@                                                7  1463  C 094 M12            20
229  1 280         BE    TESTCD                                                  5  1470  B V75 S              20
230  1 290         BCE   STOPAN,CARD&X2,   TEST OPERAND START FOR ICTL           8  1475  B U56 ON9            20
231  1 300         BCE   FORM1,CARD&X2&1,,                                       8  1483  B V17 OO0 ,          20
232  1 310         BCE   FORM1,CARD&X2&1,                                        8  1491  B V17 OO0            20
233  1 320         MLC   CARD&X2&1,FORMCL                                        7  1499  M OO0 I49            21
234  1 330         SBR   X2,1&X2                                                 7  1506  H 094 0!1            21
235  1 340         B     *&15                                                    4  1513  B V31                21
236  1 350  FORM1  MLC   CARD&X2,FORMCL                                          7  1517  M ON9 I49            21
237  1 360         MLC   @0@,FORMCL-1       1 CHAR NO. START OF CARD COL.        7  1524  M M13 I48            21
238  1 370         SBR   X2,1&X2                                                 7  1531  H 094 0!1            21
239  1 380         BCE   TESTCD,CARD&X2,                                         8  1538  B V75 ON9            22
240  1 390         MLC   CARD&X2&2,FORMCL&2                                      7  1546  M OO1 I51            22
241  1 400         SBR   X2,3&X2                                                 7  1553  H 094 0!3            22
242  1 410         BCE   TESTCD,CARD&X2,                                         8  1560  B V75 ON9            22
243  1 420         MLC   CARD&X2&2,FORMCL&4                                      7  1568  M OO1 I53            22
244  1 430  TESTCD SBR   X1,0                                                    7  1575  H 089 000            23
245  1 440         SBR   X2                                                      4  1582  H 094                23
246  1 450         SBR   X3                                                      4  1586  H 099                23
247  1 460         MLC   BL5,OPCODE&5  BLANK OUT OPCODE FIELD INITIALLY          7  1590  M N55 O16            23
248  1 470         MLC   BL10,LABEL&9  BLANK OUT LABEL FIELD INITIALLY           7  1597  M N65 O10            23
249  1 480         MLC   FORMCL,X1     USED AS START OF CARD IMAGE POINTER       7  1604  M I49 089            23
250  1 490         MA    @I9I@,X1                                                7  1611  # M16 089            24
251  1 500         MLC   FORMCL&2,X2   USED AS POINTER FOR CARD IMAGE END COL    7  1618  M I51 094            24
252  1 510         MLC   FORMCL&4,X3   USED AS POINTER FOR CONTINUATION COL.     7  1625  M I53 099            24
253  1 520         MLC   FORMCL,HOLDX1#3                                         7  1632  M I49 M19            24
254  1 530         A     @7@,HOLDX1                                              7  1639  A M20 M19            24
255  1 540         MA    @I9I@,X3                                                7  1646  # M16 099            25
256  1 550         BW    AROUND,SWCONT,1   TEST IF CONTINUATION CARD SW ON       8  1653  V W85 N49 1          25
257  1 560  CONT60 BCE   CODET6,CARD&X1,*  TEST FOR COMMENTS CARD                8  1661  B Y76 OV9 *          25
258  1 570         BCE   NOCONT,CARD&X2,   TEST FOR NON-BLANK END COL.           8  1669  B X19 ON9            25
259  1 580         SW    SWCONT            SET SW FOR NEXT CARD CONTINUATION     4  1677  , N49                25
260  1 590         B     NOCONT                                                  4  1681  B X19                25
261  1 690  AROUND MZ    @ @,ANCODE  BLANK OUT ZONE TO SCAN                      7  1685  Y M21 O17            26
262  1 700         MLC   @   @,LOC   BLANK OUT DICT LOCATION                     7  1692  M M24 O20            26
263  1 710         CW    SWCONT                                                  4  1699  ) N49                26
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SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

264  1 720         BCE   *&5,CARD&X2,                                                8  1703  B X15 ON9           26
265  1 730         SW    SWCONT                                                      4  1711  , N49               26
266  1 740         B     WRITE        BR TO WRITE RECORD                             4  1715  B Z85               26
267  1 750  NOCONT SBR   X2,0                                                        7  1719  H 094 000           27
268  1 760         SBR   X3                                                          4  1726  H 099               27
269  1 770  TESTLB BCE   TERMIN,CARD&X1,   FIRST BLANK TERMINATES LABEL              8  1730  B X64 OV9           27
270  1 780         SBR   X1,1&X1                                                     7  1738  H 089 0|1           27
271  1 790         SBR   X3,1&X3                                                     7  1745  H 099 0?1           27
272  1 800         C     X1,HOLDX1                                                   7  1752  C 089 M19           28
273  1 810         BU    TESTLB                                                      5  1759  B X30 /             28
274  1 820  TERMIN BCE   CODET6,CARD&X1-1,/  TEST FOR / LABEL-CONTROL CARD            8  1764  B Y76 OV8 /         28
275  1 830         MLC   CARD&X1-1,LABEL&X3-1  MOVE CARD LABEL TO RECORD             7  1772  M OV8 O?0           28
276  1 840  TERONE SBR   X1,1&X1                                                     7  1779  H 089 0|1           28
277  1 850         BCE   TERONE,CARD&X1,   NON-BLANK CHAR STARTS OPCODE FIELD        8  1786  B X79 OV9           29
278  1 860  CNTOP  SBR   X1,1&X1                                                     7  1794  H 089 0|1           29
279  1 870         SBR   X2,1&X2                                                     7  1801  H 094 0!1           29
280  1 880         BCE   MOVE60,CARD&X1,   BLANK ENDS OPCODE FIELD                   8  1808  B Y20 OV9           29
281  1 890         B     CNTOP                                                       4  1816  B X94               29
282  1 900  MOVE60 MLC   CARD&X1-1,OPCODE&X2-1                                       7  1820  M OV8 OJ0           30
283  1 910  OPST   SBR   X1,1&X1                                                     7  1827  H 089 0|1           30
284  1 920         C     X1,@070@                                                    7  1834  C 089 M12           30
285  1 930         BE    CONT36                                                      5  1841  B Y68 S             30
286  1 940         BCE   OPST,CARD&X1,    NON-BLANK CHAR STARTS OPERAND              8  1846  B Y27 OV9           30
287  1 950         SBR   X1,1&X1                                                     7  1854  H 089 0|1           31
288  1 960         MLC   X1,OPANCD        X1 CONTAINS START OPERAND FOR SCAN         7  1861  M 089 N86           31
289  1 970  CONT36 B     TABLOK           BR TO TABLOK                               4  1868  B K01               31
290  1 980         B     TEST2            BR TO TEST FOR MACRO DEFINITION            4  1872  B Y94               31
291  1 990  CODET6 MLC   @T@,ANCODE   CODE T-TRANSPARENT COMMENTS CARD               7  1876  M M25 O17           31
292  2 000         MLC   @   @,LOC    BLANK OUT DICT LOCATION                        7  1883  M M24 O20           31
293  2 010         B     WRITE        BR TO WRITE TAPE                               4  1890  B Z85               32
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

294  2 020         JOB   PHASE I PASS 1 OF ANALYSIS    PROGRAMMER MACRO RT
295  2 030  *
296  2 040  *
297  2 050  *                   -TEST2- THIS ROUTINE TESTS FOR MACRO WRITTEN BY
298  2 060  *                           A  PROGRAMMER. ALL INSTRUCTIONS W&THIN
299  2 070  *                           THE MACRO ARE FLAGGED
300  2 080  *
301  2 090  *
302  2 100  TEST2  BCE   MACROM,ANCODE,%   TEST FOR BEGIN PROG MACRO             8  1894  B Z22 O17 %         33
303  2 110         BCE   ENDMOD,ANCODE,)   TEST FOR END PROG MACRO               8  1902  B Z37 O17 )         33
304  2 120         BWZ   BLANK,SWMODE,1    TEST IF IN PROG MACRO MODE            8  1910  V Z64 N48 1         33
305  2 130         B     WRITE                                                 4  1918  B Z85               33
306  2 140  MACROM SW    SWMODE       SET PROG MACRO MODE SW                     4  1922  , N48               33
307  2 150         A     &1,CTPAR     COUNT BEGIN PROG MACRO IN CASE NESTING     7  1926  A M26 P48           33
308  2 160         B     BLANK                                                 4  1933  B Z64               34
309  2 170  ENDMOD MA    @I9I@,CTPAR  COUNT END PROG MACRO IN CASE NESTING       7  1937  # M16 P48           34
310  2 180         C     CTPAR,@000@  CTPAR IS 0 -OUT OF PROG MACRO MODE         7  1944  C P48 L93           34
311  2 190         BE    SWOFF       BR TO TURN SW OFF                           5  1951  B Z60 S             34
312  2 200         B     BLANK                                                 4  1956  B Z64               34
313  2 210  SWOFF  CW    SWMODE    TURN OFF PROG MACRO SW                        4  1960  ) N48               34
314  2 220  BLANK  MLC   @T@,ANCODE    CHANGE ANALYSIS CODE TO T-TRANSPARENT     7  1964  M M25 O17           34
315  2 230         MLC   @   @,LOC                                             7  1971  M M24 O20           35
316  2 240         MLC   @M@,MACCD    FLAG RECORD M FOR PROG MACRO               7  1978  M M27 O00           35
317  2 250  WRITE  B     WTAPE                                                 4  1985  B !29               35
318  2 260         B     START0                                                4  1989  B T87               35
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SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

319  2 270         JOB   PHASE I PASS 1 OF ANALYSIS     READ TAPE SUBROUTINE
320  2 280  *
321  2 290  *
322  2 300  *                   -RTAPE- THIS SUBROUTINE READS A RECORD FROM
323  2 310  *                           INPUT TAPE 2 OR 3 INTO CARD
324  2 320  *
325  2 330  *
326  2 340  RTAPE  SBR   ENDRD&3                                                        4  1993  H !28                36
327  2 350         B     SYSIO                                                          4  1997  B 500                36
328  2 360         DCW   &IOCON3                                                        3  2003  300                  36
329  2 370         ORG   *-2                                                                      2002
330  2 380         DC    &CARD                                                          3  2004  O59                  37
331  2 390         DC    @R@                                                            1  2005                       37
332  2 400         BEF   UNLOAD                                                         5  2006  B J17 K              37
333  2 410         A     @1@,SEQNU                                                      7  2011  A L90 N69            37
334  2 420         MLC   SEQNU,SEQ                                                      7  2018  M N69 N83            37
335  2 430  ENDRD  B     0                                                              4  2025  B 000                37
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

336  2 440         JOB   PHASE I  PASS 1 OF ANALYSIS   WRITE  TAPE SUBROUTINE
337  2 450  *
338  2 460  *
339  2 470  *                 -WTAPE- THIS SUBROUTINE WRITES A RECORD FROM
340  2 480  *                         RECORD ONTO UNIT4
341  2 490  *
342  2 500  *
343  2 510  WTAPE  SBR   RETURN&3                                               4  2029  H !50               38
344  2 520         B     SYSIO                                                  4  2033  B 500               38
345  2 530         DCW   &IOCON4                                                3  2039  400                 38
346  2 540         ORG   *-2                                                          2038
347  2 550         DC    &RECORD                                                3  2040  N79                 39
348  2 560         DC    @W@                                                    1  2041                      39
349  2 570         BEF   ROVFL                                                  5  2042  B !51 K             39
350  2 580  RETURN B     0                                                      4  2047  B 000               39
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                       SFX CT  LOCN  INSTRUCTION TYPE  CARD

351  2 590         JOB   PHASE I PASS 1 OF ANALYSIS    MESSAGES
352  2 600  *
353  2 610  *
354  2 620  ROVFL  MLC   @TAPE 4 TOO SHORT. MOUNT NEW TAPE--PRESS START@,246      7  2051  M M72 246           40
355  2 630         B     MESSG                                                   4  2058  B 660               40
356  2 640         H     6,6                                                     7  2062  . 006 006           40
357  2 650         RWD   3    RE-ENTRY POINT FOR RESTART                         5  2069  U %U3 R             40
358  2 660         RWD   2                                                       5  2074  U %U2 R             40
359  2 670         RWD   4                                                       5  2079  U %U4 R             40
360  2 680         B     START0                                                  4  2084  B T87               40
361  2 690  *
362  2 700  *
363  2 710  *
364  2 720  *
365  2 730  ERROR  B     EJECT                                                   4  2088  B 704               41
366  2 740         MLC   @ERROR. ILLEGAL OPTION. RUN TERMINATED.@,239            7  2092  M N10 239           41
367  2 750         B     PRINT                                                   4  2099  B 747               41
368  2 760         RWD   1                                                       5  2103  U %U1 R             41
369  2 770         B     SYSLNK                                                  4  2108  B 400               41
370  2 780         DCW   @1CONA@                                                 5  2116                      41
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SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD

371  2 790         JOB   PHASE I PASS 1 OF ANALYSIS    END OF PASS1 ACTIVEITY
372  2 800  *
373  2 810  *
374  2 820  *
375  2 830  *
376  2 840  UNLOAD BW    UNLTP,SWTAP3   UNLOAD INPUT TAPE IF WM IN 3            8  2117  V J29 N47 1         42
377  2 850         B     RWDTP4                                                 4  2125  B J49               42
378  2 860  UNLTP  MLC   @DISMOUNT TAPE 3. MOUNT SCRATCH TAPE.@,238             7  2129  M N46 238           42
379  2 870         B     MESSG                                                  4  2136  B 660               42
380  2 880         RWU   3                                                      5  2140  U %U3 U             42
381  2 890         B     *&6                                                    4  2145  B J54               42
382  2 900  RWDTP4 RWD   3                                                      5  2149  U %U3 R             42
383  2 910         WTM   4                                                      5  2154  U %U4 M             43
384  2 920         RWD   4                                                      5  2159  U %U4 R             43
385  2 930         CW    GRP1                                                   4  2164  ) P39               43
386  2 940         BWZ   RSEC,SWCNT,1   IF COUNT REPORT REQUESTED CALL PASS 2   8  2168  V J85 086 1         43
387  2 950         B     SYSLNK                                                 4  2176  B 400               43
388  2 960         DCW   @3ANAR@        CALL IN PASS 3  SYSTEM 360              5  2184                      43
389  2 970  RSEC   MLC   BINPTS,LENGTH   LENGTH OF DICT ENTRY FOR PASS 2        7  2185  M I02 I99           43
390  2 980         B     SYSLNK                                                 4  2192  B 400               44
391  2 990         DCW   @3ANAQ@   CALL IN PASS 2                               5  2200                      44
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

392  3 000         JOB   PHASE I PASS 1 OF ANALYSIS   TABLE LOOKUP SUBROUTINE
393  3 010  *
394  3 020  *
395  3 030  *              -TABLOK- THIS SUBROUTINE COMPARES THE SOURCE
396  3 040  *                       CARD OPERATION CODE WITH OPERATION
397  3 050  *                       CODES IN THE TABLE. IF AN EQUAL IS
398  3 060  *                       FOUND THE ANALYSIS CODE IS PICKED UP
399  3 070  *                       FROM THE TABLE AND THE LOCATION
400  3 080  *                       IT WAS FOUND
401  3 090  *
402  3 100  *
403  3 110  TABLOK SBR   EXIT5&3                                                  4  2201  H L60              45
404  3 120         MLC   X1,XSAV1   SAVE INDEX REGISTERS                          7  2205  M 089 N72          45
405  3 130         MLC   X2,XSAV2                                                 7  2212  M 094 N75          45
406  3 140         MLC   X3,XSAV3                                                 7  2219  M 099 N78          45
407  3 150         SBR   X1,0      ZERO X1                                        7  2226  H 089 000          45
408  3 160         SBR   LOC                                                      4  2233  H O20              45
409  3 170         SBR   X3,0      ZERO X3                                        7  2237  H 099 000          46
410  3 180  SETLO  MLC   X3,X2         LOW CELL # X2 SET IT WITH X3               7  2244  M 099 094          46
411  3 190         MLC   LOC,HOLD                                                 7  2251  M O20 P57          46
412  3 200  STEPUP SBR   X1,3&X1  UP X1 BY 3 FOR BINARY POINTS                    7  2258  H 089 0|3          46
413  3 210         MA    BINPTS&X1,X3   INCREMENT X3 BY BINARY POINT              7  2265  # I|2 099          46
414  3 220         MA    LOCPTS&X1,LOC    INCREMENT LOC BY LOCPTS                 7  2272  # PW0 O20          47
415  3 230         C     DICOP-1&X3,OPCODE&4   MATCH OPCODE TO TABLE              7  2279  C II7 O15          47
416  3 240         BE    FOUND              IF EQUAL GO TO EXTRACT                5  2286  B L22 S            47
417  3 250         BCE   NOFIND,X1-1,4   X1 IS 42 IF ALL BINARY POINTS USED       8  2291  B L61 088 4        47
418  3 260         BH    SETLO              IF HIGH GO SET NEW LOW PARAM          5  2299  B K44 U            47
419  3 270         MLC   X2,X3              IF LO SET NEW HIGH BINARY PARAM       7  2304  M 094 099          47
420  3 280         MLC   HOLD,LOC           IF LO SET NEW HIGH LOC PARAM          7  2311  M P57 O20          48
421  3 290         B     STEPUP             GO TO GET NEXT BINARY POINT           4  2318  B K58              48
422  3 300  FOUND  MLC   DICOP&X3,ANCODE   MOVE ANALYSIS CODE TO RECORD           7  2322  M II8 O17          48
423  3 310         MLC   DICOP&1&X3,RX   CODE WHICH INDICATES INDEXING            7  2329  M II9 N95          48
424  3 320  DONE   MLC   XSAV1,X1  RESTORE CONTENTS OF INDEX REGISTERS            7  2336  M N72 089          48
425  3 330         MLC   XSAV2,X2                                                 7  2343  M N75 094          48
426  3 340         MLC   XSAV3,X3                                                 7  2350  M N78 099          49
427  3 350  EXIT5  B     0                                                        4  2357  B 000              49
428  3 360  NOFIND MLC   @ @,ANCODE   BLANK OUT ANALYSIS CODE                     7  2361  M M21 O17          49
429  3 370         MLC   @000@,LOC    ZERO OUT LOC                                7  2368  M L93 O20          49
430  3 380         B     DONE                                                     4  2375  B L36              49
431  3 390         LTORG *&1                                                            2380
                   DCW   @N@                                                      1  2380             LIT     50
       142               @ANALYSIS@                                               8  2388             LIT     50
                         @Y@                                                      1  2389             LIT     50
                         @1@                                                      1  2390             LIT     50
                         @000@                                                    3  2393             LIT     50
                         @001@                                                    3  2396             LIT     50
                         @01@                                                     2  2398             LIT     50
                         @71@                                                     2  2400             LIT     51
                         @16@                                                     2  2402             LIT     51
                         @080@                                                    3  2405             LIT     51
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

                         @ICTL@                                                 4  2409              LIT     51
                         @070@                                                  3  2412              LIT     51
                         @0@                                                    1  2413              LIT     51
                         @I9I@                                                  3  2416              LIT     51
       253  HOLDX1       #03                                                    3  2419              AREA    52
                         @7@                                                    1  2420              LIT     52
                         @ @                                                    1  2421              LIT     52
                         @   @                                                  3  2424              LIT     52
                         @T@                                                    1  2425              LIT     52
                         &1                                                     1  2426              LIT     52
                         @M@                                                    1  2427              LIT     52
       354               @TAPE 4 TOO SHORT. MOUNT NEW TAPE--PRESS START@       45  2472              LIT     54
       366               @ERROR. ILLEGAL OPTION. RUN TERMINATED.@              38  2510              LIT     55
       378               @DISMOUNT TAPE 3. MOUNT SCRATCH TAPE.@                36  2546              LIT     56
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SEQ PG LIN  LABEL  OP    OPERANDS                                                   SFX CT  LOCN  INSTRUCTION TYPE  CARD

432  3 400         JOB   PHASE I  PASS 1 ANALYSIS
433  3 410  *      DECLARATIVE INSTRUCTIONS.
434  3 420  *
435  3 430  SWTAP3 DC    #1   SAVE UNLOAD INPUT TAPE SWITCH                              1  2547                     57
436  3 440  SWMODE DC    #1   PROGAMMER MACRO MODE SWITCH                                1  2548                     57
437  3 450  SWCONT DC    #1    SW TO INDICATE CONTINUATION CARD                          1  2549                     57
438  3 460  BL5    DCW   #6    USED TO BLANK OUT OPCODE                                  6  2555                     57
439  3 470  BL10   DCW   #10   USED TO BLANK OUT LABEL                                  10  2565                     57
440  3 480  SEQNU  DCW   @0000@   GENERATED SEQ. NO.                                     4  2569                     57
441  3 490  XSAV1  DCW   #3    SAVE INDEX REGISTERS HERE                                 3  2572                     57
442  3 500  XSAV2  DCW   #3                                                              3  2575                     58
443  3 510  XSAV3  DCW   #3                                                              3  2578                     58
444  3 520  RECORD DA    1X160                                                              2579  2738               58
445  3 530  SEQ          1,5     GENERATED SEQ. NO.                                         2583             FIELD   58
446  3 540  OPANCD       7,8      START OF OPERAND                                          2586             FIELD   58
447  3 550  RX           17,17       CODE POSITION TO INDICATE INDEXING                     2595             FIELD   58
448  3 560  MACCD        22,22  PROGRAMMER MACRO POSITION                                   2600             FIELD   58
449  3 570  LABEL        23,23   SOURCE CARD LABEL                                          2601             FIELD   59
450  3 580  OPCODE       33,33  OPERATION CODE                                              2611             FIELD   59
451  3 590  ANCODE       39,39  ANALYSIS ASSIGNED CODE                                      2617             FIELD   59
452  3 600  LOC          40,42  LOCATION IN DICTIONARY                                      2620             FIELD   59
453  3 610  CARD         81,81  SOURCE CARD IMAGE                                           2659             FIELD   59
454  3 620  GRP1   DC    @}@                                                             1  2739                     60
455  3 630  SIZ    DCW   #3  POSITION TO CALCULATE NO. OF DICT ENTRIES                   3  2742                     60
456  3 640  KSTART DCW   @00?@      CONSTANT 1200                                        3  2745                     60
457  3 650  CTPAR  DCW   @000@                                                           3  2748                     60
458  3 660  KSIZE  DCW   @I9C@   DICT ENTRY SIZE-7                                       3  2751                     60
459  3 670  AEND   DCW   @000@   END OF DICT ADDRESS POS                                 3  2754                     61
460  3 680  HOLD   DCW   #3     USED TO HOLD DICT LOCATION                               3  2757                     61
461  3 690  LOCPTS DCW   @000@                                                           3  2760                     61
462  3 700         DCW   #45     14 LOCATION POINTS                                     45  2805                     63
463  3 710         ORG   POINTS   ORG BINARY POINTS AT 3900                                      3900
464  3 720  BINPTS DCW   @007@   LENGTH OF DICT ENTRY                                    3  3902                     64
465  3 730         DCW   #45   14 BINARY POINTS                                         45  3947                     66
466  3 740  FORMCL DCW   @  @  START OF CARD IMAGE FIELD                                 2  3949                     66
467  3 750         DCW   @  @  END OF CARD IMAGE FIELD                                   2  3951                     66
468  3 760         DCW   @  @  START OF CONTINUATION FIELD                               2  3953                     66
469  3 770  HIGH   EQU   *&1                                                                3954
470  3 780         END   START                                                                    / 800 080          67
453  3 610  CARD         81,81  SOURCE CARD IMAGE                                           2659             FIELD   59          *****
454  3 620  GRP1   DC    @}@                                                             1  2739                     60
455  3 630  SIZ    DCW   #3  POSITION TO CALCULATE NO. OF DICT ENTRIES                   3  2742                     60
456  3 640  KSTART DCW   @00?@      CONSTANT 1200                                        3  2745                     60
457  3 650  CTPAR  DCW   @000@                                                           3  2748                     60
458  3 660  KSIZE  DCW   @I9C@   DICT ENTRY SIZE-7                                       3  2751                     60
459  3 670  AEND   DCW   @000@   END OF DICT ADDRESS POS                                 3  2754                     61
460  3 680  HOLD   DCW   #3     USED TO HOLD DICT LOCATION                               3  2757                     61
461  3 690  LOCPTS DCW   @000@                                                           3  2760                     61
462  3 700         DCW   #45     14 LOCATION POINTS                                     45  2805                     63
463  3 710         ORG   POINTS   ORG BINARY POINTS AT 3900                                      3900
464  3 720  BINPTS DCW   @007@   LENGTH OF DICT ENTRY                                    3  3902                     64
465  3 730         DCW   #45   14 BINARY POINTS                                         45  3947                     66
466  3 740  FORMCL DCW   @  @  START OF CARD IMAGE FIELD                                 2  3949                     66
```

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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                        1             3ANAE
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?     2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040      3

                          1401 ANALYSIS DICTIONARY                                   3ANAE              PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101  1 01   000    JOB   1401 ANALYSIS DICTIONARY
 102  1 02          CTL   440
 103  1 025  *              VERSION 2  LEVEL 0   JULY 25,1965
 104  1 03          DC    @$ADD     @                                                    9  0341                      4
 105  1 04          DC    &SYSOR                                                         3  0344  00|                 4
 106  1 05          DC    &BLDPTS                                                        3  0347  B00                 4
 107  1 06          DC    &HIGH                                                          3  0350  S7Y                 4
 108  1 07          DCW   @042665@                                                       6  0356                      4
 109  1 08          ORG   SYSOR                                                                  4000
 110  1 09          DC    @  .  E@                                                       6  4005                      5
 111  1 10          DC    @  )  !@                                                       6  4011                      5
 112  1 11          DC    @  /  !@                                                       6  4017                      5
 113  1 12          DC    @  ,  !@                                                       6  4023                      5
 114  1 13          DC    @  %  !@                                                       6  4029                      5
 115  1 14          DC    @  #  !@                                                       6  4035                      5
 116  1 15          DC    @  @  !@                                                       6  4041                      6
 117  1 16          DC    @  ?  !@                                                       6  4047                      6
 118  1 17          DC    @  A  !@                                                       6  4053                      6
 119  1 18          DC    @  B  D@                                                       6  4059                      6
 120  1 19          DC    @  C  !@                                                       6  4065                      6
 121  1 20          DC    @  D  !@                                                       6  4071                      6
 122  1 21          DC    @  E  !@                                                       6  4077                      7
 123  1 22          DC    @  F  K@                                                       6  4083                      7
 124  1 23          DC    @  H  !@                                                       6  4089                      7
 125  1 24          DC    @  !  !@                                                       6  4095                      7
 126  1 25          DC    @  K  K@                                                       6  4101                      7
 127  1 26          DC    @  L  ,@                                                       6  4107                      7
 128  1 27          DC    @  M  ,@                                                       6  4113                      8
 129  1 28          DC    @  N  !@                                                       6  4119                      8
 130  1 29          DC    @  P  !@                                                       6  4125                      8
 131  1 30          DC    @  Q  !@                                                       6  4131                      8
 132  1 31          DC    @  S  !@                                                       6  4137                      8
 133  1 311         DC    @  T  -@                                                       6  4143                      8
 134  1 32          DC    @  U  K@                                                       6  4149                      9
 135  1 33          DC    @  V  D@                                                       6  4155                      9
 136  1 34          DC    @  W  D@                                                       6  4161                      9
 137  1 35          DC    @  X  !@                                                       6  4167                      9
 138  1 36          DC    @  Y  !@                                                       6  4173                      9
 139  1 37          DC    @  Z  !@                                                       6  4179                      9
 140  1 38          DC    @  1  K@                                                       6  4185                     10
 141  1 39          DC    @  2  K@                                                       6  4191                     10
 142  1 40          DC    @  3  K@                                                       6  4197                     10
 143  1 41          DC    @  4  K@                                                       6  4203                     10
 144  1 42          DC    @  5  K@                                                       6  4209                     10
 145  1 43          DC    @  6  K@                                                       6  4215                     10
 146  1 44          DC    @  7  K@                                                       6  4221                     11
 147  1 45          DC    @  8  K@                                                       6  4227                     11
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

148  1 46          DC    @  9  K@                                               6  4233                     11
149  1 47          DC    @A    !@                                               6  4239                     11
150  1 48          DC    @ADD  J@                                               6  4245                     11
151  1 49          DC    @B    D@   BRANCH UNCONDITIONAL                        6  4251                     11
152  1 50          DC    @BAV  D@   BRANCH AN ARITHMETIC OVERFLOW               6  4257                     12
153  1 51          DC    @BBE  D@   BRANCH ON BIT EQUAL                         6  4263                     12
154  1 52          DC    @BCE  D@   BRANCH IF CHARACTER EQUAL                   6  4269                     12
155  1 53          DC    @BCV  D@   BRANCH ON CARRIAGE OVERFLOW                 6  4275                     12
156  1 54          DC    @BC9  D@   BRANCH ON CHANNEL 9                         6  4281                     12
157  1 55          DC    @BE   D@   BRANCH IF EQUAL                             6  4287                     12
158  1 56          DC    @BEF  D@   BRANCH IF END OF FILE                       6  4293                     13
159  1 57          DC    @BER  D@   BRANCH IF TAPE I/O ERROR                    6  4299                     13
160  1 58          DC    @BH   D@   BRANCH IF HIGH                              6  4305                     13
161  1 59          DC    @BIN  D@   BRANCH IF INDICATOR ON                      6  4311                     13
162  1 60          DC    @BL   D@   BRANCH IF LOW                               6  4317                     13
163  1 61          DC    @BLC  D@   BRANCH ON LAST CARD                         6  4323                     13
164  1 62          DC    @BM   D@   BRANCH ON MINUS                             6  4329                     14
165  1 63          DC    @BOOL J@   LOGICAL MACRO                               6  4335                     14
166  1 64          DC    @BPB  D@   BRANCH OF PRINTER BUSY                      6  4341                     14
167  1 65          DC    @BPCB D@   BRANCH PRINTER CARRIAGE BUSY                6  4347                     14
168  1 66          DC    @BSP  K@   BACKSPACE TAPE                              6  4353                     14
169  1 67          DC    @BSS  D@   BRANCH ON SENSE SWITCH B                    6  4359                     14
170  1 68          DC    @BU   D@   BRANCH OF UNEQUAL                           6  4365                     15
171  1 69          DC    @BW   D@   BRANCH ON WORD MARK                         6  4371                     15
172  1 70          DC    @BWZ  D@   BRANCH ON W/M OR ZONE                       6  4377                     15
173  1 71          DC    @C    -@   COMPARE                                     6  4383                     15
174  1 72          DC    @CALL J@   CALL MACRO                                  6  4389                     15
175  1 73          DC    @CC   K@   CARRIAGE CONTROL                            6  4395                     15
176  1 74          DC    @CCB  D@   CARRIAGE CONTROL & BRANCH                   6  4401                     16
177  1 75          DC    @CHAIN1@   CHAIN MACRO                                 6  4407                     16
178  1 76          DC    @CLOSEJ@  CLOSE FILE                                   6  4413                     16
179  1 77          DC    @COMPRJ@   COMPARE MACRO                               6  4419                     16
180  1 78          DC    @CS   -@   CLEAR STORAGE                               6  4425                     16
181  1 79          DC    @CTL  6@   ASSEMBLY CONTROL CARD                       6  4431                     16
182  1 80          DC    @CU   K@   OUTPUT TAPE MISC.                           6  4437                     17
183  1 81          DC    @CW   -@   CLEAR WORD MARK                             6  4443                     17
184  1 82          DC    @D    -@   DIVIDE                                      6  4449                     17
185  1 83          DC    @DA   3@   AREA DEFINING                               6  4455                     17
186  1 84          DC    @DC   L@   DEFINE AREA NO W/M                          6  4461                     17
187  1 85          DC    @DCLOSJ@  DUMP UNCORRECTABLE BLOCKS                    6  4467                     17
188  1 86          DC    @DCR  K@   DISENGAGE CHARACTER READER                  6  4473                     18
189  1 87          DC    @DCW  L@   DEFINE AREA WITH W/M                        6  4479                     18
190  1 88          DC    @DELETJ@                                               6  4485                     18
191  1 891         DC    @DIOCSO@   DIOCS-IO                                    6  4491                     18
192  1 89          DC    @DIVIDJ@   DIVIDE MACRO                                6  4497                     18
193  1 90          DC    @DS   L@   DEFINE SYMBOL                               6  4503                     18
194  1 91          DC    @DSA  L@   DEFINE SYMBOLIC ADDRESS                     6  4509                     19
195  1 911         DC    @DTF  O@   DTF-IO                                      6  4515                     19
196  1 92          DC    @ECR  K@   ENGAGE CHARACTER READER                     6  4521                     19
197  1 93          DC    @END  O@   END OF PROGRAM ENTRY                        6  4527                     19
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD

198  1 94          DC    @ENT  .@   ENTER DIFFERENT LANGUAGE                       6  4533                      19
199  1 95          DC    @EQU  O@   EQUATE NAMES & AREAS                           6  4539                      19
200  1 96          DC    @EX   O@   EXECUTE                                        6  4545                      20
201  1 97          DC    @FEORLJ@  FORCE END OF REEL                               6  4551                      20
202  1 98          DC    @GET  J@  READ STATEMENT                                  6  4557                      20
203  1 99          DC    @H    E@   HALT                                           6  4563                      20
204  2 00          DC    @INCLDJ@   INCLUDE A MACRO                                6  4569                      20
205  2 01          DC    @INSERJ@                                                  6  4575                      20
206  2 02          DC    @JOB  6@   JOB IDENT CARD                                 6  4581                      21
207  2 03          DC    @K    K@   BACKSPACE PAPER TAPE                           6  4587                      21
208  2 04          DC    @LCA  -@   MOVE DATA WITH W/MS                            6  4593                      21
209  2 05          DC    @LIST J@                                                  6  4599                      21
210  2 06          DC    @LOOP -@   LOOPING CONTROL MACRO                          6  4605                      21
211  2 07          DC    @LTORGO@   FORCE ASSIGNMENT OF LITERALS                   6  4611                      21
212  2 08          DC    @LU   K@   LOAD UNIT                                      6  4617                      22
213  2 09          DC    @M    -@   MULTIPLY                                       6  4623                      22
214  2 10          DC    @MA   -@   MODIFY ADDRESS                                 6  4629                      22
215  2 11          DC    @MATH J@                                                  6  4635                      22
216  2 12          DC    @MBC  -@   MOVE AND BINARY CODE                           6  4641                      22
217  2 13          DC    @MBD  -@   MOVE AND BINARY DECODE                         6  4647                      22
218  2 14          DC    @MCE  -@   MOVE AND EDIT                                  6  4653                      23
219  2 15          DC    @MCM  -@   MOVE RECORD                                    6  4659                      23
220  2 16          DC    @MCS  -@   MOVE & SUPPRESS ZEROS                          6  4665                      23
221  2 17          DC    @MCW  -@   MOVE TO A WORK MARK                            6  4671                      23
222  2 18          DC    @MEND J@   SIGNAL END OF MACRO                            6  4677                      23
223  2 19          DC    @MIC  -@   MOVE CHARS TO WM                               6  4683                      23
224  2 20          DC    @MIZ  -@   MOVE AND INSERT ZEROS                          6  4689                      24
225  2 21          DC    @MLC  -@   MOVE TO A WORD MARK                            6  4695                      24
226  2 22          DC    @MLCWA-@   MOVE WITH WORD MARK                            6  4701                      24
227  2 23          DC    @MLNS -@   MOVE NUMERIC SINGLE                            6  4707                      24
228  2 24          DC    @MLTPYJ@   MULTIPY MACRO                                  6  4713                      24
229  2 25          DC    @MLZS -@   MOVE SINGLE ZONE                               6  4719                      24
230  2 26          DC    @MN   -@   MOVE SINGLE NUMERIC                            6  4725                      25
231  2 27          DC    @MRCM -@   MOVE RECORD                                    6  4731                      25
232  2 28          DC    @MRCWG-@   MOVE CHARS & WM TO GMWM                        6  4737                      25
233  2 29          DC    @MU   K@   MOVE UNIT                                      6  4743                      25
234  2 30          DC    @MZ   -@   MOVE SINGLE ZONE                               6  4749                      25
235  2 31          DC    @NOP  -@   NO OPERATION                                   6  4755                      25
236  2 32          DC    @OPEN J@  OPEN FILE                                       6  4761                      26
237  2 33          DC    @ORG  O@   SET ASSEMBLY COUNTER                           6  4767                      26
238  2 34          DC    @OVLAYJ@   CARD OVERLAY SEQUENCE                          6  4773                      26
239  2 35          DC    @P    B@   PUNCH A CARD                                   6  4779                      26
240  2 36          DC    @PCB  B@   PUNCH COLUMN BINARY                            6  4785                      26
241  2 37          DC    @PS   K@   PUNCH & STOP                                   6  4791                      26
242  2 38          DC    @PSK  K@   PUNCH COLUMN & SKIP                            6  4797                      27
243  2 39          DC    @PUT  J@  WRITE                                           6  4803                      27
244  2 40          DC    @R    B@   READ A CARD                                    6  4809                      27
245  2 41          DC    @RCB  B@   READ COLUMN BINARY                             6  4815                      27
246  2 42          DC    @RCP  K@   READ CONSOLE 1/3 PRINTER                       6  4821                      27
247  2 421         DC    @RCPW K@    READ CONSOLE PRNTR                            6  4827                      27
```

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION TYPE	CARD
248	2	43		DC	@RD K@ READ DISK SINGLE RECORD		6	4833		28
249	2	44		DC	@RDCO K@ READ DISK WITH SECTOR COUNT OVERLAY		6	4839		28
250	2	45		DC	@RDCOWK@ READ DISK WITH SECTOR COUNT OVERLAY WITH		6	4845		28
251	2	46		DC	@RDLINJ@ READ LABLE INFORMATION		6	4851		28
252	2	47		DC	@RDT K@ READ DISK FULL TRACK		6	4857		28
253	2	48		DC	@RDTA K@ READ DISK TRACK RECORD WITH ADDRESS		6	4863		28
254	2	49		DC	@RDTAWK@ READ DISK TRACK RECORD WITH ADDRESS & W/		6	4869		29
255	2	50		DC	@RDTR K@ READ DISK TRACK RECORD		6	4875		29
256	2	51		DC	@RDTRWK@ READ DISK TRACK RECORD WITH W/MS		6	4881		29
257	2	52		DC	@RDTW K@ READ DISK FULL TRACK WITH W/MS		6	4887		29
258	2	53		DC	@RDW K@ REWIND TAPE		6	4893		29
259	2	54		DC	@RELSEJ@		6	4899		29
260	2	55		DC	@RF B@ READ PUNCH FEED		6	4905		30
261	2	56		DC	@RP B@ READ AND PUNCH		6	4911		30
262	2	57		DC	@RT K@ READ TAPE %UX		6	4917		30
263	2	58		DC	@RTB K@ READ TAPE BINARY %BX		6	4923		30
264	2	59		DC	@RTW K@ READ TAPE WITH W/M		6	4929		30
265	2	60		DC	@RWD K@ REWIND TAPE		6	4935		30
266	2	61		DC	@RWU K@ REWIND & UNLOAD TAPE		6	4941		31
267	2	62		DC	@S -@ SUBTRACT		6	4947		31
268	2	63		DC	@SAR -@ STORE A ADDRESS REGISTER		6	4953		31
269	2	64		DC	@SBR -@ STORE B ADDRESS REGISTER		6	4959		31
270	2	65		DC	@SD -@ SEEK DISK		6	4965		31
271	2	66		DC	@SDE K@ SCAN DISK EQUAL		6	4971		31
272	2	67		DC	@SDEW K@ SCAN DISK EQUAL WITH W/M		6	4977		32
273	2	68		DC	@SDH K@ SCAN DISK EQUAL, HIGH		6	4983		32
274	2	69		DC	@SDHW K@ SCAN DISK EQUAL HIGH WITH W/M		6	4989		32
275	2	70		DC	@SDL K@ SCAN DISK EQUAL, LOW		6	4995		32
276	2	71		DC	@SDLW K@ SCAN DISK EQUAL, LOW WITH W/M		6	5001		32
277	2	72		DC	@SFX $@ AFFEX A SUFFEX TO FOLLOWING INSTS		6	5007		32
278	2	73		DC	@SKIP K@		6	5013		33
279	2	74		DC	@SKIPNJ@		6	5019		33
280	2	75		DC	@SKP K@ SKIP & BLANK TAPE		6	5025		33
281	2	76		DC	@SPACEK@		6	5031		33
282	2	77		DC	@SPCE J@		6	5037		33
283	2	78		DC	@SPF K@ START PUNCH FEED		6	5043		33
284	2	79		DC	@SRF K@ START READ FEED		6	5049		34
285	2	80		DC	@SS K@ SELECT STACKER		6	5055		34
286	2	81		DC	@SSB D@ SELECT STACKER & BRANCH		6	5061		34
287	2	82		DC	@STACKJ@ STACKER SELECT		6	5067		34
288	2	83		DC	@SUB -@ SUBTRACT MACRO		6	5073		34
289	2	84		DC	@SW -@ SET A WORD MARK		6	5079		34
290	2	85		DC	@TOVLYJ@ TAPE OVERLAY		6	5085		35
291	2	86		DC	@TR -@ TRANSLATE		6	5091		35
292	2	87		DC	@TRW -@ TRANSLATE WITHOUT WM		6	5097		35
293	2	88		DC	@ULST J@		6	5103		35
294	2	89		DC	@W B@ WRITE		6	5109		35
295	2	90		DC	@WCP K@ WRITE CONSOLE 1/3 PRINTER		6	5115		35
296	2	91		DC	@WCPW K@		6	5121		36
297	2	92		DC	@WD K@ WRITE DISK SINGLE RECORD		6	5127		36

```
SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

298  2 93          DC    @WDC  K@   WRITE DISK CHECK                                    6  5133                     36
299  2 94          DC    @WDCO K@   WRITE DISK WITH SECTOR COUNT OVERLAY                6  5139                     36
300  2 95          DC    @WDCOWK@   WRITE DISK WITH SECTOR COUNT OVERLAY WIT            6  5145                     36
301  2 96          DC    @WDCW K@   WRITE DISK CHECK WITH W/M                           6  5151                     36
302  2 97          DC    @WDT  K@   WRITE DISK FULL TRACK                               6  5157                     37
303  2 98          DC    @WDTA K@   WRITE DISK TRACK WITH ADDRESS                       6  5163                     37
304  2 99          DC    @WDTAWK@                                                       6  5169                     37
305  3 00          DC    @WDTR K@   WRITE DISK TRACK RECORD                             6  5175                     37
306  3 01          DC    @WDTRWK@   WRITE DISK TRACK RECORD WITH W/M                    6  5181                     37
307  3 02          DC    @WDTW K@   WRITE DISK FULL TRACK WITH W/M                      6  5187                     37
308  3 03          DC    @WDW  K@                                                       6  5193                     38
309  3 04          DC    @WM   B@   WRITE WORD MARKS                                    6  5199                     38
310  3 05          DC    @WP   B@   WRITE & PUNCH                                       6  5205                     38
311  3 06          DC    @WR   B@   WRITE & READ                                        6  5211                     38
312  3 07          DC    @WRF  B@   WRITE & READ PUNCH FEED                             6  5217                     38
313  3 08          DC    @WRP  B@   WRITE, READ AND PUNCH                               6  5223                     38
314  3 09          DC    @WS   K@   WRITE AND SUPPRESS & SPACE                          6  5229                     39
315  3 10          DC    @WT   K@   WRITE TAPE                                          6  5235                     39
316  3 11          DC    @WTB  K@   WRITE TAPE BINARY                                   6  5241                     39
317  3 12          DC    @WTM  K@   WRITE TAPE MARK                                     6  5247                     39
318  3 13          DC    @WTW  K@   WRITE TAPE WITH W/M                                 6  5253                     39
319  3 14          DC    @XFR  D@   TRANSFER                                            6  5259                     39
320  3 15          DC    @ZA   -@   ZERO AND ADD                                        6  5265                     40
321  3 16          DC    @ZS   -@   ZERO AND SUBTRACT                                   6  5271                     40
322  3 17          DC    @99999I@                                                       6  5277                     40
323  3 18   SYSOR  EQU   4000                                                              4000
324  3 19   BLDPTS EQU   3200                                                              3200
325  3 20   HIGH   EQU   *&1                                                               5278
326  3 21          END                                                                           / 000 080         41
309  3 04          DC    @WM   B@   WRITE WORD MARKS                                    6  5199                     38              *****
310  3 05          DC    @WP   B@   WRITE & PUNCH                                       6  5205                     38
311  3 06          DC    @WR   B@   WRITE & READ                                        6  5211                     38
312  3 07          DC    @WRF  B@   WRITE & READ PUNCH FEED                             6  5217                     38
313  3 08          DC    @WRP  B@   WRITE, READ AND PUNCH                               6  5223                     38
314  3 09          DC    @WS   K@   WRITE AND SUPPRESS & SPACE                          6  5229                     39
315  3 10          DC    @WT   K@   WRITE TAPE                                          6  5235                     39
316  3 11          DC    @WTB  K@   WRITE TAPE BINARY                                   6  5241                     39
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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                   1          3ANAF
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?  2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039           ,0010011040    3

                          ANALYSIS DICTIONARY - 1410/7010                    3ANAF            PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                       SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    00   000    JOB   ANALYSIS DICTIONARY - 1410/7010
 102    01          CTL   440
 103    02          DC    @$ADD     @                                         9  0341                       4
 104    03          DC    &SYSOR                                            3  0344  00|                    4
 105    04          DC    &BLDPTS                                           3  0347  B00                    4
 106    05          DC    &HIGH                                             3  0350  C8U                    4
 107    06          DCW   @040565@                                          6  0356                         4
 108    07          ORG   SYSOR                                                       4000
 109    08          DC    @A    -@                ADD                       6  4005                         5
 110    09          DC    @B    D@                UNCON. BRANCH             6  4011                         5
 111    10          DC    @BA   D@                BR ANY CHL IN             6  4017                         5
 112    11          DC    @BASE -@                LL CTL CARD               6  4023                         5
 113    12          DC    @BAV  D@                ARITHM OVRFLO             6  4029                         5
 114    13          DC    @BB   D@                COLMN BINARY              6  4035                         5
 115    14          DC    @BBE  D@                BIT EQUAL                 6  4041                         6
 116    15          DC    @BCAF D@                AMT INDIC ON              6  4047                         6
 117    16          DC    @BCAN D@                AMT # IND ON              6  4053                         6
 118    17          DC    @BCB  D@                I/O UNIT BUSY             6  4059                         6
 119    18          DC    @BCDC D@                DOCUM SPC IND             6  4065                         6
 120    19          DC    @BCE  D@                CHARACT EQUAL             6  4071                         6
 121    20          DC    @BCLR D@                LATE READ IND             6  4077                         7
 122    21          DC    @BCNR D@                READ NOT REDY             6  4083                         7
 123    22          DC    @BCPC D@                PPOC CTL FLD              6  4089                         7
 124    23          DC    @BCRC D@                READ CHK IND              6  4095                         7
 125    24          DC    @BCTR D@                TRANS RUTE IN             6  4101                         7
 126    25          DC    @BCV  D@                CARAGE OVRFLO             6  4107                         7
 127    26          DC    @BCWR K@                                          6  4113                         8
 128    27          DC    @BC9  D@                CARR CHL 9                6  4119                         8
 129    28          DC    @BDV  D@                DIVIDE OVRFLO             6  4125                         8
 130    29          DC    @BE   D@                BRANCH EQUAL              6  4131                         8
 131    30          DC    @BEF  D@                END OF FILE               6  4137                         8
 132    31          DC    @BEPA D@                SET PRIR ALRT             6  4143                         8
 133    32          DC    @BER  D@                READ ERROR                6  4149                         9
 134    33          DC    @BEX  D@                PLURAL INDICT             6  4155                         9
 135    34          DC    @BH   D@                BRANCH HIGH               6  4161                         9
 136    35          DC    @BIPR D@                INQUIRY REQST             6  4167                         9
 137    36          DC    @BL   D@                BRANCH LOW                6  4173                         9
 138    37          DC    @BNQ  D@                INQUIRY REQUS             6  4179                         9
 139    38          DC    @BNR  D@                UNIT NOT REDY             6  4185                        10
 140    39          DC    @BNT  D@                UNIT NO TRANS             6  4191                        10
 141    40          DC    @BOL  D@                OLAP IN PROCS             6  4197                        10
 142    41          DC    @BOOL J@                IBM P/MACRO               6  4203                        10
 143    42          DC    @BOPR D@                OLAP COMPLETE             6  4209                        10
 144    43          DC    @BOQ  D@                OUTQUIRY BRNH             6  4215                        10
 145    44          DC    @BPCB D@                CARRIAGE BUSY             6  4221                        11
 146    45          DC    @BPI  K@                GEN BR INS                6  4227                        11
 147    46          DC    @BQPR D@                OUTQUIRY                  6  4233                        11
```

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
148		47		DC	@BRC D@	READBACK CHCK		6	4239		11
149		48		DC	@BSP K@	BACKSPACE TAP		6	4245		11
150		49		DC	@BSPR D@	SEEK PRIR RQS		6	4251		11
151		50		DC	@BU D@	BRANCH UNEQAL		6	4257		12
152		51		DC	@BUPR D@	SELCTD I/O UN		6	4263		12
153		52		DC	@BW D@	BRCH ON WMARK		6	4269		12
154		53		DC	@BWL D@	WRNG LNGH REC		6	4275		12
155		54		DC	@BWZ D@	WM OR ZONE		6	4281		12
156		55		DC	@BXO -@	EXPONENT OVFL		6	4287		12
157		56		DC	@BXPA D@	PRIR ALRT MOD		6	4293		13
158		57		DC	@BXPR D@	ATTENTION		6	4299		13
159		58		DC	@BXU -@	EXPON UNRFLOW		6	4305		13
160		59		DC	@BZ D@	ZERO BALANCE		6	4311		13
161		60		DC	@BZN D@	ZONE BITS		6	4317		13
162		61		DC	@C -@	COMPAR A TO B		6	4323		13
163		62		DC	@CALL J@	LL CNTRL CARD		6	4329		14
164		63		DC	@CALLN-@	IBM MACRO		6	4335		14
165		64		DC	@CALLP-@	IBM MACRO		6	4341		14
166		65		DC	@CC K@	CARRIAGE CTRL		6	4347		14
167		66		DC	@CHKPTJ@	WR CHCKPT REC		6	4353		14
168		67		DC	@CLIP J@	IBM MACRO		6	4359		14
169		68		DC	@CLOSDJ@	CLS DUMP TAPE		6	4365		15
170		69		DC	@CLOSEJ@	IOCS MACRO		6	4371		15
171		70		DC	@COMN -@	IBM MACRO		6	4377		15
172		71		DC	@COMP J@	IBM P/MACRO		6	4383		15
173		72		DC	@CONGO-@	IBM MACRO		6	4389		15
174		73		DC	@CONSLJ@	CONSOLE OPERT		6	4395		15
175		74		DC	@CS -@	CLEAR STORAGE		6	4401		16
176		75		DC	@CTL 6@	PROSR CTL CRD		6	4407		16
177		76		DC	@CU K@	CNTRL UNIT		6	4413		16
178		77		DC	@CW -@	CLEAR WM		6	4419		16
179		78		DC	@D -@	DIVIDE		6	4425		16
180		79		DC	@DA 3@	DEFINE AREA		6	4431		16
181		80		DC	@DAV 3@	DFIN AR COMON		6	4437		17
182		81		DC	@DC L@	DFIN CNST		6	4443		17
183		82		DC	@DCR 2@	DNGAG CHR RDR		6	4449		17
184		83		DC	@DCW L@	DFIN CNST WM		6	4455		17
185		84		DC	@DCWF -@	ADDCON 4 SUBR		6	4461		17
186		85		DC	@DCWS D@	BRCH TO SUBRT		6	4467		17
187		86		DC	@DEFIN6@			6	4473		18
188		87		DC	@DEVDF-@	IBM MACRO		6	4479		18
189		88		DC	@DIOCS @			6	4485		18
190		89		DC	@DISGO-@	IBM MACRO		6	4491		18
191		90		DC	@DS L@	DEFINE SYMBOL		6	4497		18
192		91		DC	@DSORT-@	IBM MACRO		6	4503		18
193		92		DC	@DTEF 3@			6	4509		19
194		93		DC	@DTF -@			6	4515		19
195		94		DC	@DUMP J@	IBM MACRO		6	4521		19
196		95		DC	@DUNIT-@	IBM MACRO		6	4527		19
197		96		DC	@ECR 2@	ENGAGE CHR RD		6	4533		19

```
SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

198    97          DC    @EJECT6@                ASSMBLY CTLCD                    6  4539                       19
199    98          DC    @END  O@                CONTROL CARD                     6  4545                       20
200    99          DC    @ENDLDJ@                IBM MACRO                        6  4551                       20
201  1 00          DC    @ENTDRJ@                IBM MACRO                        6  4557                       20
202  1 01          DC    @ENTRY-@                IBM MACRO                        6  4563                       20
203  1 02          DC    @EQU  O@                EQUATE                           6  4569                       20
204  1 03          DC    @EX   O@                EXECUTE                          6  4575                       20
205  1 04          DC    @EXTDRJ@                IBM MACRO                        6  4581                       21
206  1 05          DC    @FA   -@                FLOATING ADD                     6  4587                       21
207  1 06          DC    @FD   -@                FLOAT DEVIDE                     6  4593                       21
208  1 07          DC    @FEORLJ@                FORCE ENDREEL                    6  4599                       21
209  1 08          DC    @FM   -@                FLOAT MULTPLY                    6  4605                       21
210  1 09          DC    @FRA  -@                FLOAT RES ADD                    6  4611                       21
211  1 10          DC    @FS   -@                FLOAT SUBTR                      6  4617                       22
212  1 11          DC    @FSEQPJ@                IBM MACRO                        6  4623                       22
213  1 12          DC    @FST  -@                FLOAT STORE                      6  4629                       22
214  1 13          DC    @GET  J@                IBM MACRO                        6  4635                       22
215  1 14          DC    @GETS J@                GET 1301 MCRO                    6  4641                       22
216  1 15          DC    @H    E@                HALT                             6  4647                       22
217  1 16          DC    @HA   -@                IBM MACRO                        6  4653                       23
218  1 17          DC    @HBSF K@                BACKSPAC FILE                    6  4659                       23
219  1 18          DC    @HBSR K@                BACKSPACE                        6  4665                       23
220  1 19          DC    @HCCR K@                CHNG CRTG&RWD                    6  4671                       23
221  1 20          DC    @HCHC K@                CHNG CRTRIGE                     6  4677                       23
222  1 21          DC    @HCLN K@                                                 6  4683                       23
223  1 22          DC    @HEADR6@                CONTROL CARD                     6  4689                       24
224  1 23          DC    @HECF K@                EROR CORC OFF                    6  4695                       24
225  1 24          DC    @HEOS K@                END OF SEQUNC                    6  4701                       24
226  1 25          DC    @HEPM K@                HYPR TAPE                        6  4707                       24
227  1 26          DC    @HERG K@                ERASE LONG GP                    6  4713                       24
228  1 27          DC    @HFCB K@                FIX CHCK BITS                    6  4719                       24
229  1 28          DC    @HFPN K@                FIL PRTCT ON                     6  4725                       25
230  1 29          DC    @HICE K@                INTRUPT CR ER                    6  4731                       25
231  1 30          DC    @HNOP K@                NO OPERATION                     6  4737                       25
232  1 31          DC    @HRLF K@                                                 6  4743                       25
233  1 32          DC    @HRLN K@                                                 6  4749                       25
234  1 33          DC    @HRUN K@                RWIND & UNLOD                    6  4755                       25
235  1 34          DC    @HRWD K@                REWIND                           6  4761                       26
236  1 35          DC    @HSBR K@                SLCT BACKWRD                     6  4767                       26
237  1 36          DC    @HSEL K@                SELECT                           6  4773                       26
238  1 37          DC    @HSKF K@                SPACE FILE FR                    6  4779                       26
239  1 38          DC    @HSKR K@                SPACE OVR REC                    6  4785                       26
240  1 39          DC    @HSPM K@                                                 6  4791                       26
241  1 40          DC    @HSPN K@                                                 6  4797                       27
242  1 41          DC    @HUNL K@                UNLOAD CRTRIG                    6  4803                       27
243  1 42          DC    @HUPM K@                HYPR TAPE                        6  4809                       27
244  1 43          DC    @HWCF K@                WR CLOCK FAST                    6  4815                       27
245  1 44          DC    @HWCS K@                WR CLOCK SLOW                    6  4821                       27
246  1 45          DC    @HWLR K@                                                 6  4827                       27
247  1 46          DC    @HWTM K@                WR TAPE MARK                     6  4833                       28
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SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
248	1	47		DC	@INCLD-@	IBM MACRO		6	4839		28
249	1	48		DC	@INPUT-@	IBM MACRO		6	4845		28
250	1	49		DC	@IOBSPJ@	BACKSPACE		6	4851		28
251	1	50		DC	@IOCTLJ@	IBM MACRO		6	4857		28
252	1	51		DC	@IORD J@			6	4863		28
253	1	52		DC	@IORWDJ@	REWIND		6	4869		29
254	1	53		DC	@IORWUJ@	UNLOAD		6	4875		29
255	1	54		DC	@IOSYSJ@	IBM MACRO		6	4881		29
256	1	55		DC	@IOWTMJ@	WTAPE MK		6	4887		29
257	1	56		DC	@JID -@	TEST & BRANCH		6	4893		29
258	1	57		DC	@JOB 6@	CONTROL CARD		6	4899		29
259	1	58		DC	@LDDCPJ@	IBM MACRO		6	4905		30
260	1	59		DC	@LDPTCJ@	IBM MACRO		6	4911		30
261	1	60		DC	@LE -@	LOOKUP EQUAL		6	4917		30
262	1	61		DC	@LEH -@	LOOK-EQ & HI		6	4923		30
263	1	62		DC	@LEVDRJ@	IBM MACRO		6	4929		30
264	1	63		DC	@LEVRTJ@	IBM MACRO		6	4935		30
265	1	64		DC	@LH -@	LOOKUP HIGH		6	4941		31
266	1	65		DC	@LINK -@	IBM MACRO		6	4947		31
267	1	66		DC	@LL -@	LOOKUP LOW		6	4953		31
268	1	67		DC	@LLE -@	LOOK-LOW & EQ		6	4959		31
269	1	68		DC	@LLH -@	LOOK-LOW & HI		6	4965		31
270	1	69		DC	@LOAD 6@	CONTROL CARD		6	4971		31
271	1	70		DC	@LTORG6@	LITERAL ORG		6	4977		32
272	1	71		DC	@LU K@	LOAD UNIT		6	4983		32
273	1	72		DC	@M -@	MULTIPLY		6	4989		32
274	1	73		DC	@MATH J@	IBM P/MACRO		6	4995		32
275	1	74		DC	@MCE -@	MOVE & EDIT		6	5001		32
276	1	75		DC	@MCS -@	MOVE-SUP ZERO		6	5007		32
277	1	76		DC	@MEND J@	IBM P/MACRO		6	5013		33
278	1	77		DC	@MLC -@	MOVE LEFT		6	5019		33
279	1	78		DC	@MLCA -@	MOVE LEFT		6	5025		33
280	1	79		DC	@MLCB -@	MOVE LEFT		6	5031		33
281	1	80		DC	@MLCS -@	MOVE LEFT		6	5037		33
282	1	81		DC	@MLCW -@	MOVE LEFT		6	5043		33
283	1	82		DC	@MLCWA-@	MOVE LEFT		6	5049		34
284	1	83		DC	@MLCWB-@	MOVE LEFT		6	5055		34
285	1	84		DC	@MLCWS-@	MOVE LEFT		6	5061		34
286	1	85		DC	@MLN -@	MOVE LEFT NUM		6	5067		34
287	1	86		DC	@MLNA -@	MOVE LEFT NUM		6	5073		34
288	1	87		DC	@MLNB -@	MOVE LEFT		6	5079		34
289	1	88		DC	@MLNS -@	MOVE LEFT		6	5085		35
290	1	89		DC	@MLNW -@	MOVE LEFT		6	5091		35
291	1	90		DC	@MLNWA-@	MOVE LEFT NUM		6	5097		35
292	1	91		DC	@MLNWB-@	MOVE LEFT		6	5103		35
293	1	92		DC	@MLNWS-@	MOVE LEFT		6	5109		35
294	1	93		DC	@MLW -@	MOVE LEFT		6	5115		35
295	1	94		DC	@MLWA -@	MOVE LEFT		6	5121		36
296	1	95		DC	@MLWB -@	MOVE LEFT		6	5127		36
297	1	96		DC	@MLWS -@	MOVE LEFT		6	5133		36

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
298	1	97		DC	@MLZ -@	MOVE LEFT ZON		6	5139		36
299	1	98		DC	@MLZA -@	MOVE LEFT		6	5145		36
300	1	99		DC	@MLZB -@	MOVE LEFT		6	5151		36
301	2	00		DC	@MLZS -@	MOVE LEFT		6	5157		37
302	2	01		DC	@MLZW -@	MOVE LEFT		6	5163		37
303	2	02		DC	@MLZWA-@	MOVE LEFT ZON		6	5169		37
304	2	03		DC	@MLZWB-@	MOVE LEFT		6	5175		37
305	2	04		DC	@MLZWS-@	MOVE LEFT		6	5181		37
306	2	05		DC	@MRC -@	MOVE RIGHT		6	5187		37
307	2	06		DC	@MRCG -@	MOVE RIGHT		6	5193		38
308	2	07		DC	@MRCM -@	MOVE RIGHT		6	5199		38
309	2	08		DC	@MRCR -@	MOVE RIGHT		6	5205		38
310	2	09		DC	@MRCW -@	MOVE RIGHT		6	5211		38
311	2	10		DC	@MRCWG-@	MOVE RIGHT		6	5217		38
312	2	11		DC	@MRCWM-@	MOVE RIGHT		6	5223		38
313	2	12		DC	@MRCWR-@	MOVE RIGHT		6	5229		39
314	2	13		DC	@MRN -@	MOVE RIGHT-NM		6	5235		39
315	2	14		DC	@MRNG -@	MOVE RIGHT		6	5241		39
316	2	15		DC	@MRNM -@	MOVE RIGHT		6	5247		39
317	2	16		DC	@MRNR -@	MOVE RIGHT		6	5253		39
318	2	17		DC	@MRNW -@	MOVE RIGHT-NM		6	5259		39
319	2	18		DC	@MRNWG-@	MOVE RIGHT		6	5265		40
320	2	19		DC	@MRNWM-@	MOVE RIGHT		6	5271		40
321	2	20		DC	@MRNWR-@	MOVE RIGHT		6	5277		40
322	2	21		DC	@MRW -@	MOVE RIGHT-ZN		6	5283		40
323	2	22		DC	@MRWG -@	MOVE RIGHT		6	5289		40
324	2	23		DC	@MRWM -@	MOVE RIGHT		6	5295		40
325	2	24		DC	@MRWR -@	MOVE RIGHT		6	5301		41
326	2	25		DC	@MRZ -@	MOVE RIGHT-ZN		6	5307		41
327	2	26		DC	@MRZG -@	MOVE RIGHT		6	5313		41
328	2	27		DC	@MRZM -@	MOVE RIGHT		6	5319		41
329	2	28		DC	@MRZR -@	MOVE RIGHT		6	5325		41
330	2	29		DC	@MRZW -@	MOVE RIGHT		6	5331		41
331	2	30		DC	@MRZWG-@	MOVE RIGHT		6	5337		42
332	2	31		DC	@MRZWM-@	MOVE RIGHT		6	5343		42
333	2	32		DC	@MRZWR-@	MOVE RIGHT		6	5349		42
334	2	33		DC	@MU K@	MOVE UNIT		6	5355		42
335	2	34		DC	@MVRSAJ@	MV REC TO STK		6	5361		42
336	2	35		DC	@NOP -@	NO OP		6	5367		42
337	2	36		DC	@NOPWM-@	NOP W/WDMARK		6	5373		43
338	2	37		DC	@NOTE J@	FOR COMMENTS		6	5379		43
339	2	38		DC	@OPEN J@	IOCS MACRO		6	5385		43
340	2	39		DC	@ORG O@	ASSMBY CNTRL		6	5391		43
341	2	40		DC	@P K@	PUNCH A CARD		6	5397		43
342	2	41		DC	@PAUSEO@	IBM MACRO		6	5403		43
343	2	42		DC	@PB K@	PUNCH BINARY		6	5409		44
344	2	43		DC	@PB1O K@	PUNCH BINARY		6	5415		44
345	2	44		DC	@PB2O K@	PUNCH BINARY		6	5421		44
346	2	45		DC	@PB3O K@	PUNCH BINARY		6	5427		44
347	2	46		DC	@PB4O K@	PUNCH BINARY		6	5433		44

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
348	2	47		DC	@PHASE-@	IBM MACRO		6	5439		44
349	2	48		DC	@PRSEQJ@	IBM MACRO		6	5445		45
350	2	49		DC	@PRTCT-@	IBM MACRO		6	5451		45
351	2	50		DC	@PSC K@	PREV SEEK CM		6	5457		45
352	2	51		DC	@PSCO K@	PREV SEEK CM		6	5463		45
353	2	52		DC	@PST 6@	ASSMBY CNTRL		6	5469		45
354	2	53		DC	@PSTACJ@	SEL PNCH STK		6	5475		45
355	2	54		DC	@PUT J@	IOCS MACRO		6	5481		46
356	2	55		DC	@PUTS J@	IOCS MACRO		6	5487		46
357	2	56		DC	@P1O K@	PUNCH A CARD		6	5493		46
358	2	57		DC	@P1W K@	PUNCH A CARD		6	5499		46
359	2	58		DC	@P1WO K@	PUNCH A CARD		6	5505		46
360	2	59		DC	@P2O K@	PUNCH A CARD		6	5511		46
361	2	60		DC	@P2W K@	PUNCH A CARD		6	5517		47
362	2	61		DC	@P2WO K@	PUNCH A CARD		6	5523		47
363	2	62		DC	@P3O K@	PUNCH A CARD		6	5529		47
364	2	63		DC	@P3W K@	PUNCH A CARD		6	5535		47
365	2	64		DC	@P3WO K@	PUNCH A CARD		6	5541		47
366	2	65		DC	@P4O K@	PUNCH A CARD		6	5547		47
367	2	66		DC	@P4W K@	PUNCH A CARD		6	5553		48
368	2	67		DC	@P4WO K@	PUNCH A CARD		6	5559		48
369	2	68		DC	@R K@	READ CARD		6	5565		48
370	2	69		DC	@RCP K@	RD CONS PRNTR		6	5571		48
371	2	70		DC	@RCPO K@	WITH OVERLAP		6	5577		48
372	2	71		DC	@RCPW K@	WITH WDMARKS		6	5583		48
373	2	72		DC	@RCPWOK@	BOTH		6	5589		49
374	2	73		DC	@RCR K@	RD MAG CH RDR		6	5595		49
375	2	74		DC	@RCRO K@	WITH OVERLAP		6	5601		49
376	2	75		DC	@RCRW K@	WITH WDMARKS		6	5607		49
377	2	76		DC	@RCRWOK@	BOTH		6	5613		49
378	2	77		DC	@RCY K@	RD CYLINDER		6	5619		49
379	2	78		DC	@RCYG K@	TO END OF CYL		6	5625		50
380	2	79		DC	@RCYGWK@	W/WD&GPMARKD		6	5631		50
381	2	80		DC	@RCYO K@	WITH OVERLAP		6	5637		50
382	2	81		DC	@RCYW K@	WITH WDMARKS		6	5643		50
383	2	82		DC	@RCYWOK@	BOTH		6	5649		50
384	2	83		DC	@RD K@	READ DISK		6	5655		50
385	2	84		DC	@RDG K@	READ DISK		6	5661		51
386	2	85		DC	@RDGW K@	READ DISK		6	5667		51
387	2	86		DC	@RDLINJ@	RD LABEL INFO		6	5673		51
388	2	87		DC	@RDO K@	READ DISK		6	5679		51
389	2	88		DC	@RDT K@	READ DISK		6	5685		51
390	2	89		DC	@RDTG K@	READ DISK		6	5691		51
391	2	90		DC	@RDTGWK@	READ DISK		6	5697		52
392	2	91		DC	@RDTO K@	READ DISK		6	5703		52
393	2	92		DC	@RDTW K@	READ DISK		6	5709		52
394	2	93		DC	@RDTWOK@	READ DISK		6	5715		52
395	2	94		DC	@RDV K@	READ DISK		6	5721		52
396	2	95		DC	@RDVG K@	READ DISK		6	5727		52
397	2	96		DC	@RDVGWK@	READ DISK		6	5733		53

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
398	2	97		DC	@RDVO K@	READ DISK		6	5739		53
399	2	98		DC	@RDVW K@	READ DISK		6	5745		53
400	2	99		DC	@RDVWOK@	READ DISK		6	5751		53
401	3	00		DC	@RDW K@	READ DISK		6	5757		53
402	3	01		DC	@RDWO K@	READ DISK		6	5763		53
403	3	02		DC	@REA K@			6	5769		54
404	3	03		DC	@READ K@	IBM MACRO		6	5775		54
405	3	04		DC	@REC -@	IBM MACRO		6	5781		54
406	3	05		DC	@REL K@	RELEASE DISK		6	5787		54
407	3	06		DC	@RELO K@	RELEASE DISK		6	5793		54
408	3	07		DC	@RELSEJ@	RELESE BLOCK		6	5799		54
409	3	08		DC	@RESEQ6@	CONTROL CARD		6	5805		55
410	3	09		DC	@RFT K@	READ DISK		6	5811		55
411	3	10		DC	@RFTG K@	READ DISK		6	5817		55
412	3	11		DC	@RFTGWK@	READ DISK		6	5823		55
413	3	12		DC	@RFTO K@	READ DISK		6	5829		55
414	3	13		DC	@RFTW K@	READ DISK		6	5835		55
415	3	14		DC	@RFTWOK@	READ DISK		6	5841		56
416	3	15		DC	@RHA K@	READ DISK		6	5847		56
417	3	16		DC	@RHAG K@	READ DISK		6	5853		56
418	3	17		DC	@RHAGWK@	READ DISK		6	5859		56
419	3	18		DC	@RHAO K@	READ DISK		6	5865		56
420	3	19		DC	@RHAW K@	READ DISK		6	5871		56
421	3	20		DC	@RHAWOK@	READ DISK		6	5877		57
422	3	21		DC	@RL K@	READ TELEGRAP		6	5883		57
423	3	22		DC	@RLO K@	READ TELEGRAP		6	5889		57
424	3	23		DC	@RLW K@	RD TELE		6	5895		57
425	3	24		DC	@RLWO K@	RD TELE		6	5901		57
426	3	25		DC	@RPT K@	RD PAPER TAPE		6	5907		57
427	3	26		DC	@RPTO K@	RD PAPER TAPE		6	5913		58
428	3	27		DC	@RPTW K@	RD PAPER TAPE		6	5919		58
429	3	28		DC	@RPTWOK@	RD PAPER TAPE		6	5925		58
430	3	29		DC	@RQ K@	READ INQUIRY		6	5931		58
431	3	30		DC	@RQO K@	RD OUTQUIRY		6	5937		58
432	3	31		DC	@RQW K@	WITH WDMARKS		6	5943		58
433	3	32		DC	@RQWO K@	WITH OVERLAP		6	5949		59
434	3	33		DC	@RSCPU-@	REST CPU ST I		6	5955		59
435	3	34		DC	@RSV -@	IBM MACRO		6	5961		59
436	3	35		DC	@RT K@	READ TAPE		6	5967		59
437	3	36		DC	@RTAPEJ@	RD TP MCARO		6	5973		59
438	3	37		DC	@RTB K@	& BINARY		6	5979		59
439	3	38		DC	@RTBG K@	TO IRG/END CR		6	5985		60
440	3	39		DC	@RTBGWK@	WITH WDMARKS		6	5991		60
441	3	40		DC	@RTBO K@	WITH OVERLAP		6	5997		60
442	3	41		DC	@RTBW K@	WITH WDMARKS		6	6003		60
443	3	42		DC	@RTBWOK@	BOTH		6	6009		60
444	3	43		DC	@RTD K@	RD DATA TRANS		6	6015		60
445	3	44		DC	@RTDO K@	WITH OVERLAP		6	6021		61
446	3	45		DC	@RTDW K@	WITH WDMARKS		6	6027		61
447	3	46		DC	@RTDWOK@	BOTH		6	6033		61

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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

448  3 47          DC    @RTG  K@                TO IRS/END CR                 6  6039                      61
449  3 48          DC    @RTGW K@                WITH WDMARKS                  6  6045                      61
450  3 49          DC    @RTLBLJ@                RD LABEL                      6  6051                      61
451  3 50          DC    @RTO  K@                RD TP-OVERLAP                 6  6057                      62
452  3 51          DC    @RTR  K@                RD DISK ADD                   6  6063                      62
453  3 52          DC    @RTRG K@                TO END TRACK                  6  6069                      62
454  3 53          DC    @RTRGWK@                WITH WDMARKS                  6  6075                      62
455  3 54          DC    @RTRO K@                RD DISK                       6  6081                      62
456  3 55          DC    @RTRW K@                WITH WDMARKS                  6  6087                      62
457  3 56          DC    @RTRWOK@                BOTH                          6  6093                      63
458  3 57          DC    @RTW  K@                RD TP-WDMARKS                 6  6099                      63
459  3 58          DC    @RTWO K@                AND OVERLAP                   6  6105                      63
460  3 59          DC    @RUN  6@                CONTROL CARD                  6  6111                      63
461  3 60          DC    @RWD  K@                REWIND TAPE                   6  6117                      63
462  3 61          DC    @RWU  K@                AND UNLOAD                    6  6123                      63
463  3 62          DC    @R1O  K@                STACKER SELCT                 6  6129                      64
464  3 63          DC    @R1W  K@                STACKER SELCT                 6  6135                      64
465  3 64          DC    @R1WO K@                STACKER SELCT                 6  6141                      64
466  3 65          DC    @R2O  K@                STACKER SELCT                 6  6147                      64
467  3 66          DC    @R2W  K@                STACKER SELCT                 6  6153                      64
468  3 67          DC    @R2WO K@                STACKER SELCT                 6  6159                      64
469  3 68          DC    @R3O  K@                STACKER SELCT                 6  6165                      65
470  3 69          DC    @R3W  K@                STACKER SELCT                 6  6171                      65
471  3 70          DC    @R3WO K@                STACKER SELCT                 6  6177                      65
472  3 71          DC    @R4O  K@                STACKER SELCT                 6  6183                      65
473  3 72          DC    @R4W  K@                STACKER SELCT                 6  6189                      65
474  3 73          DC    @R4WO K@                STACKER SELCT                 6  6195                      65
475  3 74          DC    @S    -@                SUBTRACT                      6  6201                      66
476  3 75          DC    @SAI  K@                SET ACC INOPT                 6  6207                      66
477  3 76          DC    @SAIO K@                WITH OVERLAP                  6  6213                      66
478  3 77          DC    @SAR  -@                STORE REGISTE                 6  6219                      66
479  3 78          DC    @SBR  -@                STORE ADD                     6  6225                      66
480  3 79          DC    @SCK  K@                CTL HYPERTAPE                 6  6231                      66
481  3 80          DC    @SCKO K@                WITH OVERLAP                  6  6237                      67
482  3 81          DC    @SCL  K@                CTL HYPERTAPE                 6  6243                      67
483  3 82          DC    @SCLO K@                WITH WDMK&OVL                 6  6249                      67
484  3 83          DC    @SCM  K@                CTL HYPERTAPE                 6  6255                      67
485  3 84          DC    @SCMO K@                WITH OVERLAP                  6  6261                      67
486  3 85          DC    @SCNL -@                SCAN LEFT                     6  6267                      67
487  3 86          DC    @SCNLA-@                SCAN LEFT                     6  6273                      68
488  3 87          DC    @SCNLB-@                LEFT THRU BWM                 6  6279                      68
489  3 88          DC    @SCNLS-@                SCAN LEFT                     6  6285                      68
490  3 89          DC    @SCNR -@                SCAN RIGHT                    6  6291                      68
491  3 90          DC    @SCNRG-@                SCAN RIGHT                    6  6297                      68
492  3 91          DC    @SCNRM-@                RGHT THRU GWM                 6  6303                      68
493  3 92          DC    @SCNRR-@                RGHT THRU A|                  6  6309                      69
494  3 93          DC    @SCNRS-@                SCAN RIGHT                    6  6315                      69
495  3 94          DC    @SD   K@                SEEK DISK                     6  6321                      69
496  3 95          DC    @SDE  K@                SCAN DSK-EQ                   6  6327                      69
497  3 96          DC    @SDEO K@                WITH OVERLAP                  6  6333                      69
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SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
498	3	97		DC	@SDEW K@	WITH WDMARKS		6	6339		69
499	3	98		DC	@SDEWOK@	BOTH		6	6345		70
500	3	99		DC	@SDH K@	SCN DSK-HI/EQ		6	6351		70
501	4	00		DC	@SDHO K@	WITH OVERLAP		6	6357		70
502	4	01		DC	@SDHW K@	WITH WDMARKS		6	6363		70
503	4	02		DC	@SDHWOK@	BOTH		6	6369		70
504	4	03		DC	@SDL K@	SCN DSK-LO/EQ		6	6375		70
505	4	04		DC	@SDLO K@	WITH OVERLAP		6	6381		71
506	4	05		DC	@SDLW K@	WITH WDMARKS		6	6387		71
507	4	06		DC	@SDLWOK@	BOTH		6	6393		71
508	4	07		DC	@SDO K@	SK DSK OVERLP		6	6399		71
509	4	08		DC	@SER -@	STORE ADD		6	6405		71
510	4	09		DC	@SFA K@	STOR FILE ADD		6	6411		71
511	4	10		DC	@SFAO K@	WITH OVERLAP		6	6417		72
512	4	11		DC	@SFAW K@	WITH WDMARKS		6	6423		72
513	4	12		DC	@SFAWOK@	BOTH		6	6429		72
514	4	13		DC	@SFR -@	STORE ADD		6	6435		72
515	4	14		DC	@SFX $@	CONTROL CARD		6	6441		72
516	4	15		DC	@SKIP K@	CARR CTL MACR		6	6447		72
517	4	16		DC	@SKP K@	ERASE FORWARD		6	6453		73
518	4	17		DC	@SNAP -@	IBM MACRO		6	6459		73
519	4	18		DC	@SPEND-@	IBM MACRO		6	6465		73
520	4	19		DC	@SR -@	STORE STATUS		6	6471		73
521	4	20		DC	@SRDO K@			6	6477		73
522	4	21		DC	@SRK K@	READ DEVICE		6	6483		73
523	4	22		DC	@SRKG K@	READ DEVICE		6	6489		74
524	4	23		DC	@SRKO K@	READ DEVICE		6	6495		74
525	4	24		DC	@SRL K@	READ DEVICE		6	6501		74
526	4	25		DC	@SRLG K@	READ DEVICE		6	6507		74
527	4	26		DC	@SRLO K@	READ DEVICE		6	6513		74
528	4	27		DC	@SRM K@	READ DEVICE		6	6519		74
529	4	28		DC	@SRMG K@	READ DEVICE		6	6525		75
530	4	29		DC	@SRMO K@	READ DEVICE		6	6531		75
531	4	30		DC	@SS K@	STCK MAG CHR		6	6537		75
532	4	31		DC	@SSF K@	STCK SLCT & R		6	6543		75
533	4	32		DC	@SSK K@	SENSE DEVICE		6	6549		75
534	4	33		DC	@SSKO K@	SENSE DEVICE		6	6555		75
535	4	34		DC	@SSL K@	SENSE DEVICE		6	6561		76
536	4	35		DC	@SSLO K@	SENSE DEVICE		6	6567		76
537	4	36		DC	@SSM K@	SENSE DEVICE		6	6573		76
538	4	37		DC	@SSMO K@	SENSE DEVICE		6	6579		76
539	4	38		DC	@STACKJ@	SS MACRO		6	6585		76
540	4	39		DC	@STATS-@	STORE STATUS		6	6591		76
541	4	40		DC	@STC -@	STR TIME CLK		6	6597		77
542	4	41		DC	@STCPU-@	STR CPU STAT		6	6603		77
543	4	42		DC	@STD -@	IBM MACRO		6	6609		77
544	4	43		DC	@STDIO-@	IBM MACRO		6	6615		77
545	4	44		DC	@SW -@	SET WM		6	6621		77
546	4	45		DC	@SWK K@	WRITE DEVICE		6	6627		77
547	4	46		DC	@SWKE K@	WRITE DEVICE		6	6633		78

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
548	4	47		DC	@SWKO K@	WRITE DEVICE		6	6639		78
549	4	48		DC	@SWL K@	WRITE DEVICE		6	6645		78
550	4	49		DC	@SWLE K@	WRITE DEVICE		6	6651		78
551	4	50		DC	@SWLO K@	& OP2		6	6657		78
552	4	51		DC	@SWM K@	WRITE DEVICE		6	6663		78
553	4	52		DC	@SWME K@	WRITE DEVICE		6	6669		79
554	4	53		DC	@SWMO K@	WRITE DEVICE		6	6675		79
555	4	54		DC	@TITLE-@	IBM MACRO		6	6681		79
556	4	55		DC	@TPDIRJ@	IBM MACRO		6	6687		79
557	4	56		DC	@UNCTLJ@	IBM MACRO		6	6693		79
558	4	57		DC	@W K@	WRITE LINE		6	6699		79
559	4	58		DC	@WAITSJ@	IBM MACRO		6	6705		80
560	4	59		DC	@WCP K@	WT CONS PRTR		6	6711		80
561	4	60		DC	@WCPO K@	WITH OVERLAP		6	6717		80
562	4	61		DC	@WCPW K@	WITH WDMARKS		6	6723		80
563	4	62		DC	@WCPWOK@	BOTH		6	6729		80
564	4	63		DC	@WCY K@	WT CYLINDER		6	6735		80
565	4	64		DC	@WCYE K@	TO END		6	6741		81
566	4	65		DC	@WCYEWK@	WITH WDMARKS		6	6747		81
567	4	66		DC	@WCYO K@	WITH OVERLAP		6	6753		81
568	4	67		DC	@WCYW K@	WITH WDMARKS		6	6759		81
569	4	68		DC	@WCYWOK@	BOTH		6	6765		81
570	4	69		DC	@WD K@	WRITE DISK		6	6771		81
571	4	70		DC	@WDC K@	WRITE DISK		6	6777		82
572	4	71		DC	@WDCE K@	WRITE DISK		6	6783		82
573	4	72		DC	@WDCEWK@	WRITE DISK		6	6789		82
574	4	73		DC	@WDCO K@	WRITE DISK		6	6795		82
575	4	74		DC	@WDCW K@	WRITE DISK		6	6801		82
576	4	75		DC	@WDCWOK@	WRITE DISK		6	6807		82
577	4	76		DC	@WDE K@	WRITE DISK		6	6813		83
578	4	77		DC	@WDEW K@	WRITE DISK		6	6819		83
579	4	78		DC	@WDO K@	WRITE DISK		6	6825		83
580	4	79		DC	@WDT K@	WRITE DISK		6	6831		83
581	4	80		DC	@WDTE K@	WRITE DISK		6	6837		83
582	4	81		DC	@WDTEWK@	WRITE DISK		6	6843		83
583	4	82		DC	@WDTO K@	WRITE DISK		6	6849		84
584	4	83		DC	@WDTV K@	WRITE DISK		6	6855		84
585	4	84		DC	@WDTW K@	WRITE DISK		6	6861		84
586	4	85		DC	@WDTWOK@	WRITE DISK		6	6867		84
587	4	86		DC	@WDV K@	WTIRE DISK		6	6873		84
588	4	87		DC	@WDVE K@	WRITE DISK		6	6879		84
589	4	88		DC	@WDVEWK@	WRITE DISK		6	6885		85
590	4	89		DC	@WDVO K@	WRITE DISK		6	6891		85
591	4	90		DC	@WDVW K@	WRITE DISK		6	6897		85
592	4	91		DC	@WDVWOK@	WRITE DISK		6	6903		85
593	4	92		DC	@WDW K@	WRITE DISK		6	6909		85
594	4	93		DC	@WDWO K@	WRITE DISK		6	6915		85
595	4	94		DC	@WFO K@	WRITE DISK		6	6921		86
596	4	95		DC	@WFOE K@	WRITE DISK		6	6927		86
597	4	96		DC	@WFOO K@	WRITE DISK		6	6933		86

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
598	4	97		DC	@WFT K@	WRITE DISK		6	6939		86
599	4	98		DC	@WFTE K@	WRITE DISK		6	6945		86
600	4	99		DC	@WFTEWK@	WRITE DISK		6	6951		86
601	5	00		DC	@WFTO K@	WRITE DISK		6	6957		87
602	5	01		DC	@WFTW K@	WRITE DISK		6	6963		87
603	5	02		DC	@WFTWOK@	WRITE DISK		6	6969		87
604	5	03		DC	@WHA K@	WRITE DISK		6	6975		87
605	5	04		DC	@WHAE K@	WRITE DISK		6	6981		87
606	5	05		DC	@WHAEWK@	WRITE DISK		6	6987		87
607	5	06		DC	@WHAO K@	WRITE DISK		6	6993		88
608	5	07		DC	@WHAW K@	WRITE DISK		6	6999		88
609	5	08		DC	@WHAWOK@	WRITE DISK		6	7005		88
610	5	09		DC	@WL K@	WT TELEGRAPH		6	7011		88
611	5	10		DC	@WLO K@	WT TELEGRAPH		6	7017		88
612	5	11		DC	@WLW K@	WT TELEGRAPH		6	7023		88
613	5	12		DC	@WLWO K@	WT TELEGRAPH		6	7029		89
614	5	13		DC	@WM K@	PRINT WITH WM		6	7035		89
615	5	14		DC	@WMO K@	PRINT WITH WM		6	7041		89
616	5	15		DC	@WMZ K@			6	7047		89
617	5	16		DC	@WM2 K@			6	7053		89
618	5	17		DC	@WQ K@	WT INQ RESP		6	7059		89
619	5	18		DC	@WQO K@	WT INQ RESP		6	7065		90
620	5	19		DC	@WQW K@	WT INQ RESP		6	7071		90
621	5	20		DC	@WQWO K@	WT INQ RESP		6	7077		90
622	5	21		DC	@WRITEK@	IBM MACRO		6	7083		90
623	5	22		DC	@WT K@	WRITE TAPE		6	7089		90
624	5	23		DC	@WTAPEJ@	WT TP MACRO		6	7095		90
625	5	24		DC	@WTB K@	BINARY		6	7101		91
626	5	25		DC	@WTBE K@	TO END CORE		6	7107		91
627	5	26		DC	@WTBEWK@	WITH WDMARKS		6	7113		91
628	5	27		DC	@WTBO K@	WITH OVERLAP		6	7119		91
629	5	28		DC	@WTBW K@	WITH WDMARKS		6	7125		91
630	5	29		DC	@WTBWOK@	WRITE TAPE BI		6	7131		91
631	5	30		DC	@WTD K@	WT DATA TRANS		6	7137		92
632	5	31		DC	@WTDO K@	WITH OVERLAP		6	7143		92
633	5	32		DC	@WTDW K@	WITH WDMARKS		6	7149		92
634	5	33		DC	@WTDWOK@	BOTH		6	7155		92
635	5	34		DC	@WTE K@	WT TAPE-END		6	7161		92
636	5	35		DC	@WTEW K@	WITH WDMARKS		6	7167		92
637	5	36		DC	@WTLBLJ@	WR TAPE LABEL		6	7173		93
638	5	37		DC	@WTM K@	WT TAPE MARK		6	7179		93
639	5	38		DC	@WTMO K@	WT DISK		6	7185		93
640	5	39		DC	@WTO K@	WT TAPE-OVLAP		6	7191		93
641	5	40		DC	@WTR K@	WT TRACK REC		6	7197		93
642	5	41		DC	@WTRE K@	TO END		6	7203		93
643	5	42		DC	@WTREWK@	WITH WDMARKS		6	7209		94
644	5	43		DC	@WTRO K@	WITH OVERLAP		6	7215		94
645	5	44		DC	@WTRW K@	DISK W/WMS		6	7221		94
646	5	45		DC	@WTRWOK@	BOTH		6	7227		94
647	5	46		DC	@WTW K@	WT TRACK W/WM		6	7233		94

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SEQ PG LIN  LABEL  OP    OPERANDS                                       SFX CT  LOCN  INSTRUCTION TYPE  CARD

648  5 47          DC    @WTWO K@                WITH OVERLAP                6  7239                      94
649  5 48          DC    @W1M  K@                PRINT A LINE                6  7245                      95
650  5 49          DC    @W1MO K@                PRINT A LINE                6  7251                      95
651  5 50          DC    @W1O  K@                PRINT A LINE                6  7257                      95
652  5 51          DC    @W1W  K@                PRINT A LINE                6  7263                      95
653  5 52          DC    @W1WO K@                PRINT A LINE                6  7269                      95
654  5 53          DC    @W2M  K@                PRINT A LINE                6  7275                      95
655  5 54          DC    @W2MO K@                PRINT A LINE                6  7281                      96
656  5 55          DC    @W2O  K@                PRINT A LINE                6  7287                      96
657  5 56          DC    @W2W  K@                PRINT A LINE                6  7293                      96
658  5 57          DC    @W2WO K@                PRINT A LINE                6  7299                      96
659  5 58          DC    @W3M  K@                PRINT A LINE                6  7305                      96
660  5 59          DC    @W3MO K@                PRINT A LINE                6  7311                      96
661  5 60          DC    @W3O  K@                PRINT A LINE                6  7317                      97
662  5 61          DC    @W3W  K@                PRINT A LINE                6  7323                      97
663  5 62          DC    @W3WO K@                PRINT A LINE                6  7329                      97
664  5 63          DC    @W4M  K@                PRINT A LINE                6  7335                      97
665  5 64          DC    @W4MO K@                PRINT A LINE                6  7341                      97
666  5 65          DC    @W4O  K@                PRINT A LINE                6  7347                      97
667  5 66          DC    @W4W  K@                PRINT A LINE                6  7353                      98
668  5 67          DC    @W4WO K@                PRINT A LINE                6  7359                      98
669  5 68          DC    @XFR  6@                                            6  7365                      98
670  5 69          DC    @ZA   -@                ZERO & ADD                  6  7371                      98
671  5 70          DC    @ZS   -@                ZERO & SUB                  6  7377                      98
672  5 71          DC    @99999I@                                            6  7383                      98
673  5 72   SYSOR  EQU   4000                                                   4000
674  5 73   BLDPTS EQU   3200                                                   3200
675  5 74   HIGH   EQU   *&1                                                    7384
676  5 75          END                                                                / 000 080           99
659  5 58          DC    @W3M  K@                PRINT A LINE                6  7305                      96          *****
660  5 59          DC    @W3MO K@                PRINT A LINE                6  7311                      96
661  5 60          DC    @W3O  K@                PRINT A LINE                6  7317                      97
662  5 61          DC    @W3W  K@                PRINT A LINE                6  7323                      97
663  5 62          DC    @W3WO K@                PRINT A LINE                6  7329                      97
664  5 63          DC    @W4M  K@                PRINT A LINE                6  7335                      97
665  5 64          DC    @W4MO K@                PRINT A LINE                6  7341                      97
666  5 65          DC    @W4O  K@                PRINT A LINE                6  7347                      97
667  5 66          DC    @W4W  K@                PRINT A LINE                6  7353                      98
668  5 67          DC    @W4WO K@                PRINT A LINE                6  7359                      98
669  5 68          DC    @XFR  6@                                            6  7365                      98
670  5 69          DC    @ZA   -@                ZERO & ADD                  6  7371                      98
671  5 70          DC    @ZS   -@                ZERO & SUB                  6  7377                      98
672  5 71          DC    @99999I@                                            6  7383                      98
673  5 72   SYSOR  EQU   4000                                                   4000
```

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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                        1            3ANAG
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?     2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040      3

                          ANALYZE DICTIONARY                                     3ANAG            PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    10   000    JOB   ANALYZE DICTIONARY
 102    20          CTL   440
 103    30          DC    @$ADD     @                                          9  0341                        4
 104    40          DC    &SYSOR                                             3  0344  00|                   4
 105    50          DC    &BLDPTS                                            3  0347  B00                   4
 106    60          DC    &HIGH                                              3  0350  U3U                   4
 107    70          DCW   @040565@          ASSEMBLY DATE                    6  0356                        4
 108    80          ORG   SYSOR                                                        4000
 109    90          DC    @A    -@   ADD                                     6  4005                        5
 110  1 00          DC    @AM   -@   ADD IMMEDIATE                           6  4011                        5
 111  1 10          DC    @ANDF -@   AND TO FIELD                            6  4017                        5
 112  1 20          DC    @B    D@   BRANCH                                  6  4023                        5
 113  1 30          DC    @BA   D@   BRANCH ANY DATA CHECK                   6  4029                        5
 114  1 40          DC    @BANS D@   BRANCH BAND A NOT SELECTED              6  4035                        5
 115  1 50          DC    @BB   M@   BRANCH BACK                             6  4041                        6
 116  1 60          DC    @BBAS D@   BRANCH BAND A SELECTED                  6  4047                        6
 117  1 70          DC    @BBBS D@   BRANCH BAND B SELECTED                  6  4053                        6
 118  1 80          DC    @BBNS D@   BRANCH BAND B NOT SELECTED              6  4059                        6
 119  1 90          DC    @BBT  D@   BRANCH ON BIT                           6  4065                        6
 120  2 00          DC    @BB2  M@   BRANCH BACK AND ADJUST ASSIGNMENT COUNTE     6  4071                   6
 121  2 10          DC    @BCB  D@   BRANCH NO SIOC NOT BUSY                 6  4077                        7
 122  2 20          DC    @BCH9 D@   BRANCH ON CHANNEL 9                     6  4083                        7
 123  2 30          DC    @BCNB D@   BRANCH SIOC NOT BUSY                    6  4089                        7
 124  2 40          DC    @BCOV D@   BRANCH ON CHANNEL OVERFLOW              6  4095                        7
 125  2 50          DC    @BCX  D@   BRANCH CONDITIONALLY, MODIFY REG        6  4101                        7
 126  2 60          DC    @BCXM D@   MODIFY INDEX REGISTER IMMEDIATE         6  4107                        7
 127  2 70          DC    @BC1  D@   BRANCH CONSOLE SWITCH 1                 6  4113                        8
 128  2 80          DC    @BC2  D@   BRANCH CONSOLE SWITCH 2                 6  4119                        8
 129  2 90          DC    @BC3  D@   BRANCH CONSOLE SWITCH 3                 6  4125                        8
 130  3 00          DC    @BC4  D@   BRANCH CONSOLE SWITCH 4                 6  4131                        8
 131  3 10          DC    @BD   D@   BRANCH ON DIGIT                         6  4137                        8
 132  3 20          DC    @BE   D@   BRANCH EQUAL                            6  4143                        8
 133  3 30          DC    @BEBS D@   BRANCH EITHER BAND SELECTED             6  4149                        9
 134  3 40          DC    @BH   D@   BRANCH HIGH                             6  4155                        9
 135  3 50          DC    @BI   D@   BRANCH INDICATOR                        6  4161                        9
 136  3 60          DC    @BIR  D@   BRANCH DATA READY                       6  4167                        9
 137  3 70          DC    @BKTY K@   BACKSPACE TYPEWRITER                    6  4173                        9
 138  3 80          DC    @BL   D@   BRANCH LOW                              6  4179                        9
 139  3 90          DC    @BLC  D@   BRANCH LAST CARD                        6  4185                       10
 140  4 00          DC    @BLX  D@   BRANCH AND LOAD INDEX REGISTER          6  4191                       10
 141  4 10          DC    @BLXM D@   BRANCH AND LOAD INDEX REG IMM           6  4197                       10
 142  4 20          DC    @BMC  D@   BRANCH MODE SHIFT                       6  4203                       10
 143  4 30          DC    @BMK  D@   BRANCH ON MASK                          6  4209                       10
 144  4 40          DC    @BN   D@   BRANCH NEGATIVE                         6  4215                       10
 145  4 50          DC    @BNA  D@   BRANCH NOT ANY DATA CHECK               6  4221                       11
 146  4 60          DC    @BNBS D@   BRANCH NEITHER BAND SELECTED            6  4227                       11
 147  4 70          DC    @BNC1 D@   BRANCH CONSOLE SWITCH 1 OFF             6  4233                       11
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SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX CT	LOCN	INSTRUCTION TYPE	CARD
148	4	80		DC	@BNC2 D@ BRANCH CONSOLE SWITCH 2 OFF	6	4239		11
149	4	90		DC	@BNC3 D@ BRANCH CONSOLE SWITCH 3 OFF	6	4245		11
150	5	00		DC	@BNC4 D@ BRANCH CONSOLE SWITCH 4 OFF	6	4251		11
151	5	10		DC	@BNE D@ BRANCH NOT EQUAL	6	4257		12
152	5	20		DC	@BNF D@ BRANCH NO FLAG	6	4263		12
153	5	30		DC	@BNG D@ BRANCH NO GROUP MARK	6	4269		12
154	5	40		DC	@BNH D@ BRANCH NOT HIGH	6	4275		12
155	5	50		DC	@BNI D@ BRANCH NO INDICATOR	6	4281		12
156	5	60		DC	@BNIR D@ BRANCH NO DATA READY	6	4287		12
157	5	70		DC	@BNL D@ BRANCH NOT LOW	6	4293		13
158	5	80		DC	@BNLC D@ BRANCH NOT LAST CARD	6	4299		13
159	5	90		DC	@BNMC D@ BRANCH NO MODE SHIFT	6	4305		13
160	6	00		DC	@BNN D@ BRANCH NOT NEGATIVE	6	4311		13
161	6	10		DC	@BNOR D@ BRANCH NO OUTPUT RECORD	6	4317		13
162	6	20		DC	@BNP D@ BRANCH NOT POSITIVE	6	4323		13
163	6	30		DC	@BNR D@ BRANCH NO RECORD MARK	6	4329		14
164	6	40		DC	@BNRE D@ BRANCH NO END OF MESSAGE	6	4335		14
165	6	50		DC	@BNV D@ BRANCH NO OVERFLOW	6	4341		14
166	6	60		DC	@BNXV D@ BRANCH NOT EXPONENT CHECK	6	4347		14
167	6	70		DC	@BNZ D@ BRANCH NOT ZERO	6	4353		14
168	6	80		DC	@BO -@ BRANCH OUT OF MODE	6	4359		14
169	6	900		DC	@BOLD -@ BRANCH OUT OF MODE	6	4365		15
170	7	00		DC	@BOR D@ BRANCH OUTPUT RECORD MARK	6	4371		15
171	7	10		DC	@BP D@ BRANCH POSITIVE	6	4377		15
172	7	20		DC	@BRE D@ BRANCH END OF MESSAGE	6	4383		15
173	7	30		DC	@BS D@ BRANCH AND SELECT	6	4389		15
174	7	40		DC	@BSBA D@ BRANCH AND SELECT BAND A	6	4395		15
175	7	50		DC	@BSBB D@ BRANCH AND SELECT BAND B	6	4401		16
176	7	60		DC	@BSIA D@ BRANCH AND SELECT INDIRECT ADDRESSING	6	4407		16
177	7	70		DC	@BSNI D@ BRANCH AND SELECT NO I/A	6	4413		16
178	7	80		DC	@BSNX D@ BRANCH AND SELECT NO INDEX REGISTER	6	4419		16
179	7	90		DC	@BSX D@ BRANCH AND STORE INDEX REGISTER	6	4425		16
180	8	00		DC	@BT M@ BRANCH AND TRANSMIT	6	4431		16
181	8	10		DC	@BTA M@ BRANCH AND TRANSMIT ADDRESS	6	4437		17
182	8	20		DC	@BTAM M@ BRANCH AND TRANSMIT ADDRESS IMMEDIATE	6	4443		17
183	8	30		DC	@BTFL M@ BRANCH AND TRANSMIT FLOATING	6	4449		17
184	8	40		DC	@BTFS M@ BRANCH AND TRANSMIT FLOATING	6	4455		17
185	8	50		DC	@BTM M@ BRANCH AND TRANSMIT IMMEDIATE	6	4461		17
186	8	60		DC	@BV D@ BRANCH OVERFLOW	6	4467		17
187	8	70		DC	@BX D@ BRANCH AND MODIFY INDEX REGISTER	6	4473		18
188	8	80		DC	@BXM D@ BRANCH AND MODIFY INDEX REGISTER IMMEDIA	6	4479		18
189	8	90		DC	@BXV D@ BRANCH EXPONENT CHECK	6	4485		18
190	9	00		DC	@BZ D@ BRANCH ZERO	6	4491		18
191	9	10		DC	@B7 D@ BRANCH AND ADJUST COUNTER	6	4497		18
192	9	20		DC	@C -@ COMPARE	6	4503		18
193	9	30		DC	@CALL D@	6	4509		19
194	9	40		DC	@CDGN K@ CHECK DISK/WLRC	6	4515		19
195	9	50		DC	@CDN K@ CHECK DISK	6	4521		19
196	9	60		DC	@CF -@ CLEAR FLAG	6	4527		19
197	9	70		DC	@CM -@ COMPARE IMMEDIATE	6	4533		19

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SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

198  9 80          DC    @CPLF -@   COMPLEMENT OCTAL FIELD                             6  4539                    19
199  9 90          DC    @CTGN K@   CHECK DISK TRACK WLRC                              6  4545                    20
200 10 00          DC    @CTN  K@   CHECK DISK TRACK                                   6  4551                    20
201 10 10          DC    @D    -@   DIVIDE                                             6  4557                    20
202 10 20          DC    @DAC  3@   DEFINE ALPHAMERIC CONSTANT                         6  4563                    20
203 10 30          DC    @DAS  3@   DEFINE ALPHAMERIC SYMBOL                           6  4569                    20
204 10 40          DC    @DC   3@   DEFINE CONSTANT                                    6  4575                    20
205 10 50          DC    @DCA  6@   DEFINE CARD ALPHAMERIC                             6  4581                    21
206 10 60          DC    @DCN  6@   DEFINE CARD NUMERICAL                              6  4587                    21
207 10 70          DC    @DD   6@   DEFINE DISK WITHOUT WLRC                           6  4593                    21
208 10 80          DC    @DDA  3@   DEFINE DISK ADDRESS                                6  4599                    21
209 10 90          DC    @DDW  6@   DEFINE DISK WITH WLRC                              6  4605                    21
210 11 00          DC    @DEND 6@   DEFINE END                                         6  4611                    21
211 11 10          DC    @DGM  3@   DEFINE GROUP MARK                                  6  4617                    22
212 11 20          DC    @DIV  J@   DIVIDE FIXED POINT                                 6  4623                    22
213 11 30          DC    @DM   -@   DIVIDE IMMEDIATE                                   6  4629                    22
214 11 40          DC    @DMES 3@   DEFINE MESSAGE                                     6  4635                    22
215 11 50          DC    @DN   K@   DUMP NUMERICALLY                                   6  4641                    22
216 11 60          DC    @DNB  3@   DEFINE NUMERICAL BLANK                             6  4647                    22
217 11 70          DC    @DNCD K@   DUMP NUMERICALLY CARD                              6  4653                    23
218 11 80          DC    @DNPT K@   DUMP NUMERICALLY PAPER TAPE                        6  4659                    23
219 11 90          DC    @DNTY K@   DUMP NUMERICALLY TYPEWRITER                        6  4665                    23
220 12 00          DC    @DORG -@   DEFINE ORIGIN                                      6  4671                    23
221 12 10          DC    @DOT  3@   DEFINE OCTAL TABLE                                 6  4677                    23
222 12 20          DC    @DPTA 6@   DEFINE PAPER TAPE ALPHAMERIC                       6  4683                    23
223 12 30          DC    @DPTN 6@   DEFINE PAPER TAPE NUMERICAL                        6  4689                    24
224 12 40          DC    @DS   3@   DEFINE SYMBOL                                      6  4695                    24
225 12 50          DC    @DSA  3@   DEFINE SYMBOLIC ADDRESS                            6  4701                    24
226 12 60          DC    @DSAC 3@   DEFINE SPECIAL ALPHAMERIC CONSTANT                 6  4707                    24
227 12 70          DC    @DSB  3@   DEFINE SYMBOLIC BLOCK                              6  4713                    24
228 12 80          DC    @DSC  3@   DEFINE SPECIAL CONSTANT                            6  4719                    24
229 12 90          DC    @DSS  3@   DEFINE SPECIAL SYMBOL                              6  4725                    25
230 13 00          DC    @DTA  6@   DEFINE TYPEWRITER ALPHAMERIC                       6  4731                    25
231 13 10          DC    @DTN  6@   DEFINE TYPEWRITER NUMERICAL                        6  4737                    25
232 13 20          DC    @DTO  -@   DECIMAL TO OCTAL CONVERSION                        6  4743                    25
233 13 30          DC    @DVLC 3@   DEFINE VARIABLE LENGTH CONSTANT                    6  4749                    25
234 13 40          DC    @EORF -@   EXCLUSIVE OR TO FIELD                              6  4755                    25
235 13 50          DC    @FA   J@   FLOATING ADD                                       6  4761                    26
236 13 60          DC    @FADD -@   FLOATING ADD                                       6  4767                    26
237 13 70          DC    @FATN J@   FLOATING ARCTANGENT                                6  4773                    26
238 13 80          DC    @FCOS J@   FLOATING COSINE                                    6  4779                    26
239 13 90          DC    @FD   J@   FLOATING DIVIDE                                    6  4785                    26
240 14 00          DC    @FDIV -@   FLOATING DIVIDE                                    6  4791                    26
241 14 10          DC    @FEX  J@   FLOATING EXPONENTIAL %NATURAL)                     6  4797                    27
242 14 20          DC    @FEXT J@   FLOATING EXPONTIAL %BASE 10)                       6  4803                    27
243 14 30          DC    @FLN  J@   FLOATING LOG %NATURAL)                             6  4809                    27
244 14 40          DC    @FLOG J@   FLOATING LOG %BASE 10)                             6  4815                    27
245 14 50          DC    @FM   J@   FLOATING MULTIPLY                                  6  4821                    27
246 14 60          DC    @FMUL -@   FLOATING MULTIPLY                                  6  4827                    27
247 14 70          DC    @FS   J@   FLOATING SUBTRACT                                  6  4833                    28
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

248 14 80          DC    @FSIN J@   FLOATING SINE                                   6  4839                      28
249 14 90          DC    @FSL  -@   FLOATING SHIFT LEFT                             6  4845                      28
250 15 00          DC    @FSLS J@   FLOATING SHIFT LEFT                             6  4851                      28
251 15 10          DC    @FSQR J@   FLOATING SQUARE ROOT                            6  4857                      28
252 15 20          DC    @FSR  -@   FLOATING SHIFT RIGHT                            6  4863                      28
253 15 30          DC    @FSRS J@   FLOATING SHIFT RIGHT                            6  4869                      29
254 15 40          DC    @FSUB -@   FLOATING SUBTRACT                               6  4875                      29
255 15 50          DC    @GET  J@                                                   6  4881                      29
256 15 60          DC    @H    N@   HALT                                            6  4887                      29
257 15 70          DC    @HEAD $@   HEADING                                         6  4893                      29
258 15 80          DC    @IXTY K@   INDEX TYPEWRITER                                6  4899                      29
259 15 90          DC    @K    K@   CONTROL                                         6  4905                      30
260 16 00          DC    @LD   -@   LOAD DIVIDEND                                   6  4911                      30
261 16 10          DC    @LDM  -@   LOAD DIVIDEND IMMEDIATE                         6  4917                      30
262 16 20          DC    @M    -@   MULTIPLY                                        6  4923                      30
263 16 30          DC    @MA   -@   MOVE ADDRESS                                    6  4929                      30
264 16 40          DC    @MF   -@   MOVE FLAG                                       6  4935                      30
265 16 50          DC    @MK   K@   UMASK INTERRUPTS                                6  4941                      31
266 16 60          DC    @MM   -@   MULTIPLY IMMEDIATE                              6  4947                      31
267 16 70          DC    @NOP  -@   NO OPERATION                                    6  4953                      31
268 16 80          DC    @ORF  -@   OR TO FIELD                                     6  4959                      31
269 16 90          DC    @OTD  -@   OCTAL TO DECIMAL CONVERSION                     6  4965                      31
270 17 00          DC    @PRA  K@   PRINT ALPHAMERICALLY                            6  4971                      31
271 17 10          DC    @PRAS K@   PRINT ALPHAMERICALLY SUPPRESS SPACING           6  4977                      32
272 17 20          DC    @PRD  K@   PRINTER DUMP                                    6  4983                      32
273 17 30          DC    @PRDS K@   PRINTER DUMP AND SUPPRESS SPACING               6  4989                      32
274 17 40          DC    @PRN  K@   PRINT NUMERICALLY                               6  4995                      32
275 17 50          DC    @PRNS K@   PRINT NUMERICALLY SUPPRESS SPACING              6  5001                      32
276 17 60          DC    @PUT  J@                                                   6  5007                      32
277 17 70          DC    @RA   K@   READ ALPHAMERICALLY                             6  5013                      33
278 17 80          DC    @RACD K@   READ ALPHAMERICALLY CARD                        6  5019                      33
279 17 90          DC    @RAIC K@   READ ALPHAMERIC INPUT CHANNEL                   6  5025                      33
280 18 00          DC    @RAPT K@   READ ALPHAMERICALLY PAPER TAPE                  6  5031                      33
281 18 10          DC    @RATY K@   READ ALPHAMERICALLY TYPEWRITER                  6  5037                      33
282 18 20          DC    @RBPT K@   READ BINARY PAPER TAPE                          6  5043                      33
283 18 30          DC    @RCTY K@   RETURN CARRIAGE TYPEWRITER                      6  5049                      34
284 18 40          DC    @RDGN K@   READ DISK /WLRC                                 6  5055                      34
285 18 50          DC    @RDN  K@   READ DISK                                       6  5061                      34
286 18 60          DC    @RN   K@   READ NUMERICALLY                                6  5067                      34
287 18 70          DC    @RNCD K@   READ NUMERICALLY CARD                           6  5073                      34
288 18 80          DC    @RNIC K@   READ NUMERICAL INPUT CHANNEL                    6  5079                      34
289 18 90          DC    @RNPT K@   READ NUMERICALLY PAPER TAPE                     6  5085                      35
290 19 00          DC    @RNTY K@   READ NUMERICALLY TYPEWRITER                     6  5091                      35
291 19 10          DC    @RSTR J@                                                   6  5097                      35
292 19 20          DC    @RTGN K@   READ DISK TRACK WLRC                            6  5103                      35
293 19 30          DC    @RTN  K@   READ DISK TRACK                                 6  5109                      35
294 19 40          DC    @S    -@   SUBTRACT                                        6  5115                      35
295 19 50          DC    @SA   K@   SELECT ADDRESS                                  6  5121                      36
296 19 60          DC    @SACO K@   SELECT ADDRESS & CONTACT OPERATE                6  5127                      36
297 19 70          DC    @SAO  K@   SELECT ADDRESS & OPERATE                        6  5133                      36
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

298 19 80          DC    @SAOS K@   SELECT ADDRESS & PROVIDE OUTPUT SIGNAL        6  5139                      36
299 19 90          DC    @SAVE J@                                                 6  5145                      36
300 20 00          DC    @SEEK J@                                                 6  5151                      36
301 20 10          DC    @SEND 6@   SPECIAL END                                   6  5157                      37
302 20 20          DC    @SF   -@   SET FLAG                                      6  5163                      37
303 20 30          DC    @SK   K@   SEEK                                          6  5169                      37
304 20 40          DC    @SKAP K@   SKIP AFTER PRINTING                           6  5175                      37
305 20 50          DC    @SKIP K@   SKIP IMMEDIATE                                6  5181                      37
306 20 60          DC    @SLAD K@   SELECT ADC & INCREMENT %1711, MODEL 1, O      6  5187                      37
307 20 70          DC    @SLAR K@   SELECT ADC REGISTER                           6  5193                      38
308 20 80          DC    @SLCB K@   SELECT CONTACT BLOCK                          6  5199                      38
309 20 90          DC    @SLIC K@   SELECT INPUT CHANNEL                          6  5205                      38
310 21 00          DC    @SLME K@   SELECT MANUAL ENTRY SWITCHES                  6  5211                      38
311 21 10          DC    @SLRN K@   SELECT READ NUMERICALLY                       6  5217                      38
312 21 20          DC    @SLTA K@   SELECT TAS                                    6  5223                      38
313 21 30          DC    @SLTC K@   SELECT REAL-TIME CLOCK                        6  5229                      39
314 21 40          DC    @SM   -@   SUBTRACT IMMEDIATE                            6  5235                      39
315 21 50          DC    @SPAP K@   SPACE AFTER PRINTING                          6  5241                      39
316 21 60          DC    @SPIM K@   SPACE IMMEDIATE                               6  5247                      39
317 21 70          DC    @SPTY K@   SPACE TYPEWRITER                              6  5253                      39
318 21 80          DC    @TBTY K@   TABULATE TYPEWRITER                           6  5259                      39
319 21 90          DC    @TCD  6@   TRANSFER CONTROL AND LOAD                     6  5265                      40
320 22 00          DC    @TD   -@   TRANSMIT DIGIT                                6  5271                      40
321 22 10          DC    @TDM  -@   TRANSMIT DIGIT IMMEDIATE                      6  5277                      40
322 22 20          DC    @TF   -@   TRANSMIT FIELD                                6  5283                      40
323 22 30          DC    @TFL  -@   TRANSMIT FLOATING                             6  5289                      40
324 22 40          DC    @TFLS J@   TRANSMIT FLOATING                             6  5295                      40
325 22 50          DC    @TFM  -@   TRANSMIT FIELD IMMEDIATE                      6  5301                      41
326 22 60          DC    @TNF  -@   TRANSFER NUMERICAL FILL                       6  5307                      41
327 22 70          DC    @TNS  -@   TRANSFER NUMERICAL STRIP                      6  5313                      41
328 22 80          DC    @TR   -@   TRANSMIT RECORD                               6  5319                      41
329 22 90          DC    @TRA  6@   TRANSFER TO RETURN ADDRESS                    6  5325                      41
330 23 00          DC    @TRNM -@   TRANSMIT RECORD NO WORD MARK                  6  5331                      41
331 23 10          DC    @UMK  K@   MASK INTERRUPTS                               6  5337                      42
332 23 20          DC    @WA   K@   WRITE ALPHAMERICALLY                          6  5343                      42
333 23 30          DC    @WACD K@   WRITE ALPHAMERICALLY CARD                     6  5349                      42
334 23 40          DC    @WAOC K@   WRITE ALPHAMERIC OUTPUT CHANNEL               6  5355                      42
335 23 50          DC    @WAPT K@   WRITE ALPHAMERICALLY PAPER TAPE               6  5361                      42
336 23 60          DC    @WATY K@   WRITE ALPHAMERICALLY TYPEWRITER               6  5367                      42
337 23 70          DC    @WBPT K@   WRITE BINARY PAPER TAPE                       6  5373                      43
338 23 80          DC    @WDGN K@   WRITE DISK/WLRC                               6  5379                      43
339 23 90          DC    @WDN  K@   WRITE DISK                                    6  5385                      43
340 24 00          DC    @WN   K@   WRITE NUMERICALLY                             6  5391                      43
341 24 10          DC    @WNCD K@   WRITE NUMERICALLY CARD                        6  5397                      43
342 24 20          DC    @WNOC K@   WRITE NUMERICAL OUTPUT CHANNEL                6  5403                      43
343 24 30          DC    @WNPT K@   WRITE NUMERICALLY PAPER TAPE                  6  5409                      44
344 24 40          DC    @WNTY K@   WRITE NUMERICALLY TYPEWRITER                  6  5415                      44
345 24 50          DC    @WTGN K@   WRITE DISK TRACK WLRC                         6  5421                      44
346 24 60          DC    @WTN  K@   WRITE DISK TRACK                              6  5427                      44
347 24 70   E      DC    @99999I@                                                 6  5433                      44
```

```
SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

348 24 80   SYSOR  EQU   4000                                                    4000
349 24 90   BLDPTS EQU   3200                                                    3200
350 25 00   HIGH   EQU   *&1                                                     5434
351 25 10          END                                                                 / 000 080           45
337 23 70          DC    @WBPT K@   WRITE BINARY PAPER TAPE                   6  5373                      43                 *****
338 23 80          DC    @WDGN K@   WRITE DISK/WLRC                           6  5379                      43
339 23 90          DC    @WDN  K@   WRITE DISK                                6  5385                      43
340 24 00          DC    @WN   K@   WRITE NUMERICALLY                         6  5391                      43
341 24 10          DC    @WNCD K@   WRITE NUMERICALLY CARD                    6  5397                      43
342 24 20          DC    @WNOC K@   WRITE NUMERICAL OUTPUT CHANNEL            6  5403                      43
343 24 30          DC    @WNPT K@   WRITE NUMERICALLY PAPER TAPE              6  5409                      44
344 24 40          DC    @WNTY K@   WRITE NUMERICALLY TYPEWRITER              6  5415                      44
345 24 50          DC    @WTGN K@   WRITE DISK TRACK WLRC                     6  5421                      44
346 24 60          DC    @WTN  K@   WRITE DISK TRACK                          6  5427                      44
347 24 70   E      DC    @99999I@                                             6  5433                      44
```

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION TYPE	CARD
348	24	80	SYSOR	EQU	4000			4000		
349	24	90	BLDPTS	EQU	3200			3200		

```
CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                               1            3ANAH
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?            2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040             3

                          DC DICTIONARY                                          3ANAH              PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    010  000    JOB   DC DICTIONARY
 102    020         CTL   440
 103    030         DCW   @$ADD     @   CARDS COMMON TO ALL DICTIONARIES             9  0341                       4
 104    040         DC    &SYSOR                                                   3  0344  00|                  4
 105    050         DC    &BLDPTS                                                  3  0347  B00                  4
 106    060         DC    &HIGH                                                    3  0350  !5Y                  4
 107    070         DCW   @042565@      DATE OF ASSEMBLY                           6  0356                       4
 108    080         ORG   SYSOR                                                          4000
 109    090         DC    @AAM  -@   ADD ADDER TO MEMORY                           6  4005                       5
 110    100         DC    @ABSX J@   ABSOLUTE VALUE                                6  4011                       5
 111    110         DC    @ACON43@   ADDRESS CONSTANT                              6  4017                       5
 112    120         DC    @ACON53@   ADDRESS CONSTANT                              6  4023                       5
 113    130         DC    @ACON63@   ADDRESS CONSTANT                              6  4029                       5
 114    140         DC    @ADCON3@   ADDRESS CONSTANT                              6  4035                       5
 115    150         DC    @ADD  -@   ADD                                           6  4041                       6
 116    160         DC    @ADDA J@   ADD ADDRESS                                   6  4047                       6
 117    170         DC    @ADDX J@   ADD                                           6  4053                       6
 118    180         DC    @ADITMJ@   ADD AN ITEM                                   6  4059                       6
 119    190         DC    @ADM  -@   ADD TO MEMORY                                 6  4065                       6
 120    200         DC    @AECDS6@   PROCESSOR CONTROL CARD                        6  4071                       6
 121    210         DC    @AIDS 6@   PROCESSOR CONTROL CARD                        6  4077                       7
 122    220         DC    @ALTNPJ@   ALTERNATING NOP                               6  4083                       7
 123    230         DC    @ALTSW3@   EXTERNAL SWITCH                               6  4089                       7
 124    240         DC    @ALTTRJ@   ALTERNATING TRANSFER                          6  4095                       7
 125    250         DC    @ASMBL6@   PROCESSOR CONTROL CARD                        6  4101                       7
 126    260         DC    @ASU  J@   DEFINE ASU                                    6  4107                       7
 127    270         DC    @ASUS 6@   PROCESSOR CONTROL CARD                        6  4113                       8
 128    280         DC    @BITCD3@   BIT-SWITCH                                    6  4119                       8
 129    290         DC    @BLANKJ@   BLANK MEMORY                                  6  4125                       8
 130    300         DC    @BLM  -@   BLANK MEMORY                                  6  4131                       8
 131    310         DC    @BLMS -@   BLANK MEMORY SERIAL                           6  4137                       8
 132    320         DC    @BPC  K@   TAPE I/O                                      6  4143                       8
 133    330         DC    @BSF  K@   BACKSPACE FILE                                6  4149                       9
 134    340         DC    @BSP  K@   BACKSPACE RECORD                              6  4155                       9
 135    350         DC    @CARDS6@   PROCESSOR CONTROL CARD                        6  4161                       9
 136    360         DC    @CASU J@   DEFINE C-ASU                                  6  4167                       9
 137    370         DC    @CASUS6@   PROCESSOR CONTROL CARD                        6  4173                       9
 138    380         DC    @CDIM 6@   PROCESSOR CONTROL CARD                        6  4179                       9
 139    390         DC    @CHR  2@   CHANNEL RESET                                 6  4185                      10
 140    400         DC    @CHRCD3@   CHARACTER SWITCH                              6  4191                      10
 141    410         DC    @CLIP J@   PROCESS ALL MESSAGES                          6  4197                      10
 142    420         DC    @CLOSEJ@   CLOSE DISK FILE                               6  4203                      10
 143    430         DC    @CMP  -@   COMPARE                                       6  4209                      10
 144    440         DC    @CMPAT6@   PROCESSOR CONTROL CARD                        6  4215                      10
 145    450         DC    @CNO  -@   NOP                                           6  4221                      11
 146    460         DC    @COMP J@   COMPARE                                       6  4227                      11
 147    470         DC    @COMPAJ@   COMPARE ADDRESS                               6  4233                      11
```

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
148		480		DC	@COMPXJ@	COMPARE		6	4239		11
149		490		DC	@CON 3@	CONSTANT		6	4245		11
150		500		DC	@CRD K@	CONTROL READ		6	4251		11
151		510		DC	@CTRLAJ@	CONTROL ADDRESS		6	4257		12
152		520		DC	@CWR K@	CONTROL WRITE		6	4263		12
153		530		DC	@DATE 6@	PROCESSOR CONTROL CARD		6	4269		12
154		540		DC	@DDF O@	DEFINE FILE		6	4275		12
155		550		DC	@DEBM K@	8 BIT MODE-DISK		6	4281		12
156		560		DC	@DEC J@	RESTORE DECIMAL		6	4287		12
157		570		DC	@DECRAJ@	DECREMENT ADDRESS		6	4293		13
158		580		DC	@DECRXJ@	DECREMENT		6	4299		13
159		590		DC	@DELET6@	PROCESSOR CONTROL CARD		6	4305		13
160		600		DC	@DIAG O@	ASMBL CNTRL MACRO		6	4311		13
161		610		DC	@DIAGMO@	ASMBL CNTRL MACRO		6	4317		13
162		620		DC	@DIMX J@	DIMINISH		6	4323		13
163		630		DC	@DIOCSJ@			6	4329		14
164		640		DC	@DIV -@	DIVIDE		6	4335		14
165		650		DC	@DIVSG6@	PROCESSOR CONTROL CARD		6	4341		14
166		660		DC	@DIVX J@	DIVIDE		6	4347		14
167		670		DC	@DLITMJ@	DELETE AN ITEM		6	4353		14
168		680		DC	@DMP -@	DUMP MEMORY		6	4359		14
169		690		DC	@DNOP K@	DISK NOP		6	4365		15
170		700		DC	@DREL K@	DISK RELEASE		6	4371		15
171		710		DC	@DSAI 2@	SET ACCESS INOPERATIVE		6	4377		15
172		720		DC	@DSBM K@	6 BIT MODE DISK		6	4383		15
173		730		DC	@DSEK K@	SEEK		6	4389		15
174		740		DC	@DUMP J@	DUMP 7750 STORAGE TO 7080 MEMORY		6	4395		15
175		750		DC	@DUPLI6@	PROCESSOR CONTROL CARD		6	4401		16
176		760		DC	@DVCY 2@			6	4407		16
177		770		DC	@DVHA 2@			6	4413		16
178		780		DC	@DVHX J@	DIVIDE ON HALT		6	4419		16
179		790		DC	@DVSR 2@	PREPARE TO VERIFY DISK		6	4425		16
180		800		DC	@DVTA 2@	PREPARE TO VERIFY TRACK OPERATIONAL		6	4431		16
181		810		DC	@DVTN 2@	PREPARE TO VERIFY TRACK		6	4437		17
182		820		DC	@DWRC 2@	PREPARE TO WRITE CHECK		6	4443		17
183		830		DC	@DWRF 2@	PREPARE TO WRITE FORMAT		6	4449		17
184		840		DC	@ECB @	ENABLE COMPARE BACKWARD		6	4455		17
185		850		DC	@EEM @	ENTER 7080 MODE		6	4461		17
186		860		DC	@EIA ?@	ENABEL INDIRECT ADDRESS		6	4467		17
187		870		DC	@EIM ?@	ENTER INTERUPT MODE		6	4473		18
188		880		DC	@EJECT6@	EJECT		6	4479		18
189		890		DC	@END J@	END OF IOCS CONTROL DECK		6	4485		18
190		900		DC	@ENDLDJ@	RELEASE 7750 FROM LOAD STATUS		6	4491		18
191		910		DC	@ENTDRJ@	ENTER DISK ROUTINE		6	4497		18
192		920		DC	@ENTIPJ@	ENTER INTERRUPT PROGRAM		6	4503		18
193		930		DC	@ENT801@	ENTER 80 MODE		6	4509		19
194		940		DC	@EOR J@	FORCE EOR		6	4515		19
195		950		DC	@FORCE6@	PROCESSOR CONTROL CARD		6	4521		19
196		960		DC	@FPN 3@	DEFINE A FLOATING POINT NBR		6	4527		19
197		970		DC	@FSEQPJ@	FORCE SEQUENIAL PROCESSING		6	4533		19

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SEQ PG LIN  LABEL  OP    OPERANDS                                                 SFX CT  LOCN  INSTRUCTION TYPE  CARD

198    980         DC    @FSP  K@   FORWARD SPACE                                          6  4539                      19
199    990         DC    @FTNOPJ@   FIRST TIME NOP                                         6  4545                      20
200  1 000         DC    @FTNPBJ@   FIRST TIME NOP ON A BIT                                6  4551                      20
201  1 010         DC    @FTTR J@   FIRST TIME TRANSFER                                    6  4557                      20
202  1 020         DC    @FTTRBJ@   FIRST TIME TRANSFER ON A BIT                           6  4563                      20
203  1 030         DC    @GET  J@   DISK GET                                               6  4569                      20
204  1 040         DC    @GETR J@   DISK GET RANDOM                                        6  4575                      20
205  1 050         DC    @GETS J@   DISK GET                                               6  4581                      21
206  1 060         DC    @HBSF O@   HYPERTAPE ORDER                                        6  4587                      21
207  1 070         DC    @HBSR O@   HYPERTAPE ORDER                                        6  4593                      21
208  1 080         DC    @HCCR O@   HYPERTAPE ORDER                                        6  4599                      21
209  1 090         DC    @HCHC O@   HYPERTAPE ORDER                                        6  4605                      21
210  1 100         DC    @HCLN O@   HYPERTAPE ORDER                                        6  4611                      21
211  1 110         DC    @HECF O@   HYPERTAPE ORDER                                        6  4617                      22
212  1 120         DC    @HEOS O@   HYPERTAPE ORDER                                        6  4623                      22
213  1 130         DC    @HERG O@   HYPERTAPE ORDER                                        6  4629                      22
214  1 140         DC    @HFCB O@   HYPERTAPE ORDER                                        6  4635                      22
215  1 150         DC    @HFPN O@   HYPERTAPE ORDER                                        6  4641                      22
216  1 160         DC    @HIASM6@   PROCESSOR CONTROL CARD                                 6  4647                      22
217  1 170         DC    @HICE O@   HYPERTAPE ORDER                                        6  4653                      23
218  1 180         DC    @HLT  -@   STOP                                                   6  4659                      23
219  1 190         DC    @HLWR O@   HYPERTAPE ORDER                                        6  4665                      23
220  1 200         DC    @HNOP O@   HYPERTAPE ORDER                                        6  4671                      23
221  1 210         DC    @HRLF O@   HYPERTAPE ORDER                                        6  4677                      23
222  1 220         DC    @HRLN O@   HYPERTAPE ORDER                                        6  4683                      23
223  1 230         DC    @HRUN O@   HYPERTAPE ORDER                                        6  4689                      24
224  1 240         DC    @HRWD O@   HYPERTAPE ORDER                                        6  4695                      24
225  1 250         DC    @HSBR O@   HYPERTAPE ORDER                                        6  4701                      24
226  1 260         DC    @HSEL O@   HYPERTAPE ORDER                                        6  4707                      24
227  1 270         DC    @HSKF O@   HYPERTAPE ORDER                                        6  4713                      24
228  1 280         DC    @HSKR O@   HYPERTAPE ORDER                                        6  4719                      24
229  1 290         DC    @HTR  J@                                                          6  4725                      25
230  1 300         DC    @HUNL O@   HYPERTAPE ORDER                                        6  4731                      25
231  1 310         DC    @HWCF J@   WRITE CLOCK FAST                                       6  4737                      25
232  1 320         DC    @HWCS J@   WRITE CLOCK SLOW                                       6  4743                      25
233  1 330         DC    @HWTM O@   HYPERTAPE ORDER                                        6  4749                      25
234  1 340         DC    @IFNUMJ@   TEST FOR NUMERIC FIELD                                 6  4755                      25
235  1 350         DC    @IFOFFJ@   TEST SWITCH FOR OFF                                    6  4761                      26
236  1 360         DC    @IFON J@   TEST SWITCH FOR ON                                     6  4767                      26
237  1 370         DC    @INCL J@   INCLUDE MACRO                                          6  4773                      26
238  1 380         DC    @INCRAJ@   INCREMENT ADDRESS                                      6  4779                      26
239  1 390         DC    @INCRXJ@   INCREMENT                                              6  4785                      26
240  1 400         DC    @INITAJ@   INITALIZE ADDRESS                                      6  4791                      26
241  1 410         DC    @INPUT6@   PROCESSOR CONTROL CARD                                 6  4797                      27
242  1 420         DC    @INSERO@   INSERT                                                 6  4803                      27
243  1 430         DC    @IOBSDJ@   BACKSPACE DATA RECORD                                  6  4809                      27
244  1 440         DC    @IOBSFJ@   BACKSPACE FILE                                         6  4815                      27
245  1 450         DC    @IOBSPJ@   BACKSPACE RECORD                                       6  4821                      27
246  1 460         DC    @IOCHKJ@                                                          6  4827                      27
247  1 470         DC    @IOCLS1@   CLOSE A TRAP FILE                                      6  4833                      28
```

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
248	1	480		DC	@IOCTLJ@	GIVE COMMAND TO 7750		6	4839		28
249	1	490		DC	@IODCHJ@	MODIFYS A MACRO		6	4845		28
250	1	500		DC	@IODECJ@	TYPE MESSAGE & WAIT FOR ACTION		6	4851		28
251	1	510		DC	@IODEFO@	EQUALS DIOCS		6	4857		28
252	1	520		DC	@IODMPJ@	WRITE CORE		6	4863		28
253	1	530		DC	@IOF K@	TURN OFF I/O IND		6	4869		29
254	1	540		DC	@IOFERJ@	FORCE EOF		6	4875		29
255	1	550		DC	@IOFSFJ@	SKIP TO FILEX		6	4881		29
256	1	560		DC	@IOFSPJ@	SKIP FORWARD		6	4887		29
257	1	570		DC	@IOFTA1@	GENERATE FIRST SECTION OF A FILE TABLE		6	4893		29
258	1	580		DC	@IOFTB1@	GEN 2ND		6	4899		29
259	1	590		DC	@IOFTC1@	GEN 3RD		6	4905		30
260	1	600		DC	@IOGETJ@	DE BLOCKS		6	4911		30
261	1	610		DC	@IOGP J@	IOCS MACRO		6	4917		30
262	1	620		DC	@IOHLDJ@	REOPEN OR CHECK I/O		6	4923		30
263	1	630		DC	@IOHSKJ@	IOCS MACRO		6	4929		30
264	1	640		DC	@IOIGPJ@	IOCS MACRO		6	4935		30
265	1	650		DC	@IOIOFJ@	TURN I/O INDICATOR OFF		6	4941		31
266	1	660		DC	@IOIONJ@	TURN I/O INDICATOR ON		6	4947		31
267	1	670		DC	@IOLNKJ@	TO LINK WITH IOCS ROUTINE		6	4953		31
268	1	680		DC	@IOMFCJ@	CLOSE & NO REWIND		6	4959		31
269	1	690		DC	@IOMFOJ@	START I/O ON NEW FILE %NOT LOAD POINT)		6	4965		31
270	1	700		DC	@IOMIPJ@	TO CHANGE INPUT FILE TO OUTPUT		6	4971		31
271	1	710		DC	@IOMOPJ@	TO CHANGE OUTPUT FILE TO INPUT		6	4977		32
272	1	720		DC	@ION K@	TURN ON I/O INDICATOR		6	4983		32
273	1	730		DC	@IOOPNJ@	IOCS MACRO		6	4989		32
274	1	740		DC	@IOPOSJ@	POSITION FRE%BNF)		6	4995		32
275	1	750		DC	@IOPUTJ@	BLOCKING		6	5001		32
276	1	760		DC	@IORD J@	READ		6	5007		32
277	1	770		DC	@IORDCJ@	IOCS MACRO		6	5013		33
278	1	780		DC	@IORDSJ@	READ		6	5019		33
279	1	790		DC	@IORETJ@	ALTER STANDARD RETURN FROM I.O.C.S.		6	5025		33
280	1	800		DC	@IORUNJ@	REWIND & UNLOAD		6	5031		33
281	1	810		DC	@IORWDJ@	REWIND		6	5037		33
282	1	820		DC	@IOSASJ@	IOCS MACRO		6	5043		33
283	1	830		DC	@IOSYSJ@	IOCS MACRO		6	5049		34
284	1	840		DC	@IOTA 1@	TAKE TABLE FROM TAPE		6	5055		34
285	1	850		DC	@IOTS 1@	TO SPECIFY A TAPE FOR CHECKPOINT		6	5061		34
286	1	860		DC	@IOTYPJ@	TYPED MESSAGE & NO OPERATOR ACTION		6	5067		34
287	1	870		DC	@IOWR J@	WRITE		6	5073		34
288	1	880		DC	@IOWRCJ@	IOCS MACRO		6	5079		34
289	1	890		DC	@IOWRSJ@	WRITE		6	5085		35
290	1	900		DC	@LABEL6@	PROCESSOR CONTROL CARD		6	5091		35
291	1	910		DC	@LASN O@	ORG		6	5097		35
292	1	920		DC	@LDA -@	LOAD ADDRESS		6	5103		35
293	1	930		DC	@LDDCPJ@	PREPARE TO LOAD DATA CONTROL PACKAGE		6	5109		35
294	1	940		DC	@LEM 3@	LEAVE 7080 MODE		6	5115		35
295	1	950		DC	@LEVDRJ@	LEAVE DISK ROUTINE		6	5121		36
296	1	960		DC	@LEVIPJ@	LEAVE INTERRUPT PROGRAM		6	5127		36
297	1	970		DC	@LEVRTJ@	LEAVE REAL TIME ROUTINE		6	5133		36

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
298	1	980		DC	@LEV80J@	LEAVE 7080 MODE		6	5139		36
299	1	990		DC	@LFC -@	LOAD 4 CHARACTERS		6	5145		36
300	2	000		DC	@LIBR 6@	PROCESSOR CONTROL CARD		6	5151		36
301	2	010		DC	@LIM @	LEAVE INTERUPT MODE		6	5157		37
302	2	020		DC	@LINK J@	LINK TO SUBROUTINE		6	5163		37
303	2	030		DC	@LINKAJ@	SUBROUTINE LINKAGE		6	5169		37
304	2	040		DC	@LIP @	LEAVE INTERUPT PROGRAM		6	5175		37
305	2	050		DC	@LIST 6@	PROCESSOR CONTROL CARD		6	5181		37
306	2	060		DC	@LITND6@	ORG STATEMENT		6	5187		37
307	2	070		DC	@LITOR6@	ORG STATEMENT		6	5193		38
308	2	080		DC	@LITST6@	ORG STATEMENT		6	5199		38
309	2	090		DC	@LNG -@	LENGTHEN		6	5205		38
310	2	100		DC	@LOAD J@	PREFORM DYNAMIC LOADING OF 7750		6	5211		38
311	2	110		DC	@LOD -@	LOAD		6	5217		38
312	2	120		DC	@LOGTP6@	PROCESSOR CONTROL CARD		6	5223		38
313	2	130		DC	@LSB -@	LOAD STORAGE BLANK		6	5229		39
314	2	140		DC	@MACSU6@	PROCESSOR CONTROL CARD		6	5235		39
315	2	150		DC	@MATH J@	ARITHMETIC STATEMENT MACRO		6	5241		39
316	2	160		DC	@MODE O@	ENTER OTHER LANGUAGE		6	5247		39
317	2	170		DC	@MODEL6@	PROCESSOR CONTROL CARD		6	5253		39
318	2	180		DC	@MODIF6@	PROCESSOR CONTROL CARD		6	5259		39
319	2	190		DC	@MOVE J@	MOVE		6	5265		40
320	2	200		DC	@MOVEAJ@	MOVE ADDRESS		6	5271		40
321	2	210		DC	@MPY -@	MULTIPLY		6	5277		40
322	2	220		DC	@MPYSG6@	PROCESSOR CONTROL CARD		6	5283		40
323	2	230		DC	@MPYX J@	MULTIPY		6	5289		40
324	2	240		DC	@MVRSAJ@	MOVE RECORD TO TRANSACTION STACK AREA		6	5295		40
325	2	250		DC	@MVTP J@	IOCS MACRO		6	5301		41
326	2	260		DC	@NABSXJ@	NEGATIVE ABSOLUTE VALUE		6	5307		41
327	2	270		DC	@NAME 3@	NAME AN AREA		6	5313		41
328	2	280		DC	@NDIVXJ@	NEGATIVE DIVIDE		6	5319		41
329	2	290		DC	@NDVHXJ@	NEGATIVE DIVIDE AND HALT		6	5325		41
330	2	300		DC	@NMPYXJ@	NEGATIVE MULTIPY		6	5331		41
331	2	310		DC	@NOP -@	NOP		6	5337		42
332	2	320		DC	@NOSTPJ@	NON-STOP MACRO		6	5343		42
333	2	330		DC	@NOTES6@	PROCESSOR CONTROL CARD		6	5349		42
334	2	340		DC	@NTR D@	NORMAL & TRANSFER		6	5355		42
335	2	350		DC	@ONTO 6@	PROCESSOR CONTROL CARD		6	5361		42
336	2	360		DC	@OPEN J@	OPEN DISK FILE		6	5367		42
337	2	370		DC	@PCT J@			6	5373		43
338	2	380		DC	@PRW K@	PREPARE TO READ WHILE WRITTING		6	5379		43
339	2	390		DC	@PTW K@	WRITE TAPE AFTER PRINTING		6	5385		43
340	2	400		DC	@PUT J@	PUT ON DISK		6	5391		43
341	2	410		DC	@PUTR J@	PUT ON DISK RANDOM		6	5397		43
342	2	420		DC	@PUTS J@	PUT ON DISK		6	5403		43
343	2	430		DC	@RAD -@	RESET & ADD		6	5409		44
344	2	440		DC	@RANGEJ@	TEST IF IN RANGE		6	5415		44
345	2	450		DC	@RASN 6@	PSEUDO RELOCATION		6	5421		44
346	2	460		DC	@RCD L@	DEFINITION OF A RECORD		6	5427		44
347	2	470		DC	@RCV -@	RECEIVE		6	5433		44

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX CT	LOCN	INSTRUCTION TYPE	CARD
348	2	480		DC	@RCVS -@	RECEIVE SERIAL	6	5439		44
349	2	490		DC	@RCVT -@	REIIEVE TRANSMIT	6	5445		45
350	2	500		DC	@RD K@	READ	6	5451		45
351	2	510		DC	@REASM6@	PROCESSOR CONTROL CARD	6	5457		45
352	2	520		DC	@RMA K@	READ MEMORY ADDRESS	6	5463		45
353	2	530		DC	@RMB K@	READ MEMORY BLOCK	6	5469		45
354	2	540		DC	@RND -@	ROUND	6	5475		45
355	2	550		DC	@RNGEXJ@	TEST IF IN RANGE	6	5481		46
356	2	560		DC	@RPITMJ@	REPLACE AN ITEM	6	5487		46
357	2	570		DC	@RPT L@	RECORD DEFINITION	6	5493		46
358	2	580		DC	@RPTA J@		6	5499		46
359	2	590		DC	@RSGN J@		6	5505		46
360	2	600		DC	@RST K@	RESET 760 COUNTER	6	5511		46
361	2	610		DC	@RSU -@	RESET AND SUBTRACT	6	5517		47
362	2	620		DC	@RTS K@	READ TAPE TO TRC	6	5523		47
363	2	630		DC	@RUN K@	REWIND & UNLOAD	6	5529		47
364	2	640		DC	@RWD K@	REWIND	6	5535		47
365	2	650		DC	@RWS K@	READ OR WRITE TAPE ON PRINTER	6	5541		47
366	2	660		DC	@RWT K@	READ OR WRITE TAPE EARLY START	6	5547		47
367	2	670		DC	@RWW -@	READ WHILE WRITING	6	5553		48
368	2	680		DC	@SASN @	SETS BLANK COUNTER	6	5559		48
369	2	690		DC	@SBA -@	SET BIT ALTERNET	6	5565		48
370	2	700		DC	@SBN -@	SET BIT	6	5571		48
371	2	710		DC	@SBR -@	SET BIT REDUNDANT	6	5577		48
372	2	720		DC	@SBZ -@	SET BIT	6	5583		48
373	2	730		DC	@SCC -@	SET CONTROL CONDITION	6	5589		49
374	2	740		DC	@SDH 2@	SET DENSITY HIGH	6	5595		49
375	2	750		DC	@SDL 2@	SET DENSITY LOW	6	5601		49
376	2	760		DC	@SEL K@	SELECT	6	5607		49
377	2	770		DC	@SERCHJ@	SEARCH	6	5613		49
378	2	780		DC	@SET -@	SET LEFT	6	5619		49
379	2	790		DC	@SETOFJ@	SET SWITCH OFF	6	5625		50
380	2	800		DC	@SETONJ@	SET SWITCH ON	6	5631		50
381	2	810		DC	@SGN -@	SIGN	6	5637		50
382	2	820		DC	@SHR -@	SHORTEN	6	5643		50
383	2	830		DC	@SIZE 6@	PROCESSOR CONTROL CARD	6	5649		50
384	2	840		DC	@SKP K@	SKIP TAPE	6	5655		50
385	2	850		DC	@SND K@	SEND	6	5661		51
386	2	860		DC	@SOURC6@	PROCESSOR CONTROL CARD	6	5667		51
387	2	870		DC	@SPC -@	SET STARTING POINT COUNTER	6	5673		51
388	2	880		DC	@SPEED1@	SPEED OR SPACE	6	5679		51
389	2	890		DC	@SPR K@	STORE FOR PRINT	6	5685		51
390	2	900		DC	@SRC -@	SET RECORD COUNTER	6	5691		51
391	2	910		DC	@SST -@	SENSE STATUS TRIGGER	6	5697		52
392	2	920		DC	@ST -@	STORE	6	5703		52
393	2	930		DC	@STOP 1@	DEAD END HALT	6	5709		52
394	2	940		DC	@SUB -@	SUBTRACT	6	5715		52
395	2	950		DC	@SUBA J@	SUBTRACT ADDRESS	6	5721		52
396	2	960		DC	@SUBORO@	GENERATE SUBROUTINE	6	5727		52
397	2	970		DC	@SUBROJ@	START OF NON-STANDARD CALL	6	5733		53

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
398	2	980		DC	@SUBX J@	SUBTRACT		6	5739		53
399	2	990		DC	@SUP K@	SUPRESS PRINT ON PUNCH PRESS PRINT ON PU		6	5745		53
400	3	000		DC	@SWN D@	NOP SW		6	5751		53
401	3	010		DC	@SWT D@	TRA SW-		6	5757		53
402	3	020		DC	@TAA D@	TRANSFER ON SW A		6	5763		53
403	3	030		DC	@TAB D@	TRANSFER ON SW B		6	5769		54
404	3	040		DC	@TABLEJ@	TABLE CREATION MACRO		6	5775		54
405	3	050		DC	@TAC D@	TRANSFER ON SW C		6	5781		54
406	3	060		DC	@TAD D@	TRANSFER ON SW D		6	5787		54
407	3	070		DC	@TAE D@	TRANSFER ON SW E		6	5793		54
408	3	080		DC	@TAF D@	TRANSFER ON SW F		6	5799		54
409	3	090		DC	@TAR D@	TRANSFER AUTO RESTART		6	5805		55
410	3	100		DC	@TBCTLJ@	TABLE CONTROL		6	5811		55
411	3	110		DC	@TCD D@	EXTRA TRA AT END		6	5817		55
412	3	120		DC	@TCT -@	TEN CHARACTER TRANSMIT		6	5823		55
413	3	130		DC	@TEC D@	TRANSFER ECHO CHECK		6	5829		55
414	3	140		DC	@TEST J@	DICISIONAL MACRO		6	5835		55
415	3	150		DC	@TESTXJ@	ZERO & SIGN TEST		6	5841		56
416	3	160		DC	@TIC D@	TRAN INSTRUCTION CHECK		6	5847		56
417	3	170		DC	@TIP D@	TRANSFER TO INTERRUPT PROG		6	5853		56
418	3	180		DC	@TITLE6@	PAGE HEADER		6	5859		56
419	3	190		DC	@TMC D@	TRANSFER MACHINE CHECK		6	5865		56
420	3	200		DC	@TMT -@	TRANSMIT		6	5871		56
421	3	210		DC	@TMTS -@	TRANSMIT SERIAL		6	5877		57
422	3	220		DC	@TNS D@	TRANSFER NONSTOP		6	5883		57
423	3	230		DC	@TOC D@	TRANSFER OVERFLOW CHECK		6	5889		57
424	3	240		DC	@TR D@	TRANSFER		6	5895		57
425	3	250		DC	@TRA D@	TRANSFER ANY		6	5901		57
426	3	260		DC	@TRANSO@	ACTUAL CORE LOCATION		6	5907		57
427	3	270		DC	@TRC D@	TRANSFER READ-WRITE CHECK		6	5913		58
428	3	280		DC	@TRE D@	TRANSFER EQUAL		6	5919		58
429	3	290		DC	@TRH D@	TRANSFER HIGH		6	5925		58
430	3	300		DC	@TRIN J@	TRANSFER INDIRECT		6	5931		58
431	3	310		DC	@TRP D@	TRANSFER ON PLUS		6	5937		58
432	3	320		DC	@TRR D@	TRANSFER READY		6	5943		58
433	3	330		DC	@TRS D@	TRANSFER ON SIGNAL		6	5949		59
434	3	340		DC	@TRZ D@	TRANSFER ON ZERO		6	5955		59
435	3	350		DC	@TSA D@	TRANSFER SYNC ANY		6	5961		59
436	3	360		DC	@TSC D@	TRANSFER SIGNAL CHECK		6	5967		59
437	3	370		DC	@TSL M@	TRANSFER & STORE LOCATION		6	5973		59
438	3	380		DC	@TTC D@	TRANSFER TRANSMISSION CHECK		6	5979		59
439	3	390		DC	@TYPE J@	TYPE A MESSAGE		6	5985		60
440	3	400		DC	@TZB D@	TRANSFER ON ZERO BIT		6	5991		60
441	3	410		DC	@UFC -@	UNLOAD 4 CHARACTERS		6	5997		60
442	3	420		DC	@ULA -@	UNLOAD ADDRESS		6	6003		60
443	3	430		DC	@UNL -@	UNLOAD		6	6009		60
444	3	440		DC	@USB -@	UNLOAD STORAGE BANK		6	6015		60
445	3	450		DC	@WMC K@	WRITE MULTIPLE CONTROL		6	6021		61
446	3	460		DC	@WR K@	WRITE		6	6027		61
447	3	470		DC	@WRE K@	WRITE & ERASE		6	6033		61

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SEQ PG LIN  LABEL  OP    OPERANDS                                                 SFX CT  LOCN  INSTRUCTION TYPE  CARD

448  3 480         DC    @WST  K@   WRITE TRC TO TAPE                                  6  6039                      61
449  3 490         DC    @WTM  K@   WRITE TAPE MARK                                    6  6045                      61
450  3 500         DC    @ZERO J@   ZERO MEMORY                                        6  6051                      61
451  3 510         DC    @99999I@                                                      6  6057                      62
452  3 520  HIGH   EQU   *&1                                                              6058
453  3 530  BLDPTS EQU   3200                                                             3200
454  3 540  SYSOR  EQU   4000                                                             4000
455  3 550         END                                                                          / 000 080           63
441  3 410         DC    @UFC  -@   UNLOAD 4 CHARACTERS                                6  5997                      60            *****
442  3 420         DC    @ULA  -@   UNLOAD ADDRESS                                     6  6003                      60
443  3 430         DC    @UNL  -@   UNLOAD                                             6  6009                      60
444  3 440         DC    @USB  -@   UNLOAD STORAGE BANK                                6  6015                      60
445  3 450         DC    @WMC  K@   WRITE MULTIPLE CONTROL                             6  6021                      61
446  3 460         DC    @WR   K@   WRITE                                              6  6027                      61
447  3 470         DC    @WRE  K@   WRITE & ERASE                                      6  6033                      61
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD

448  3 480         DC    @WST  K@   WRITE TRC TO TAPE                              6  6039                      61
449  3 490         DC    @WTM  K@   WRITE TAPE MARK                                6  6045                      61
450  3 500         DC    @ZERO J@   ZERO MEMORY                                    6  6051                      61
451  3 510         DC    @99999I@                                                  6  6057                      62
```

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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                         1              3ANAI
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?      2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040      3

                          7070/72/72 DICTIONARY   ANALYSIS                          3ANAI             PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101  1 010  000    JOB   7070/72/72 DICTIONARY   ANALYSIS
 102  1 02          CTL   440  1
 103  1 025  *              VERSION 2  LEVEL 0   JULY 25,1965
 104  1 03          DC    @$ADD     @                                                9  0341                      4
 105  1 04          DC    &SYSOR                                                     3  0344  00|                 4
 106  1 05          DC    &BLDPTS                                                    3  0347  B00                 4
 107  1 06          DC    &HIGH                                                      3  0350  W5|                 4
 108  1 07          DCW   @042665@           ASSEMBLY DATE                           6  0356                      4
 109  1 08          ORG   SYSOR                                                              4000
 110  1 09          DC    @A    -@               ADD TO AC                           6  4005                      5
 111  1 10          DC    @AA   -@               ADD TO LOG AC                       6  4011                      5
 112  1 11          DC    @AAS  -@               A ABS TO STG                        6  4017                      5
 113  1 12          DC    @ARITHJ@               PM- ARITH                           6  4023                      5
 114  1 13          DC    @AS   -@               ADD TO STG                          6  4029                      5
 115  1 14          DC    @ASSF -@               ADDTL STG OFF                       6  4035                      5
 116  1 15          DC    @ASSN -@               ADDTL STG ON                        6  4041                      6
 117  1 16          DC    @B    D@                                                   6  4047                      6
 118  1 17          DC    @BAL  D@               BR LTCH ON                          6  4053                      6
 119  1 18          DC    @BAS  I@               BR SW ON                            6  4059                      6
 120  1 19          DC    @BASS D@               BR SW ON                            6  4065                      6
 121  1 20          DC    @BCB  I@               BR CH BUSY                          6  4071                      6
 122  1 21          DC    @BCX  I@               BR COMP IND                         6  4077                      7
 123  1 22          DC    @BDCA I@               BR LTCH ON                          6  4083                      7
 124  1 23          DC    @BDCB I@               BR CHNL BUSY                        6  4089                      7
 125  1 24          DC    @BDCL I@               BR LTCH ON                          6  4095                      7
 126  1 25          DC    @BDL  I@               BR LTCH ON                          6  4101                      7
 127  1 26          DC    @BDX  I@               BR DEC INDEX                        6  4107                      7
 128  1 27          DC    @BE   D@               BR EQUAL                            6  4113                      8
 129  1 28          DC    @BES  I@               BR SW ON                            6  4119                      8
 130  1 29          DC    @BFV  D@               BR OV IND                           6  4125                      8
 131  1 30          DC    @BH   D@               BR HIGH                             6  4131                      8
 132  1 31          DC    @BIX  I@               BR INC INDEX                        6  4137                      8
 133  1 32          DC    @BL   D@               BR LOW                              6  4143                      8
 134  1 33          DCW   @BLX  R@               BR & LOAD XR                        6  4149                      9
 135  1 34          DC    @BM   D@               BR MINUS AC                         6  4155                      9
 136  1 35          DC    @BQL  I@               BR LTCH ON                          6  4161                      9
 137  1 36          DC    @BSC  D@               BR SGN CHAN                         6  4167                      9
 138  1 37          DC    @BSF  I@               BR SW ON                            6  4173                      9
 139  1 38          DC    @BSN  I@               BR SW ON                            6  4179                      9
 140  1 39          DC    @BSP  K@               MIO-BCKSP TAP                       6  4185                     10
 141  1 40          DC    @BSPF K@               MIO-BCKSP HYP                       6  4191                     10
 142  1 41          DC    @BTL  I@               BR LTCH ON                          6  4197                     10
 143  1 42          DC    @BUL  I@               BR LTCH ON                          6  4203                     10
 144  1 43          DC    @BV   D@               BR OV IND                           6  4209                     10
 145  1 44          DC    @BXM  I@               BR XW MINUS                         6  4215                     10
 146  1 45          DC    @BXN  I@               BR X NON-ZERO                       6  4221                     11
 147  1 46          DC    @BZ   D@               BR ZERO AC                          6  4227                     11
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SEQ PG LIN  LABEL  OP     OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

148  1 47          DC     @C    -@               COMP AC&STOR                            6  4233                     11
149  1 48          DC     @CA   -@               COMP AC&STOR                            6  4239                     11
150  1 49          DC     @CD   -@               COMP STOR&DGT                           6  4245                     11
151  1 50          DC     @CHPT J@               MIO-WR CK REC                           6  4251                     11
152  1 51          DC     @CLOSEJ@               MIO-CLOSE FLE                           6  4257                     12
153  1 52          DC     @CLSED @               MIO-CLS DSK                             6  4263                     12
154  1 53          DC     @CNTRLO@               MIO-REMV TAPE                           6  4269                     12
155  1 54          DC     @CODE L@               PM-DATA HEADR                           6  4275                     12
156  1 55          DC     @COMP J@               PM-COMPARE                              6  4281                     12
157  1 56          DC     @CSA  -@               COMP SGN ALPH                           6  4287                     12
158  1 57          DC     @CSM  -@               COMP SGN MINS                           6  4293                     13
159  1 58          DC     @CSP  -@               COMP SGN PLUS                           6  4299                     13
160  1 59          DC     @CYCLE @               PM-CYCLE BR                             6  4305                     13
161  1 60          DC     @D    -@               DIVIDE                                  6  4311                     13
162  1 61          DC     @DA   L@               DATA                                    6  4317                     13
163  1 62          DC     @DAR   @               DSK ARM REL                             6  4323                     13
164  1 63          DC     @DC   L@               DATA                                    6  4329                     14
165  1 64          DC     @DCAF -@               DATA CH LTC-F                           6  4335                     14
166  1 65          DC     @DCAN -@               DATA CH LTC-N                           6  4341                     14
167  1 66          DC     @DCHPTJ@               MIO-DEF CKPT                            6  4347                     14
168  1 67          DC     @DCLF -@               DATA CH LTC-F                           6  4353                     14
169  1 68          DC     @DCLN -@               DATA CH LTC-N                           6  4359                     14
170  1 69          DC     @DCP   @               CH SEL PCKD                             6  4365                     15
171  1 70          DC     @DCPR  @               CH SEL PCKD                             6  4371                     15
172  1 71          DC     @DCU   @               CH SEL UNPCKD                           6  4377                     15
173  1 72          DC     @DCUA  @               CH SEL UNPCKD                           6  4383                     15
174  1 73          DC     @DCUR  @               DATA CHANNEL                            6  4389                     15
175  1 74          DC     @DDF  J@               DATA                                    6  4395                     15
176  1 75          DC     @DEBM  @               DISK ORDER                              6  4401                     16
177  1 76          DC     @DECOD @               PM- DECODE                              6  4407                     16
178  1 77          DC     @DEOR J@               MIO-DELAY EOR                           6  4413                     16
179  1 78          DC     @DIOCSJ@               DEF IOCS                                6  4419                     16
180  1 79          DC     @DLF   @               DSK LTCH OFF                            6  4425                     16
181  1 80          DC     @DLINEL@               DATA                                    6  4431                     16
182  1 81          DC     @DLN   @               DSK LTCH ON                             6  4437                     17
183  1 82          DC     @DNOP  @               DISK ORDER                              6  4443                     17
184  1 83          DC     @DR   K@               DSK READ                                6  4449                     17
185  1 84          DC     @DRDW L@               DEF RDW                                 6  4455                     17
186  1 85          DC     @DREL  @               DISK ORDER                              6  4461                     17
187  1 86          DC     @DSAI  @               DISK ORDER                              6  4467                     17
188  1 87          DC     @DSBM  @               DISK ORDER                              6  4473                     18
189  1 88          DC     @DSEK  @               DISK ORDER                              6  4479                     18
190  1 89          DC     @DSW  L@               DATA                                    6  4485                     18
191  1 90          DC     @DTF  J@               DATA                                    6  4491                     18
192  1 91          DC     @DTSA  @               DATA                                    6  4497                     18
193  1 92          DC     @DUF  O@               DATA                                    6  4503                     18
194  1 93          DC     @DUMP  @               MIO-MEM DUMP                            6  4509                     19
195  1 94          DC     @DVCY  @               DISK ORDER                              6  4515                     19
196  1 95          DC     @DVHA  @               DISK ORDER                              6  4521                     19
197  1 96          DC     @DVSR  @               DISK ORDER                              6  4527                     19
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SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
198	1	97		DC	@DVTA @	DISK ORDER		6	4533		19
199	1	98		DC	@DVTN @	DISK ORDER		6	4539		19
200	1	99		DC	@DW K@	DSK WR		6	4545		20
201	2	00		DC	@DWRC @	DISK ORDER		6	4551		20
202	2	01		DC	@DWRF @	DISK ORDER		6	4557		20
203	2	02		DC	@EAN -@	ED ALP TO NUM		6	4563		20
204	2	03		DC	@EDMOVJ@	PM-ED & MOVE		6	4569		20
205	2	04		DC	@ENA -@	ED NUM TO ALP		6	4575		20
206	2	05		DC	@ENB -@	ED NUM TO ALP		6	4581		21
207	2	06		DC	@END J@	MIO-CLOSE FLE		6	4587		21
208	2	07		DC	@ENDLD @	PM-END MEM LD		6	4593		21
209	2	08		DC	@ENS -@	ED NUM TO ALP		6	4599		21
210	2	09		DC	@ENTDPJ@	ENT DSK RTN		6	4605		21
211	2	10		DC	@ENTDRJ@	MIO-ENT DSK		6	4611		21
212	2	11		DC	@EQU O@	DATA		6	4617		22
213	2	12		DC	@ESF -@	SET EL SW OFF		6	4623		22
214	2	13		DC	@ESN -@	SET EL SW ON		6	4629		22
215	2	14		DC	@EXDP @	MIO-EX DSK RT		6	4635		22
216	2	15		DC	@EXIT @	PM- END MACRO		6	4641		22
217	2	16		DC	@FA -@	FL ADD		6	4647		22
218	2	17		DC	@FAA -@	FL ADD ABS		6	4653		23
219	2	18		DC	@FAD -@	FL ADD - DP		6	4659		23
220	2	19		DC	@FADS -@	FL ADD DP&S		6	4665		23
221	2	20		DC	@FBU D@	BR UNFO IND		6	4671		23
222	2	21		DC	@FBV D@	BR OV IND		6	4677		23
223	2	22		DC	@FD @	FL DIV		6	4683		23
224	2	23		DC	@FDD @	FL DIV - DP		6	4689		24
225	2	24		DC	@FEOR J@	MIO-FORCE EOR		6	4695		24
226	2	25		DC	@FEORN @	MIO-FORCE EOR		6	4701		24
227	2	26		DC	@FILL @	PM-FILL STG		6	4707		24
228	2	27		DC	@FM -@	FL MULT		6	4713		24
229	2	28		DC	@FR -@	FL ROUND		6	4719		24
230	2	29		DC	@FS -@	FL SUB		6	4725		25
231	2	30		DC	@FSA -@	FL SUB ABS		6	4731		25
232	2	31		DC	@FSEQP @	MIO-DSK SEQ		6	4737		25
233	2	32		DC	@FSPF J@	MIO-F SP HYP		6	4743		25
234	2	33		DC	@FZA @	FL ZERO & ADD		6	4749		25
235	2	34		DC	@GENER @	GENER MACRO		6	4755		25
236	2	35		DC	@GET J@	MIO-GET DATA		6	4761		26
237	2	36		DC	@GETB J@	MIO-GET DATA		6	4767		26
238	2	37		DC	@GETD J@	MIO-DISK GET		6	4773		26
239	2	38		DC	@GETR J@	MIO-DISK GET		6	4779		26
240	2	39		DC	@GETS J@	MIO-DISK GET		6	4785		26
241	2	40		DC	@HB D@	HALT & BR		6	4791		26
242	2	41		DC	@HMFV -@	HLT FIELD OVF		6	4797		27
243	2	42		DC	@HMSC -@	HLT SGN CHNGE		6	4803		27
244	2	43		DC	@HNOP @	HYP ORDER		6	4809		27
245	2	44		DC	@HP -@	HALT & PROC		6	4815		27
246	2	45		DC	@INTLK @	MIO-PROC DAT		6	4821		27
247	2	46		DC	@IOCTL @	M-7750 CTRL		6	4827		27

```
SEQ PG LIN  LABEL  OP    OPERANDS                                 SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  2 47          DC    @IODCP @        M-LD DATA CTL                 6  4833                      28
249  2 48          DC    @ITS  -@        INT TIMER STO                 6  4839                      28
250  2 49          DC    @ITZ  -@        INT TIMER ZRO                 6  4845                      28
251  2 50          DC    @LE   -@        LOOKUP EQUAL                  6  4851                      28
252  2 51          DC    @LEH  -@        LOOKUP EQ-HI                  6  4857                      28
253  2 52          DC    @LEVDR @        MIO-UN TRN DK                 6  4863                      28
254  2 53          DC    @LEVRT @        LV RL TME TRN                 6  4869                      29
255  2 54          DC    @LL   -@        LOOKUP LOW                    6  4875                      29
256  2 55          DC    @LOAD  @        M-LOAD MEMORY                 6  4881                      29
257  2 56          DC    @LOGIC @        PM-TR OR FLSE                 6  4887                      29
258  2 57          DC    @M    -@        MULTIPLY                      6  4893                      29
259  2 58          DC    @MDWA  @        M-MV DATA                     6  4899                      29
260  2 59          DC    @MOVE J@        PM-MOVE                       6  4905                      30
261  2 60          DC    @MSA  -@        MAKE SGN ALPH                 6  4911                      30
262  2 61          DC    @MSM  -@        MAKE SGN MINS                 6  4917                      30
263  2 62          DC    @MSP  -@        MAKE SGN PLUS                 6  4923                      30
264  2 63          DC    @MVRSA-@        MIO-DISK MOVE                 6  4929                      30
265  2 64          DC    @NOP  -@        NO OP                         6  4935                      30
266  2 65          DC    @NOTE 1@        M-GEN MAC MSG                 6  4941                      31
267  2 66          DC    @OPEN J@                                      6  4947                      31
268  2 67          DC    @ORDER @        MACRO                         6  4953                      31
269  2 68          DC    @PC   -@        PRIORITY CTL                  6  4959                      31
270  2 69          DC    @PDCP 2@        SEL PACKED                    6  4965                      31
271  2 70          DC    @PDCPR2@        SEL PCK-RM                    6  4971                      31
272  2 71          DC    @PDCU 2@        SEL UNPCKD                    6  4977                      32
273  2 72          DC    @PDCUA2@        SEL UNPK- ALP                 6  4983                      32
274  2 73          DC    @PDCUR2@        SEL UNPK- ALP                 6  4989                      32
275  2 74          DC    @PDR  K@        DSK READ-PRTY                 6  4995                      32
276  2 75          DC    @PDS  K@        DSK SEEK                      6  5001                      32
277  2 76          DC    @PDW  K@        DSK WR-PRTY                   6  5007                      32
278  2 77          DC    @PR   K@        PRIORTY RELSE                 6  5013                      33
279  2 78          DC    @PTM  K@        TAPE MRK WR                   6  5019                      33
280  2 79          DC    @PTR  K@        TAPE READ                     6  5025                      33
281  2 80          DC    @PTRA K@        TAPE READ                     6  5031                      33
282  2 81          DC    @PTRN K@        TAPE READ                     6  5037                      33
283  2 82          DC    @PTRR K@        TAPE READ                     6  5043                      33
284  2 83          DC    @PTSB K@        TAPE BCKSP                    6  5049                      34
285  2 84          DC    @PTSF K@        FORW SP TAPE                  6  5055                      34
286  2 85          DC    @PTSM K@        TP SEG MK WR                  6  5061                      34
287  2 86          DC    @PTW  K@        TAPE WRITE                    6  5067                      34
288  2 87          DC    @PTWC K@        TAPE WRITE                    6  5073                      34
289  2 88          DC    @PTWR K@        TAPE WRITE                    6  5079                      34
290  2 89          DC    @PTWZ K@        TAPE WRITE                    6  5085                      35
291  2 90          DC    @PUT  J@        MIO-PUT DATA                  6  5091                      35
292  2 91          DC    @PUTB J@        MIO-PUT DATA                  6  5097                      35
293  2 92          DC    @PUTD J@        MIO-DISK PUT                  6  5103                      35
294  2 93          DC    @PUTR J@        MIO-DISK PUT                  6  5109                      35
295  2 94          DC    @PUTS J@        MIO-DISK PUT                  6  5115                      35
296  2 95          DC    @PUTX J@        MIO-PUT DATA                  6  5121                      36
297  2 96          DC    @QLF  -@        TRN LTCH OFF                  6  5127                      36
```

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX CT	LOCN	INSTRUCTION TYPE	CARD
298	2	97		DC	@QLN -@	TRN LTCH ON	6	5133		36
299	2	98		DC	@QR K@	INQ READ	6	5139		36
300	2	99		DC	@QW K@	INQ WRITE	6	5145		36
301	3	00		DC	@RDLINJ@	MIO-RD LAB IN	6	5151		36
302	3	01		DC	@RDSB J@	MIO-RD MRKS-B	6	5157		37
303	3	02		DC	@RDSF J@	MIO-RD MRKS-F	6	5163		37
304	3	03		DC	@RDWB K@	BRANCH	6	5169		37
305	3	04		DC	@RDWC K@	CONTROL	6	5175		37
306	3	05		DC	@RDWR K@	READ	6	5181		37
307	3	06		DC	@RDWRBK@	READ BACKWARD	6	5187		37
308	3	07		DC	@RDWS K@	SENSE	6	5193		38
309	3	08		DC	@RDWSTK@	ST COMM WRD	6	5199		38
310	3	09		DC	@RDWW K@	WRITE	6	5205		38
311	3	10		DC	@RECYC @	PM-RESET CYCL	6	5211		38
312	3	11		DC	@REL @	DATA- DEF EQU	6	5217		38
313	3	12		DC	@RELDA @	DATA-DEF STG	6	5223		38
314	3	13		DC	@RG K@	RECORD GATHER	6	5229		39
315	3	14		DC	@RLSE J@	RELEASE FILE	6	5235		39
316	3	15		DC	@RS K@	RECORD SCATTR	6	5241		39
317	3	16		DC	@RSTRT @	RSTRT CHCKPT	6	5247		39
318	3	17		DC	@RWD J@	MIO-REW TAPE	6	5253		39
319	3	18		DC	@S -@	SUB FRM AC	6	5259		39
320	3	19		DC	@SA -@	SUBTR ABS	6	5265		40
321	3	20		DC	@SETSWJ@	PM-SETSW	6	5271		40
322	3	21		DC	@SHIFTJ@	PM-SHIFT MAC	6	5277		40
323	3	22		DC	@SL -@	SHFT LFT AC	6	5283		40
324	3	23		DC	@SLC -@	SHFT LFT & CT	6	5289		40
325	3	24		DC	@SLS -@	SHFT LFT SPLT	6	5295		40
326	3	25		DC	@SMFV @	SENSE FL OVFO	6	5301		41
327	3	26		DC	@SMSC @	SENSE SGN CG	6	5307		41
328	3	27		DC	@SNAP J@	PM-SNAL MACRO	6	5313		41
329	3	28		DC	@SR -@	SHFT RGT AC	6	5319		41
330	3	29		DC	@SRR -@	SHFT RGT & RD	6	5325		41
331	3	30		DC	@SRS -@	SHFT RGT SPLT	6	5331		41
332	3	31		DC	@SS -@	SUBT FRM STOR	6	5337		42
333	3	32		DC	@ST -@	ST AC	6	5343		42
334	3	33		DC	@STD -@	ST DIGIT	6	5349		42
335	3	34		DC	@TEF K@	TP EOF OFF	6	5355		42
336	3	35		DC	@TLF D@	TAPE LTCH OFF	6	5361		42
337	3	36		DC	@TLN D@	TAPE LTCH ON	6	5367		42
338	3	37		DC	@TM K@	TAPE MRK WR	6	5373		43
339	3	38		DC	@TR K@	TAPE READ	6	5379		43
340	3	39		DC	@TRA K@	TAPE READ	6	5385		43
341	3	40		DC	@TRB K@		6	5391		43
342	3	41		DC	@TRN K@	TAPE READ	6	5397		43
343	3	42		DC	@TRR K@	TAPE READ	6	5403		43
344	3	43		DC	@TRU K@	REW TAPE & UN	6	5409		44
345	3	44		DC	@TRW K@	REW TAPE	6	5415		44
346	3	45		DC	@TSB K@	TAPE BCKSP	6	5421		44
347	3	46		DC	@TSEL K@	TAPE NO-OP	6	5427		44

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SEQ PG LIN  LABEL  OP    OPERANDS                                       SFX CT  LOCN  INSTRUCTION TYPE  CARD

348  3 47          DC    @TSF  K@            FORW SP TAPE                    6  5433                      44
349  3 48          DC    @TSHD K@            SET HI DESTY                    6  5439                      44
350  3 49          DC    @TSK  K@            TAPE SKIP                       6  5445                      45
351  3 50          DC    @TSLD K@            SET LO DESTY                    6  5451                      45
352  3 51          DC    @TSM  K@            TAPE MRK WR                     6  5457                      45
353  3 52          DC    @TW   K@            TAPE WRITE                      6  5463                      45
354  3 53          DC    @TWC  K@            TAPE WRITE                      6  5469                      45
355  3 54          DC    @TWR  K@            TAPE WRITE                      6  5475                      45
356  3 55          DC    @TWZ  K@            TAPE WRITE                      6  5481                      46
357  3 56          DC    @TYP  K@            TYPEWR WR                       6  5487                      46
358  3 57          DC    @ULF  K@            UN LTCH OFF                     6  5493                      46
359  3 58          DC    @ULN  K@            UN LTCH ON                      6  5499                      46
360  3 59          DC    @UP   K@            UR PUNCH-WR                     6  5505                      46
361  3 60          DC    @UPIV K@            UR PUNCH-WR                     6  5511                      46
362  3 61          DC    @UQE  O@            DATA                            6  5517                      47
363  3 62          DC    @UR   K@            UNIT REC READ                   6  5523                      47
364  3 63          DC    @US   K@            UN REC SIGNAL                   6  5529                      47
365  3 64          DC    @UW   K@            UNIT REC WR                     6  5535                      47
366  3 65          DC    @UWIV K@            UNIT REC WR                     6  5541                      47
367  3 66          DC    @WSM  J@            MIO-WR SEG MK                   6  5547                      47
368  3 67          DC    @WTM  J@            MIO-WR TP MRK                   6  5553                      48
369  3 68          DC    @XA   -@            X WRD ADD                       6  5559                      48
370  3 69          DC    @XL   -@            X WRD LOAD                      6  5565                      48
371  3 70          DC    @XLIN -@            X WRD LOAD                      6  5571                      48
372  3 71          DC    @XS   -@            X WRD SUBT                      6  5577                      48
373  3 72          DC    @XSN  -@            X WRD SET                       6  5583                      48
374  3 73          DC    @XU   -@            X WRD UNLOAD                    6  5589                      49
375  3 74          DC    @XZA  -@            X WRD Z & ADD                   6  5595                      49
376  3 75          DC    @XZS  -@            X WR  Z & SUB                   6  5601                      49
377  3 76          DC    @ZA   -@            ZERO & ADD                      6  5607                      49
378  3 77          DC    @ZAA  -@            ZERO ADD ABS                    6  5613                      49
379  3 78          DC    @ZERO J@            PM-ZERO MAC                     6  5619                      49
380  3 79          DC    @ZS   -@            ZERO AND SUB                    6  5625                      50
381  3 80          DC    @ZSA  -@            ZRO SUBT ABS                    6  5631                      50
382  3 81          DC    @ZSIGNJ@            PM-ZRO TEST                     6  5637                      50
383  3 82          DC    @ZST  -@            Z STG & ST AC                   6  5643                      50
384  3 83          DC    @99999I@                                            6  5649                      50
385  3 84   HIGH   EQU   *&1                                                    5650
386  3 85   SYSOR  EQU   4000                                                   4000
387  3 86   BLDPTS EQU   3200                                                   3200
388  3 87          END                                                                / 000 080         51
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371  3 70          DC    @XLIN -@            X WRD LOAD                      6  5571                      48          *****
372  3 71          DC    @XS   -@            X WRD SUBT                      6  5577                      48
373  3 72          DC    @XSN  -@            X WRD SET                       6  5583                      48
374  3 73          DC    @XU   -@            X WRD UNLOAD                    6  5589                      49
375  3 74          DC    @XZA  -@            X WRD Z & ADD                   6  5595                      49
376  3 75          DC    @XZS  -@            X WR  Z & SUB                   6  5601                      49
377  3 76          DC    @ZA   -@            ZERO & ADD                      6  5607                      49
378  3 77          DC    @ZAA  -@            ZERO ADD ABS                    6  5613                      49
379  3 78          DC    @ZERO J@            PM-ZERO MAC                     6  5619                      49
380  3 79          DC    @ZS   -@            ZERO AND SUB                    6  5625                      50
381  3 80          DC    @ZSA  -@            ZRO SUBT ABS                    6  5631                      50
382  3 81          DC    @ZSIGNJ@            PM-ZRO TEST                     6  5637                      50
383  3 82          DC    @ZST  -@            Z STG & ST AC                   6  5643                      50
384  3 83          DC    @99999I@                                            6  5649                      50
385  3 84   HIGH   EQU   *&1                                                    5650
```

```
CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                                1              3ANAJ
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?             2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040              3

                          DC DICTIONARY  7090                                         3ANAJ            PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    010  000    JOB   DC DICTIONARY  7090
 102    020         CTL   440  1
 103    030         DC    @$ADD     @                                                   9  0341                        4
 104    040         DC    &SYSOR                                                        3  0344  00|                   4
 105    050         DC    &BLDPTS                                                       3  0347  B00                   4
 106    060         DC    &HIGH                                                         3  0350  ?5S                   4
 107    070         DCW   @032265@            ASSEMBLY DATE                             6  0356                        4
 108    080         ORG   SYSOR                                                                   4000
 109    090         DC    @      -@               PREFIX                                7  4006                        5
 110    100         DC    @...   -@               PREFIX                                7  4013                        5
 111    110         DC    @***   -@               PREFIX                                7  4020                        5
 112    120         DC    @ABS   6@               MACRO                                 7  4027                        5
 113    130         DC    @ACL   -@               ADD,CARRY LOG                         7  4034                        5
 114    140         DC    @ADD   -@               ADD                                   7  4041                        6
 115    150         DC    @ADM   -@               ADD MAG                               7  4048                        6
 116    160         DC    @ALS   -@               AC SHIFT LEFT                         7  4055                        6
 117    170         DC    @ANA   -@               AND TO AC                             7  4062                        6
 118    180         DC    @ANS   -@               AND TO STOR                           7  4069                        6
 119    190         DC    @ARS   -@               AC SHIFT RIGT                         7  4076                        7
 120    200         DC    @AXC   -@               LOAD ADDR-COM                         7  4083                        7
 121    210         DC    @AXT   -@               LOAD ADDR-TRU                         7  4090                        7
 122    220         DC    @BCD   3@               MACRO                                 7  4097                        7
 123    230         DC    @BCI   3@               MACRO                                 7  4104                        7
 124    240         DC    @BEGIN O@               MACRO                                 7  4111                        8
 125    250         DC    @BES   6@               DATA                                  7  4118                        8
 126    260         DC    @BFT   M@               BR IF OP1 OFF                         7  4125                        8
 127    270         DC    @BNT   M@               BR IF OP1 ON                          7  4132                        8
 128    280         DC    @BOOL  6@               MACRO                                 7  4139                        8
 129    290         DC    @BRA   D@               UNCOND BR                             7  4146                        9
 130    300         DC    @BRN   D@               BRANCH TXH                            7  4153                        9
 131    310         DC    @BSF   K@               BCKSPCE FILE                          7  4160                        9
 132    320         DC    @BSR   K@               BCKSPCE REC                           7  4167                        9
 133    330         DC    @BSS   3@               DATA                                  7  4174                        9
 134    340         DC    @BST   K@               BACKSPACE TP                          7  4181                       10
 135    350         DC    @BTT   M@               BEGIN-TAPE OF                         7  4188                       10
 136    360         DC    @CAL   -@               CL- ADD LOG.                          7  4195                       10
 137    370         DC    @CALL  J@               SUBRT LINKAGE                         7  4202                       10
 138    380         DC    @CAQ   -@               CONV FROM MQ                          7  4209                       10
 139    390         DC    @CAS   M@               COMP AC-STOR                          7  4216                       11
 140    400         DC    @CCS   M@               CMP CHAR&STG                          7  4223                       11
 141    410         DC    @CHS   -@               CHANGE SIGN                           7  4230                       11
 142    420         DC    @CLA   -@               CLEAR & ADD                           7  4237                       11
 143    430         DC    @CLM   -@                CLEAR MAG                            7  4244                       11
 144    440         DC    @CLS   -@               CLEAR & SUBT.                         7  4251                       12
 145    450         DC    @COM   -@               COMP MAG.                             7  4258                       12
 146    460         DC    @COMMONA@               DATA                                  7  4265                       12
 147    470         DC    @CONTRLA@               MACRO                                 7  4272                       12
```

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
148		480		DC	@COUNT 6@	MACRO		7	4279		12
149		490		DC	@CPYD K@	COPY-DISCONN		7	4286		13
150		500		DC	@CPYP K@	COPY-PROCEED		7	4293		13
151		510		DC	@CRQ -@	CONV BY MQ		7	4300		13
152		520		DC	@CTL K@	CONTROL		7	4307		13
153		530		DC	@CTLR K@	CTL-READ DISK		7	4314		13
154		540		DC	@CTLW K@	CTL-DISK WRIT		7	4321		14
155		550		DC	@CTR K@	CTL CHAN A		7	4328		14
156		560		DC	@CVR -@	CONVERT BY AC		7	4335		14
157		570		DC	@DCT M@	OVFLOW TEST		7	4342		14
158		580		DC	@DEBM K@	SET 8-BIT MOD		7	4349		14
159		590		DC	@DEC 3@	DATA		7	4356		15
160		600		DC	@DELETEA@	MACRO		7	4363		15
161		610		DC	@DETAILA@	MACRO		7	4370		15
162		620		DC	@DFAD -@	FLT ADD- DP		7	4377		15
163		630		DC	@DFAM -@	FP ADD- DP		7	4384		15
164		640		DC	@DFDH -@	FP DIV OR HLT		7	4391		16
165		650		DC	@DFDP -@	FP DIV & PROC		7	4398		16
166		660		DC	@DFMP -@	FLT MULT-DP		7	4405		16
167		670		DC	@DFSB -@	FLT SUB-DP		7	4412		16
168		680		DC	@DFSM -@	FP SUM-DP		7	4419		16
169		690		DC	@DLD -@	DOUBLE LOAD		7	4426		17
170		700		DC	@DNOP K@	DISK NOP		7	4433		17
171		710		DC	@DREL K@	DISK RELEASE		7	4440		17
172		720		DC	@DSAI K@	DISK-SET ACS		7	4447		17
173		730		DC	@DSBM K@	SET 6-BIT		7	4454		17
174		740		DC	@DSEK K@	DISK SEEK		7	4461		18
175		750		DC	@DST -@	DOUBLE STORE		7	4468		18
176		760		DC	@DUAM -@	UN FP AD MAG		7	4475		18
177		770		DC	@DUFA -@	UN FP AD MAG		7	4482		18
178		780		DC	@DUFM -@	UN FP MULT		7	4489		18
179		790		DC	@DUFS -@	UN FP SUB		7	4496		19
180		800		DC	@DUP 6@	MACRO		7	4503		19
181		810		DC	@DUSM -@	UN FP SUB MAG		7	4510		19
182		820		DC	@DVCY K@	PREP VERIFY		7	4517		19
183		830		DC	@DVH -@	DIV & HALT		7	4524		19
184		840		DC	@DVHA K@	PREP VERIFY		7	4531		20
185		850		DC	@DVP -@	DIV & PROCEED		7	4538		20
186		860		DC	@DVSR K@	PREP VERIFY		7	4545		20
187		870		DC	@DVTA K@	PREP VERIFY		7	4552		20
188		880		DC	@DVTN K@	PREP VERIFY		7	4559		20
189		890		DC	@DWRC K@	PREP VERIFY		7	4566		21
190		900		DC	@DWRF K@	PREP WRITE		7	4573		21
191		910		DC	@ECTM -@	ENT COPY TRAP		7	4580		21
192		920		DC	@EFTM -@	ENT FL TRAP		7	4587		21
193		930		DC	@EJECT 6@	PM		7	4594		21
194		940		DC	@EMTM -@	ENT MULT TAG		7	4601		22
195		950		DC	@ENB K@	ENABLE		7	4608		22
196		960		DC	@END)@	PM-END ASSMB		7	4615		22
197		970		DC	@ENDFILA@	PM-WR EOF		7	4622		22

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
198		980		DC	@ENDM)@	PM-END MACRO		7	4629		22
199		990		DC	@ENDQ *@	PM-LIMIT QUAL		7	4636		23
200	1	000		DC	@ENDUP 6@	PM-END UPDATE		7	4643		23
201	1	010		DC	@ENK 2@	ENTER KEYS		7	4650		23
202	1	020		DC	@ENTRY O@	PM-DEF ROUTNE		7	4657		23
203	1	030		DC	@EQU O@	PM-DATA		7	4664		23
204	1	040		DC	@ERA -@	EX OR TO ACC		7	4671		24
205	1	050		DC	@ESNT D@	ENT NULL & TR		7	4678		24
206	1	060		DC	@ESTM K@	ENT SEL TRAP		7	4685		24
207	1	070		DC	@ETC T@	PM-EXT VAR		7	4692		24
208	1	080		DC	@ETM K@	ENT TRAP MODE		7	4699		24
209	1	090		DC	@ETT M@	EOT IND. OFF		7	4706		25
210	1	100		DC	@EVEN 6@	PM-EVEN LOAD		7	4713		25
211	1	110		DC	@EXTERNA@	PM-ID SYM REF		7	4720		25
212	1	120		DC	@FAD -@	FL ADD- DP		7	4727		25
213	1	130		DC	@FAM -@	FL ADD MAG		7	4734		25
214	1	140		DC	@FBU D@	BR FL.UNFLOW		7	4741		26
215	1	150		DC	@FBV D@	BR FL.OVFLOW		7	4748		26
216	1	160		DC	@FDH -@	FL DIV OR HLT		7	4755		26
217	1	170		DC	@FDP -@	FL DIV-PROC		7	4762		26
218	1	180		DC	@FILE 6@	IO FILE DESC		7	4769		26
219	1	190		DC	@FIVE L@	PREFIX		7	4776		27
220	1	200		DC	@FMP -@	FL MULTIPLY		7	4783		27
221	1	210		DC	@FOR L@	PREFIX		7	4790		27
222	1	220		DC	@FOUR L@	PREFIX		7	4797		27
223	1	230		DC	@FRN -@	ROUND		7	4804		27
224	1	240		DC	@FSB -@	FL SUBTRACT		7	4811		28
225	1	250		DC	@FSM -@	FL SUB MAG		7	4818		28
226	1	260		DC	@FUL 6@	PM-FULL COOUT		7	4825		28
227	1	270		DC	@FVE L@	PREFIX		7	4832		28
228	1	280		DC	@GOTO O@	ASEMBLY SKIP		7	4839		28
229	1	290		DC	@HBSF 2@	BCK FILE-HYP		7	4846		29
230	1	300		DC	@HBSR 2@	BCK REC-HYP		7	4853		29
231	1	310		DC	@HCCR 2@	REW HYP		7	4860		29
232	1	320		DC	@HCHC 2@	CHNGE CRT-HYP		7	4867		29
233	1	330		DC	@HCLN 2@	CK LI ON-HYP		7	4874		29
234	1	340		DC	@HEAD $@	PM-ASSIGN SYM		7	4881		30
235	1	350		DC	@HECF 2@	ERR CORR-HYP		7	4888		30
236	1	360		DC	@HED $@	PM-ASSIGN SYM		7	4895		30
237	1	370		DC	@HEOS 2@	END SEQ-HYP		7	4902		30
238	1	380		DC	@HERG 2@	ERASE GAP-HYP		7	4909		30
239	1	390		DC	@HFCB 2@	FIX HYPTP BIT		7	4916		31
240	1	400		DC	@HFPN 2@	FILE PROT-HYP		7	4923		31
241	1	410		DC	@HICE 2@	INTRPT -HYPTP		7	4930		31
242	1	420		DC	@HNOP 2@	NO OP- HYP		7	4937		31
243	1	430		DC	@HPR N@	HALT & PROC		7	4944		31
244	1	440		DC	@HRLF 2@	RES LI OFF		7	4951		32
245	1	450		DC	@HRLN 2@	RES LI ON		7	4958		32
246	1	460		DC	@HRUN 2@	REW-UNLOAD		7	4965		32
247	1	470		DC	@HRWD 2@	REW		7	4972		32

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SEQ PG LIN  LABEL  OP     OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  1 480         DC     @HSBR  2@               BACK READ                      7  4979                     32
249  1 490         DC     @HSEL  2@               SELECT                         7  4986                     33
250  1 500         DC     @HSKF  2@               SPACE FILE                     7  4993                     33
251  1 510         DC     @HSKR  2@               SPACE REC                      7  5000                     33
252  1 520         DC     @HTR   N@               HALT & TR                      7  5007                     33
253  1 530         DC     @HUNL  2@               UNLOAD CART                    7  5014                     33
254  1 540         DC     @HWCF  2@               WR CLOCK FAST                  7  5021                     34
255  1 550         DC     @HWCS  2@               WR CLOCK SLOW                  7  5028                     34
256  1 560         DC     @HWLR  2@               LOOP WR TO RD                  7  5035                     34
257  1 570         DC     @HWTM  2@               WR TM                          7  5042                     34
258  1 580         DC     @ICC   K@               INS CTL CNTR                   7  5049                     34
259  1 590         DC     @ICT   K@               INH CH TRAPS                   7  5056                     35
260  1 600         DC     @IFEOF 6@                                              7  5063                     35
261  1 610         DC     @IFF   6@               PM-COND ASMBY                  7  5070                     35
262  1 620         DC     @IFT   6@               PM-COND ASMBY                  7  5077                     35
263  1 630         DC     @IGNOREA@               PM-IGNORE UPD                  7  5084                     35
264  1 640         DC     @IIA   -@               INV SENSE-ACC                  7  5091                     36
265  1 650         DC     @IIB   -@               %# IIL,IIR)                    7  5098                     36
266  1 660         DC     @IIL   -@               INV SENSE-LFT                  7  5105                     36
267  1 670         DC     @IIR   -@               INV SENSE-RGT                  7  5112                     36
268  1 680         DC     @IIS   -@               INV SENSE-STG                  7  5119                     36
269  1 690         DC     @INDEX O@               PM-LIST TABLE                  7  5126                     37
270  1 700         DC     @IOCD  K@               IO COMMAND                     7  5133                     37
271  1 710         DC     @IOCDN K@               IO COMMAND                     7  5140                     37
272  1 720         DC     @IOCP  K@               IO COMMAND                     7  5147                     37
273  1 730         DC     @IOCPN K@               IO COMMAND                     7  5154                     37
274  1 740         DC     @IOCT  K@               IO COMMAND                     7  5161                     38
275  1 750         DC     @IOCTN K@               IO COMMAND                     7  5168                     38
276  1 760         DC     @IORD  K@               IO RECORD                      7  5175                     38
277  1 770         DC     @IORP  K@               IO COMMAND                     7  5182                     38
278  1 780         DC     @IORPN K@               IO COMMAND                     7  5189                     38
279  1 790         DC     @IORT  K@               IO COMMAND                     7  5196                     39
280  1 800         DC     @IORTN K@               IO COMMAND                     7  5203                     39
281  1 810         DC     @IOSP  K@               IO COMMAND                     7  5210                     39
282  1 820         DC     @IOSPN K@               IO COMMAND                     7  5217                     39
283  1 830         DC     @IOST  K@               IO COMMAND                     7  5224                     39
284  1 840         DC     @IOSTN K@               IO COMMAND                     7  5231                     40
285  1 850         DC     @IOT   M@               IO IND TEST                    7  5238                     40
286  1 860         DC     @IRP   D@               PM-ITERATE                     7  5245                     40
287  1 870         DC     @KEEP  5@               PM-DEBUG MAC                   7  5252                     40
288  1 880         DC     @LABEL 6@               IO FILE ID                     7  5259                     40
289  1 890         DC     @LAC   -@               LOD ADDR COMP                  7  5266                     41
290  1 900         DC     @LAR   K@                LOD CHN REG                   7  5273                     41
291  1 910         DC     @LAS   M@               SKIP-LOG COMP                  7  5280                     41
292  1 920         DC     @LBL   6@               PM-SERIAL BIN                  7  5287                     41
293  1 930         DC     @LBOOL 6@               PM-LFT BOOL                    7  5294                     41
294  1 940         DC     @LBT   M@               TEST LOW BIT                   7  5301                     42
295  1 950         DC     @LCC   K@                LOD CHN REG                   7  5308                     42
296  1 960         DC     @LCH   K@                LOD CHN REG                   7  5315                     42
297  1 970         DC     @LDC   -@               LOD DEC COMP                   7  5322                     42
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SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
298	1	980		DC	@LDI -@	SENSE IND REG		7	5329		42
299	1	990		DC	@LDIR 6@	PM-PSN LINKGE		7	5336		43
300	2	000		DC	@LDQ -@	MQ REG		7	5343		43
301	2	010		DC	@LFT M@	SKIP-LFT SSI		7	5350		43
302	2	020		DC	@LFTM -@	LEAVE FL TRAP		7	5357		43
303	2	030		DC	@LGL -@	LOG LFT SHIFT		7	5364		43
304	2	040		DC	@LGR -@	LOG RGT SHIFT		7	5371		44
305	2	050		DC	@LIP K@	LVE INTRRT		7	5378		44
306	2	060		DC	@LIPT K@	LVE INT & TR		7	5385		44
307	2	070		DC	@LIST 6@	PM-RESUME LST		7	5392		44
308	2	080		DC	@LIT 3@	PM-SPEC LITS		7	5399		44
309	2	090		DC	@LITORGO@	PM-PSN LIT PL		7	5406		45
310	2	100		DC	@LLS -@	LNG LFT SHIFT		7	5413		45
311	2	110		DC	@LMTM -@	LVE MULT TAG		7	5420		45
312	2	120		DC	@LNT M@	SKIP-LFT SSI		7	5427		45
313	2	130		DC	@LOC 6@	PM-SET CNTR		7	5434		45
314	2	140		DC	@LORG 6@	PM-PSN LIT PL		7	5441		46
315	2	150		DC	@LRS -@	LNG RGT SHIFT		7	5448		46
316	2	160		DC	@LSNM -@	LVE STG NULL		7	5455		46
317	2	170		DC	@LTM K@	LVE TRAP MODE		7	5462		46
318	2	180		DC	@LXA -@	LOD ADDS STG		7	5469		46
319	2	190		DC	@LXD -@	LOD DEC STG		7	5476		47
320	2	200		DC	@MAC 1@	PM-NAME MACRO		7	5483		47
321	2	210		DC	@MACRO %@	PM-DEF MACRO		7	5490		47
322	2	220		DC	@MAX 6@	PM-SYM EQU		7	5497		47
323	2	230		DC	@MIN 6@	PM-SYM EQU		7	5504		47
324	2	240		DC	@MIT M@	STG MINUS TST		7	5511		48
325	2	250		DC	@MON -@	PREFIX		7	5518		48
326	2	260		DC	@MOP %@	PM-NAME MACRO		7	5525		48
327	2	270		DC	@MPR -@	MULT & ROUND		7	5532		48
328	2	280		DC	@MPY -@	MULT		7	5539		48
329	2	290		DC	@MSE M@	MINUS SENSE		7	5546		49
330	2	300		DC	@MSM -@	MAKE SGN MNUS		7	5553		49
331	2	310		DC	@MSP -@	MAKE SGN PLUS		7	5560		49
332	2	320		DC	@MTH -@	PREFIX		7	5567		49
333	2	330		DC	@MTW -@	PREFIX		7	5574		49
334	2	340		DC	@MZE -@	PREFIX		7	5581		50
335	2	350		DC	@NOCRS 6@	PM-SUPR SYM		7	5588		50
336	2	360		DC	@NOP -@	NO OP		7	5595		50
337	2	370		DC	@NTR M@	ENTER		7	5602		50
338	2	380		DC	@NULL 6@	PM-GEN COMM		7	5609		50
339	2	390		DC	@NUMBERA@	PM-RESERL SYM		7	5616		51
340	2	400		DC	@NZT M@	SKIP-STG		7	5623		51
341	2	410		DC	@OAI -@	OR AC TO INDS		7	5630		51
342	2	420		DC	@OCT 3@	PM-GEN OCTAL		7	5637		51
343	2	430		DC	@OFT M@	SKIP- SSI		7	5644		51
344	2	440		DC	@ONE L@	PREFIX		7	5651		52
345	2	450		DC	@ONT M@	SKIP-SSI		7	5658		52
346	2	460		DC	@OPD 6@	PM-DEF MACH		7	5665		52
347	2	470		DC	@OPSYN 6@	PM-DEF OP SYM		7	5672		52

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
348	2	480		DC	@OPVFD 6@	PM-DEF MACH		7	5679		52
349	2	490		DC	@ORA -@	OR TO AC		7	5686		53
350	2	500		DC	@ORG 6@	PM-SPEC LOC		7	5693		53
351	2	510		DC	@ORGCRSA@	PM-REINST SYM		7	5700		53
352	2	520		DC	@ORS -@	OR TO STORAGE		7	5707		53
353	2	530		DC	@OSI -@	OR STG TO IND		7	5714		53
354	2	540		DC	@PAC -@	COMP AC TO XR		7	5721		54
355	2	550		DC	@PAI -@	AC TO SI		7	5728		54
356	2	560		DC	@PAX -@	AC ADDR TO XR		7	5735		54
357	2	570		DC	@PBT M@	TEST HIGH BIT		7	5742		54
358	2	580		DC	@PCA -@	DATA		7	5749		54
359	2	590		DC	@PCC 6@	PM-PRINT LIST		7	5756		55
360	2	600		DC	@PCD -@	COMP XR N DEC		7	5763		55
361	2	610		DC	@PCG 6@	PM-CTL RELOC		7	5770		55
362	2	620		DC	@PCS -@	PL CHR FR STG		7	5777		55
363	2	630		DC	@PDC -@	COMP AC DEC		7	5784		55
364	2	640		DC	@PDX -@	AC DEC TO XR		7	5791		56
365	2	650		DC	@PIA -@	SI TO AC		7	5798		56
366	2	660		DC	@PLT M@	PLS STG TEST		7	5805		56
367	2	670		DC	@PMC 6@	PM-PRINT MAC		7	5812		56
368	2	680		DC	@PON -@	PREFIX		7	5819		56
369	2	690		DC	@PRD K@	PREP TO READ		7	5826		57
370	2	700		DC	@PRINT 6@	PM-PRNT CD		7	5833		57
371	2	710		DC	@PSE M@			7	5840		57
372	2	720		DC	@PSL K@	PRES SNS LINE		7	5847		57
373	2	730		DC	@PTH -@	PREFIX		7	5854		57
374	2	740		DC	@PTW -@	PREFIX		7	5861		58
375	2	750		DC	@PUNCH 6@	PM-RESME BIN		7	5868		58
376	2	760		DC	@PURGE 6@	PM -REM MACRO		7	5875		58
377	2	770		DC	@PWR K@	PREP TO WRITE		7	5882		58
378	2	780		DC	@PXA -@	XR TO AC		7	5889		58
379	2	790		DC	@PXD -@	XR TO AC DEC		7	5896		59
380	2	800		DC	@PZE -@	PREFIX		7	5903		59
381	2	810		DC	@QUAL $@	PM-DEF QUAL		7	5910		59
382	2	820		DC	@RBOOL 6@	PM-RGT BOOL		7	5917		59
383	2	830		DC	@RCD K@	RD CD CHANNEL		7	5924		59
384	2	840		DC	@RCH K@	LOD CHN REG		7	5931		60
385	2	850		DC	@RCT K@	REST CH TRAPS		7	5938		60
386	2	860		DC	@RDC K@	RES DATA CHAN		7	5945		60
387	2	870		DC	@RDS K@	RD-SELECT		7	5952		60
388	2	880		DC	@REF 6@	PM-DEL SYM		7	5959		60
389	2	890		DC	@REM D@	PM-PRNT REMKS		7	5966		61
390	2	900		DC	@RETURNJ@	PM- RETURN		7	5973		61
391	2	910		DC	@REW K@	REWIND		7	5980		61
392	2	920		DC	@REWINDA@	PM-REW UP TPE		7	5987		61
393	2	930		DC	@RFT M@	SKIP-RGT SSI		7	5994		61
394	2	940		DC	@RIA -@	RES SSI		7	6001		62
395	2	950		DC	@RIB -@	%#RIL,RIR)		7	6008		62
396	2	960		DC	@RIC K@	RESET CHANNEL		7	6015		62
397	2	970		DC	@RIL -@	RES SSI -LFT		7	6022		62

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
398	2	980		DC	@RIR -@	RES SSI- RGT		7	6029		62
399	2	990		DC	@RIS -@	RES SSI- RGT		7	6036		63
400	3	000		DC	@RMT 6@	PM-DEF REMOTE		7	6043		63
401	3	010		DC	@RND -@	ROUND		7	6050		63
402	3	020		DC	@RNT M@	SKIP- RGT SSI		7	6057		63
403	3	030		DC	@RPM -@	REL PROT MODE		7	6064		63
404	3	040		DC	@RPR K@	RD PRNTR		7	6071		64
405	3	050		DC	@RQL -@	ROTATE MQ LFT		7	6078		64
406	3	060		DC	@RSC K@	RES ST CHAN		7	6085		64
407	3	070		DC	@RTB K@	RD TPE-BINARY		7	6092		64
408	3	080		DC	@RTD K@	RD TPE DEC		7	6099		64
409	3	090		DC	@RTT M@	REDUNDANCY		7	6106		65
410	3	100		DC	@RUN K@	REW & UNLOAD		7	6113		65
411	3	110		DC	@SAC -@	ST AC CHAR		7	6120		65
412	3	120		DC	@SAR K@	DISK STORE		7	6127		65
413	3	130		DC	@SAVE 1@	PM-GEN CODE		7	6134		65
414	3	140		DC	@SAVEN 1@	PM-GEN CODE		7	6141		66
415	3	150		DC	@SBM -@	SUB MAG		7	6148		66
416	3	160		DC	@SCA -@	STORE COMP		7	6155		66
417	3	170		DC	@SCD -@	STORE COMP		7	6162		66
418	3	180		DC	@SCH K@	STORE CHANNEL		7	6169		66
419	3	190		DC	@SDH K@	SET DENS HI		7	6176		67
420	3	200		DC	@SDL K@	SET DENS LO		7	6183		67
421	3	210		DC	@SDN K@	SET DENSITY		7	6190		67
422	3	220		DC	@SEN K@	SENSE CHAN A		7	6197		67
423	3	230		DC	@SET 6@	PM-SYM REDEF		7	6204		67
424	3	240		DC	@SEVEN -@	PREFIX		7	6211		68
425	3	250		DC	@SIB -@	%#SIL,SIR)		7	6218		68
426	3	260		DC	@SIL -@	SET SSI -LFT		7	6225		68
427	3	270		DC	@SIR -@	SET SSI -RGT		7	6232		68
428	3	280		DC	@SIX -@	PREFIX		7	6239		68
429	3	290		DC	@SKIPTOA@	PM-SKP UPDTE		7	6246		69
430	3	300		DC	@SKP O@	CONTROL LIST		7	6253		69
431	3	310		DC	@SKPFILA@	PM-SKP TO EOF		7	6260		69
432	3	320		DC	@SLF -@	TRN OFF SNS		7	6267		69
433	3	330		DC	@SLN -@	TRN ON SNS		7	6274		69
434	3	340		DC	@SLQ -@	STO LFT MQ		7	6281		70
435	3	350		DC	@SLT M@	TEST SNS LITS		7	6288		70
436	3	360		DC	@SLW -@	STO LOG WRD		7	6295		70
437	3	370		DC	@SMS K@	SET MODE-SEL		7	6302		70
438	3	380		DC	@SNS K@	CHAN SENSE		7	6309		70
439	3	390		DC	@SPACE 6@	PM-SKIP LINE		7	6316		71
440	3	400		DC	@SPC O@	CONTROL LIST		7	6323		71
441	3	410		DC	@SPM -@	SET PROT MODE		7	6330		71
442	3	420		DC	@SPR K@	STO FOR PRINT		7	6337		71
443	3	430		DC	@SPT M@	SKIP PULSE		7	6344		71
444	3	440		DC	@SPU K@	SENSE PUNCH		7	6351		72
445	3	450		DC	@SSL K@	STO SNS LIGTS		7	6358		72
446	3	460		DC	@SSM -@	SET SGN MINUS		7	6365		72
447	3	470		DC	@SSP -@	SET SGN PLUS		7	6372		72

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
448	3	480		DC	@SST 6@	PM-INC SYM TB		7	6379		72
449	3	490		DC	@STA -@	STO ADDR		7	6386		73
450	3	500		DC	@STC K@	START CHANNEL		7	6393		73
451	3	510		DC	@STD -@	STO DEC		7	6400		73
452	3	520		DC	@STI -@	STO IND REG		7	6407		73
453	3	530		DC	@STL -@	STO LOC CNTR		7	6414		73
454	3	540		DC	@STO -@	STORE		7	6421		74
455	3	550		DC	@STP -@	STO PREFIX		7	6428		74
456	3	560		DC	@STQ -@	STO MQ		7	6435		74
457	3	570		DC	@STR M@	STO LOC TRAP		7	6442		74
458	3	580		DC	@STT -@	STO TAG		7	6449		74
459	3	590		DC	@STZ -@	STO ZERO		7	6456		75
460	3	600		DC	@SUB -@	SUB TO REG		7	6463		75
461	3	610		DC	@SVN -@	PREFIX		7	6470		75
462	3	620		DC	@SWT M@	SKP- CONS LGT		7	6477		75
463	3	630		DC	@SXA -@	STO XR-ADDR		7	6484		75
464	3	640		DC	@SXD -@	STO XR-DEC		7	6491		76
465	3	650		DC	@SYN O@	PM-SYM EQU		7	6498		76
466	3	660		DC	@TAPENOA@	PM-SYM EQU		7	6505		76
467	3	670		DC	@TCD O@	PM-TR CTL		7	6512		76
468	3	680		DC	@TCH K@	TR IN CHAN		7	6519		76
469	3	690		DC	@TCM K@	TR-COND MET		7	6526		77
470	3	700		DC	@TCN D@	TEST CH INOP		7	6533		77
471	3	710		DC	@TCO D@	TEST CH INOP		7	6540		77
472	3	720		DC	@TDC K@	TR-DEC CNTR		7	6547		77
473	3	730		DC	@TDOA K@	TR ON IO IN OP		7	6554		77
474	3	740		DC	@TEF D@	CHAN IND TEST		7	6561		78
475	3	750		DC	@THREE -@	PREFIX		7	6568		78
476	3	760		DC	@TIF D@	TR SSI OFF		7	6575		78
477	3	770		DC	@TIO D@	R SSI ON		7	6582		78
478	3	780		DC	@TITLE 6@	PM-SUSP PRNT		7	6589		78
479	3	790		DC	@TIX D@	TR XR HI &DEC		7	6596		79
480	3	800		DC	@TLQ D@	TR MQ LS TNAC		7	6603		79
481	3	810		DC	@TMI D@	TR AC MINUS		7	6610		79
482	3	820		DC	@TMT -@	TRANSMIT		7	6617		79
483	3	830		DC	@TNO D@	OVFLOW TEST		7	6624		79
484	3	840		DC	@TNX D@	TR XR LO OR #		7	6631		80
485	3	850		DC	@TNZ D@	TR AC NON-Z		7	6638		80
486	3	860		DC	@TOV D@	OVFLOW TEST		7	6645		80
487	3	870		DC	@TPL D@	TR AC PLUS		7	6652		80
488	3	880		DC	@TQO D@	OVFLOW TEST		7	6659		80
489	3	890		DC	@TQP D@	TR MQ PLUS		7	6666		81
490	3	900		DC	@TRA D@	UNCOND TR		7	6673		81
491	3	910		DC	@TRC D@	CHAN IND TEST		7	6680		81
492	3	920		DC	@TRP D@	TR & RES PRTY		7	6687		81
493	3	930		DC	@TRT D@	TRA&RESTORE		7	6694		81
494	3	940		DC	@TSL M@	TR&ST LOC CNT		7	6701		82
495	3	950		DC	@TSX M@	SET INDX- TR		7	6708		82
496	3	960		DC	@TTL 6@	PM-GEN SUBTTS		7	6715		82
497	3	970		DC	@TTR D@	UNCOND TR		7	6722		82

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
498	3	980		DC	@TWO -@	PREFIX		7	6729		82
499	3	990		DC	@TWT K@	TRAP-WAIT		7	6736		83
500	4	000		DC	@TXH D@	TR XR HI		7	6743		83
501	4	010		DC	@TXI D@	INC XR-TR		7	6750		83
502	4	020		DC	@TXL D@	TR XR LO		7	6757		83
503	4	030		DC	@TZE D@	TR AC ZERO		7	6764		83
504	4	040		DC	@UAM -@	FL ADD MAG		7	6771		84
505	4	050		DC	@UFA -@	FL ADD UN		7	6778		84
506	4	060		DC	@UFM -@	FL MULT UN		7	6785		84
507	4	070		DC	@UFS -@	FL SUB UN		7	6792		84
508	4	080		DC	@UMC 6@	PM-WR MACRO		7	6799		84
509	4	090		DC	@UNLISTA@	PM-SUSP LIST		7	6806		85
510	4	100		DC	@UNLOADA@	PM-RWD&UNLOD		7	6813		85
511	4	110		DC	@UNPNCHA@	PM-SUSP BIN		7	6820		85
512	4	120		DC	@UPDATEA@	PM-INIT UPDTE		7	6827		85
513	4	130		DC	@USE 6@	PM-DEF CNTR		7	6834		85
514	4	140		DC	@USM -@	FL SUB MAG		7	6841		86
515	4	150		DC	@VDH -@	DIV OR HLT		7	6848		86
516	4	160		DC	@VDP -@	DIV OR HLT		7	6855		86
517	4	170		DC	@VFD 3@	PM-GEN BINARY		7	6862		86
518	4	180		DC	@VLM -@	MPY VAR LNG		7	6869		86
519	4	190		DC	@VMA -@	VRBL MULT		7	6876		87
520	4	200		DC	@WBT K@	WRITE BLANKTP		7	6883		87
521	4	210		DC	@WEF K@	WR TPE EOF		7	6890		87
522	4	220		DC	@WPB K@	PRNT BIN CHAN		7	6897		87
523	4	230		DC	@WPD K@	PRNT DEC CHAN		7	6904		87
524	4	240		DC	@WPR K@	WR PRTR CHAN		7	6911		88
525	4	250		DC	@WPU K@	WR PUNCH CHAN		7	6918		88
526	4	260		DC	@WRS K@	WR-SELECT		7	6925		88
527	4	270		DC	@WT K@	WR TAPE		7	6932		88
528	4	280		DC	@WTB K@	WR TPE BINCH		7	6939		88
529	4	290		DC	@WTD K@	WR TPE DEC CH		7	6946		89
530	4	300		DC	@WTR K@	WAIT-TRANSFER		7	6953		89
531	4	310		DC	@XCA -@	EX AC & MQ		7	6960		89
532	4	320		DC	@XCL -@	LOG EX AC&MQ		7	6967		89
533	4	330		DC	@XEC -@	EX OUT-OF-LNE		7	6974		89
534	4	340		DC	@XIT M@	EXIT		7	6981		90
535	4	350		DC	@XMT K@	CHAN TRANSMIT		7	6988		90
536	4	360		DC	@ZAC -@	ZERO AC		7	6995		90
537	4	370		DC	@ZERO -@	PREFIX		7	7002		90
538	4	380		DC	@ZET M@	SKIP- STG ZRO		7	7009		90
539	4	390		DC	@ZSA -@	ZRO STG ADDR		7	7016		91
540	4	400		DC	@ZSD -@	ZRO STG DEC		7	7023		91
541	4	410		DC	@704 6@	SET MODE		7	7030		91
542	4	420		DC	@7090 6@	SET MODE		7	7037		91
543	4	430		DC	@9LP 6@	PREFIX		7	7044		91
544	4	440		DC	@999999I@			7	7051		92
545	4	450	BLDPTS	EQU	3200				3200		
546	4	460	SYSOR	EQU	4000				4000		
547	4	470	HIGH	EQU	*&1				7052		

SEQ	PG	LIN	LABEL	OP	OPERANDS			SFX CT	LOCN	INSTRUCTION TYPE	CARD	
548	4	480		END						/ 000 080	93	
534	4	340		DC	@XIT	M@	EXIT	7	6981		90	*****
535	4	350		DC	@XMT	K@	CHAN TRANSMIT	7	6988		90	
536	4	360		DC	@ZAC	-@	ZERO AC	7	6995		90	
537	4	370		DC	@ZERO	-@	PREFIX	7	7002		90	
538	4	380		DC	@ZET	M@	SKIP- STG ZRO	7	7009		90	

```
CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                     1             3ANAK
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?    2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040    3

                          DC DICTIONARY 360 ASSEMBLER LANGUAGE                    3ANAK              PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    010  000    JOB   DC DICTIONARY 360 ASSEMBLER LANGUAGE
 102    020         CTL   440  1
 103    030  *              VERSION 2  LEVEL 0   JULY 25,1965
 104    040         DC    @$ADD     @                                              9  0341                      4
 105    050         DC    &SYSOR                                                   3  0344  00|                 4
 106    060         DC    &BLDPTS                                                  3  0347  S00                 4
 107    070         DC    &HIGH                                                    3  0350  V5U                 4
 108    080         DCW   @040865@      ASSEMBLY DATE                              6  0356                      4
 109    090         ORG   SYSOR                                                          4000
 110    100         DC    @A    -Y@     ADD                                        7  4006                      5
 111    110         DC    @AD   -Y@     ADD NORMALIZED,LONG                        7  4013                      5
 112    120         DC    @ADR  - @     ADD NORMALIZED,LONG                        7  4020                      5
 113    130         DC    @AE   -Y@     ADD NORMALIZED,SHORT                       7  4027                      5
 114    140         DC    @AER  - @     ADD NORMALIZED,SHORT                       7  4034                      5
 115    150         DC    @AFILEO @     CONTROL CARD                               7  4041                      6
 116    160         DC    @AH   -Y@     ADD HALF WORD                              7  4048                      6
 117    170         DC    @AL   -Y@     ADD LOGICAL                                7  4055                      6
 118    180         DC    @ALR  - @     ADD LOGICAL                                7  4062                      6
 119    190         DC    @AMSSGO @     CONTROL CARD                               7  4069                      6
 120    200         DC    @AOPTNO @     CONTROL CARD                               7  4076                      7
 121    210         DC    @AP   - @     ADD DECIMAL                                7  4083                      7
 122    220         DC    @AR   - @     ADD                                        7  4090                      7
 123    230         DC    @AU   -Y@     ADD UNNORMALIZED,SHORT                     7  4097                      7
 124    240         DC    @AUR  - @     ADD UNNORMALIZED,SHORT                     7  4104                      7
 125    250         DC    @AW   -Y@     ADD UNNORMALIZED,LONG                      7  4111                      8
 126    260         DC    @AWORKO @     CONTROL CARD                               7  4118                      8
 127    270         DC    @AWR  - @     ADD UNNORMALIZED,LONG                      7  4125                      8
 128    280         DC    @B    DY@     BRANCH UNCONDITIONAL                       7  4132                      8
 129    290         DC    @BAL  RY@     BRANCH AND LINK                            7  4139                      8
 130    300         DC    @BALR R @     BRANCH AND LINK                            7  4146                      9
 131    310         DC    @BC   IY@     BRANCH ON CONDITION                        7  4153                      9
 132    320         DC    @BCR  I @     BRANCH ON CONDITION                        7  4160                      9
 133    330         DC    @BCT  IY@     BRANCH ON COUNT                            7  4167                      9
 134    340         DC    @BCTR I @     BRANCH ON COUNT                            7  4174                      9
 135    350         DC    @BE   DY@     BRANCH ON EQUAL                            7  4181                     10
 136    360         DC    @BH   DY@     BRANCH ON HIGH                             7  4188                     10
 137    370         DC    @BL   DY@     BRANCH ON LOW                              7  4195                     10
 138    380         DC    @BM   DY@     BRANCH IF MIXED OR ON MINUS                7  4202                     10
 139    390         DC    @BNE  DY@     BRANCH ON NOT EQUAL                        7  4209                     10
 140    400         DC    @BNH  DY@     BRANCH ON NOT HIGH                         7  4216                     11
 141    410         DC    @BNL  DY@     BRANCH ON NOT LOW                          7  4223                     11
 142    420         DC    @BO   DY@     BRANCH IF ONES OR ON OVERFLOW              7  4230                     11
 143    430         DC    @BP   DY@     BRANCH UNCONDITIONAL                       7  4237                     11
 144    440         DC    @BR   D @     BRANCH UNCONDITIONAL                       7  4244                     11
 145    450         DC    @BXH  H @     BRANCH ON INDEX HIGH                       7  4251                     12
 146    460         DC    @BXLE H @     BRANCH ON INDEX LOW OR EQUAL               7  4258                     12
 147    470         DC    @BZ   IY@     BRANCH IF ZEROS                            7  4265                     12
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SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
148		480		DC	@C -Y@	COMPARE ALGEBRAIC		7	4272		12
149		490		DC	@CCB O @			7	4279		12
150		500		DC	@CCW K @	DEFINE CHANNEL COMMAND WORD		7	4286		13
151		510		DC	@CD -Y@	COMPARE,LONG		7	4293		13
152		520		DC	@CDR - @	COMPARE,LONG		7	4300		13
153		530		DC	@CE -Y@	COMPARE,SHORT		7	4307		13
154		540		DC	@CER - @	COMPARE,SHORT		7	4314		13
155		550		DC	@CH -Y@	COMPARE HALF WORD		7	4321		14
156		560		DC	@CHKPTJ @			7	4328		14
157		570		DC	@CHNG J @			7	4335		14
158		580		DC	@CL -Y@	COMPARE LOGIGAL		7	4342		14
159		590		DC	@CLC - @	COMPARE LOGIGAL		7	4349		14
160		600		DC	@CLI - @	COMPARE LOGIGAL IMMEDIATE		7	4356		15
161		610		DC	@CLOSEJ @			7	4363		15
162		620		DC	@CLR - @	COMPARE LOGIGAL		7	4370		15
163		630		DC	@CNOP - @	CONDITIONAL NO OPERATION		7	4377		15
164		640		DC	@CNTRLJ @			7	4384		15
165		650		DC	@COMRGJ @			7	4391		16
166		660		DC	@COPY O @	INCLUDE PREDEFINED SOURCE CODING		7	4398		16
167		670		DC	@CP - @	COMPARE DECIMAL		7	4405		16
168		680		DC	@CR - @	COMPARE ALGEBRAIC		7	4412		16
169		690		DC	@CSECTO @	IDENTIFY CONTROL SECTION		7	4419		16
170		700		DC	@CVB -Y@	CONVERT TO BINARY		7	4426		17
171		710		DC	@CVD -Y@	CONVERT TO DECIMAL		7	4433		17
172		720		DC	@D -Y@	DIVIDE		7	4440		17
173		730		DC	@DC L @	DEFINE CONSTANT		7	4447		17
174		740		DC	@DD -Y@	DIVIDE,LONG		7	4454		17
175		750		DC	@DDR - @	DIVIDE,LONG		7	4461		18
176		760		DC	@DE -Y@	DIVIDE,SHORT		7	4468		18
177		770		DC	@DER - @	DIVIDE,SHORT		7	4475		18
178		780		DC	@DP - @	DIVIDE DECIMAL		7	4482		18
179		790		DC	@DR - @	DIVIDE		7	4489		18
180		800		DC	@DROP J @	DROP BASE ADDRESS REGISTER		7	4496		19
181		810		DC	@DS L @	DEFINE STORAGE		7	4503		19
182		820		DC	@DSECTO @	IDENTIFY DUMMY SECTION		7	4510		19
183		830		DC	@DTFBGO @	FILE DEFINITION MACRO		7	4517		19
184		840		DC	@DTFDAO @	FILE DEFINITION MACRO		7	4524		19
185		850		DC	@DTFENO @	FILE DEFINITION MACRO		7	4531		20
186		860		DC	@DTFISO @	FILE DEFINITION MACRO		7	4538		20
187		870		DC	@DTFPHO @	FILE DEFINITION MACRO		7	4545		20
188		880		DC	@DTFSRO @	FILE DEFINITION MACRO		7	4552		20
189		890		DC	@DUMP J @			7	4559		20
190		900		DC	@ED - @	EDIT		7	4566		21
191		910		DC	@EDMK - @	EDIT AND MARK		7	4573		21
192		920		DC	@EJECT6 @	START NEW PAGE		7	4580		21
193		930		DC	@END O @	END ASSEMBLY		7	4587		21
194		940		DC	@ENDFLJ @			7	4594		21
195		950		DC	@ENTRYO @	IDENTIFY ENTRY-POINT SYMBOL		7	4601		22
196		960		DC	@EOJ J @			7	4608		22
197		970		DC	@EQU O @	EQUATE SYMBOL		7	4615		22

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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

198    980         DC    @ESETLJ @                                                 7  4622                     22
199    990         DC    @EX   IY@     EXECUTE                                     7  4629                     22
200  1 000         DC    @EXCP J @     EXECUTE CHANNEL PROGRAM MACRO               7  4636                     23
201  1 010         DC    @EXIT J @     EXIT MACRO                                  7  4643                     23
202  1 020         DC    @EXTRNO @     IDENTIFY EXTERNAL SYMBOL                    7  4650                     23
203  1 030         DC    @FEOV J @                                                 7  4657                     23
204  1 040         DC    @FETCHJ @     FETCH MACRO                                 7  4664                     23
205  1 050         DC    @GET  J @                                                 7  4671                     24
206  1 060         DC    @HDR  - @     HALVE,LONG                                  7  4678                     24
207  1 070         DC    @HER  - @     HALVE,SHORT                                 7  4685                     24
208  1 080         DC    @HIO  K @     HALT I/O                                    7  4692                     24
209  1 090         DC    @IC   -Y@     INSERT CHARACTER                            7  4699                     24
210  1 100         DC    @ICTL O @     INPUT FORMAT CONTROL                        7  4706                     25
211  1 110         DC    @ISEQ O @     INPUT SEQUENCE CHECKING                     7  4713                     25
212  1 120         DC    @ISK  - @     INSERT STORAGE KEY                          7  4720                     25
213  1 130         DC    @L    -Y@     LOAD                                        7  4727                     25
214  1 140         DC    @LA   -Y@     LOAD ADDRESS                                7  4734                     25
215  1 150         DC    @LBRETJ @                                                 7  4741                     26
216  1 160         DC    @LCDR - @     LOAD COMPLEMENT,LONG                        7  4748                     26
217  1 170         DC    @LCER - @     LOAD COMPLEMENT,SHORT                       7  4755                     26
218  1 180         DC    @LCR  - @     LOAD COMPLEMENT                             7  4762                     26
219  1 190         DC    @LD   -Y@     LOAD,LONG                                   7  4769                     26
220  1 200         DC    @LDR  - @     LOAD,LONG                                   7  4776                     27
221  1 210         DC    @LE   -Y@     LOAD,SHORT                                  7  4783                     27
222  1 220         DC    @LER  - @     LOAD,SHORT                                  7  4790                     27
223  1 230         DC    @LH   -Y@     LOAD HALF WORD                              7  4797                     27
224  1 240         DC    @LM   - @     LOAD MULTIPLE                               7  4804                     27
225  1 250         DC    @LNDR - @     LOAD NEGATIVE,LONG                          7  4811                     28
226  1 260         DC    @LNER - @     LOAD NEGATIVE,SHORT                         7  4818                     28
227  1 270         DC    @LNR  - @     LOAD NEGATIVE                               7  4825                     28
228  1 280         DC    @LPDR - @     LOAD POSITIVE,LONG                          7  4832                     28
229  1 290         DC    @LPER - @     LOAD POSITIVE,SHORT                         7  4839                     28
230  1 300         DC    @LPR  - @     LOAD POSITIVE                               7  4846                     29
231  1 310         DC    @LPSW - @     LOAD PSW                                    7  4853                     29
232  1 320         DC    @LR   - @     LOAD                                        7  4860                     29
233  1 330         DC    @LTDR - @     LOAD AND TEST,LONG                          7  4867                     29
234  1 340         DC    @LTER - @     LOAD AND TEST,SHORT                         7  4874                     29
235  1 350         DC    @LTORGO @     BEGIN LITERAL POOL                          7  4881                     30
236  1 360         DC    @LTR  - @     LOAD AND TEST                               7  4888                     30
237  1 370         DC    @M    -Y@     MULTIPLY                                    7  4895                     30
238  1 380         DC    @MACRO% @     MACRO DEFINITION                            7  4902                     30
239  1 390         DC    @MD   -Y@     MULTIPLY,LONG                               7  4909                     30
240  1 400         DC    @MDR  - @     MULTIPLY,LONG                               7  4916                     31
241  1 410         DC    @ME   -Y@     MULTIPLY,SHORT                              7  4923                     31
242  1 420         DC    @MEND ) @      MACRO DEFINITION                           7  4930                     31
243  1 430         DC    @MER  - @     MULTIPLY,SHORT                              7  4937                     31
244  1 440         DC    @MH   -Y@     MULTIPLY HALF WORD                          7  4944                     31
245  1 450         DC    @MP   - @     MULTIPLY DECIMAL                            7  4951                     32
246  1 460         DC    @MR   - @     MULTIPLY                                    7  4958                     32
247  1 470         DC    @MSG  J @                                                 7  4965                     32
```

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX CT	LOCN	INSTRUCTION TYPE	CARD
248	1	480		DC	@MVC - @	MOVE CHARACTERS	7	4972		32
249	1	490		DC	@MVI - @	MOVE IMMEDIATE	7	4979		32
250	1	500		DC	@MVN - @	MOVE NUMERICS	7	4986		33
251	1	510		DC	@MVO - @	MOVE WITH OFFSET	7	4993		33
252	1	520		DC	@MVZ - @	MOVE ZONES	7	5000		33
253	1	530		DC	@N -Y@	AND LOGIGAL	7	5007		33
254	1	540		DC	@NC - @	AND LOGIGAL	7	5014		33
255	1	550		DC	@NI - @	AND LOGIGAL IMMEDIATE	7	5021		34
256	1	560		DC	@NOP -Y@	NO OPERATION	7	5028		34
257	1	570		DC	@NOPR - @	NO OPERATION RR FORMAT	7	5035		34
258	1	580		DC	@NR - @	AND LOGIGAL	7	5042		34
259	1	590		DC	@O -Y@	OR LOGIGAL	7	5049		34
260	1	600		DC	@OC - @	OR LOGIGAL	7	5056		35
261	1	610		DC	@OI - @	OR LOGIGAL IMMEDIATE	7	5063		35
262	1	620		DC	@OPEN J @		7	5070		35
263	1	630		DC	@OR - @	OR LOGIGAL	7	5077		35
264	1	640		DC	@ORG O @	SET LOCATION COUNTER	7	5084		35
265	1	650		DC	@PACK - @	PACK	7	5091		36
266	1	660		DC	@PRINT6 @	PRINT OPTION DATA	7	5098		36
267	1	670		DC	@PRTOVJ @		7	5105		36
268	1	680		DC	@PUNCHO @		7	5112		36
269	1	690		DC	@PUT J @		7	5119		36
270	1	700		DC	@RDD - @	READ DIRECT	7	5126		37
271	1	710		DC	@READ J @		7	5133		37
272	1	720		DC	@RELSEJ @		7	5140		37
273	1	730		DC	@REPROO @		7	5147		37
274	1	740		DC	@S -Y@	SUBTRACT	7	5154		37
275	1	750		DC	@SD -Y@	SUBTRACT NORMALIZED,LONG	7	5161		38
276	1	760		DC	@SDR - @	SUBTRACT NORMALIZED,LONG	7	5168		38
277	1	770		DC	@SE -Y@	SUBTRACT NORMALIZED,SHORT	7	5175		38
278	1	780		DC	@SER - @	SUBTRACT NORMALIZED,SHORT	7	5182		38
279	1	790		DC	@SETFLJ @		7	5189		38
280	1	800		DC	@SETL J @		7	5196		39
281	1	810		DC	@SH -Y@	SUBTRACT HALF WORD	7	5203		39
282	1	820		DC	@SIO K @	START I/O	7	5210		39
283	1	830		DC	@SL -Y@	SUBTRACT LOGICAL	7	5217		39
284	1	840		DC	@SLA - @	SHIFT LEFT SINGLE ALGEBRAIC	7	5224		39
285	1	850		DC	@SLDA - @	SHIFT LEFT DOUBLE ALGEBRAIC	7	5231		40
286	1	860		DC	@SLDL - @	SHIFT LEFT DOUBLE LOGICAL	7	5238		40
287	1	870		DC	@SLL - @	SHIFT LEFT SINGLE LOGICAL	7	5245		40
288	1	880		DC	@SLR - @	SUBTRACT LOGICAL	7	5252		40
289	1	890		DC	@SP - @	SUBTRACT DECIMAL	7	5259		40
290	1	900		DC	@SPACE6 @	SPACE LISTING	7	5266		41
291	1	910		DC	@SPM - @	SET PROGRAM MASK	7	5273		41
292	1	920		DC	@SR - @	SUBTRACT	7	5280		41
293	1	930		DC	@SRA - @	SHIFT RIGHT SINGLE ALGEBRAIC	7	5287		41
294	1	940		DC	@SRDA - @	SHIFT RIGHT DOUBLE ALGEBRAIC	7	5294		41
295	1	950		DC	@SRDL - @	SHIFT RIGHT DOUBLE LOGICAL	7	5301		42
296	1	960		DC	@SRL - @	SHIFT RIGHT SINGLE LOGICAL	7	5308		42
297	1	970		DC	@SSK - @	SET STORAGE KEY	7	5315		42

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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

298  1 980         DC    @SSM  - @     SET SYSTEM MASK                           7  5322                      42
299  1 990         DC    @ST   -Y@     STORE                                     7  5329                      42
300  2 000         DC    @STARTO @     START ASSEMBLY                            7  5336                      43
301  2 010         DC    @STC  -Y@     STORE CHARACTER                           7  5343                      43
302  2 020         DC    @STD  -Y@     STORE LONG                                7  5350                      43
303  2 030         DC    @STE  -Y@     STORE SHORT                               7  5357                      43
304  2 040         DC    @STH  -Y@     STORE HALF WORD                           7  5364                      43
305  2 050         DC    @STM  - @     STORE MULTIPLE                            7  5371                      44
306  2 060         DC    @STXITJ @                                               7  5378                      44
307  2 070         DC    @SU   -Y@     SUBTRACT UNNORMALIZED,SHORT               7  5385                      44
308  2 080         DC    @SUR  - @     SUBTRACT UNNORMALIZED,SHORT               7  5392                      44
309  2 090         DC    @SVC  - @     SUPERVISOR CALL                           7  5399                      44
310  2 100         DC    @SW   -Y@     SUBTRACT UNNORMALIZED,LONG                7  5406                      45
311  2 110         DC    @SWR  - @     SUBTRACT UNNORMALIZED,LONG                7  5413                      45
312  2 120         DC    @TCH  K @     TEST CHANNEL                              7  5420                      45
313  2 130         DC    @TIO  K @     TEST I/O                                  7  5427                      45
314  2 140         DC    @TITLE6 @     IDENTIFY ASSEMBLY OUTPUT                  7  5434                      45
315  2 150         DC    @TM   - @     TEST UNDER MASK                           7  5441                      46
316  2 160         DC    @TR   - @     TRANSLATE                                 7  5448                      46
317  2 170         DC    @TRT  - @     TRANSLATE AND TEST                        7  5455                      46
318  2 180         DC    @TRUNCJ @                                               7  5462                      46
319  2 190         DC    @UNPK - @     UNPACK                                    7  5469                      46
320  2 200         DC    @USINGJ @     USE BASE ADDRESS REGISTER                 7  5476                      47
321  2 210         DC    @WAIT J @                                               7  5483                      47
322  2 220         DC    @WAITFJ @                                               7  5490                      47
323  2 230         DC    @WRD    @     WRITE DIRECT                              7  5497                      47
324  2 240         DC    @WRITEJ @                                               7  5504                      47
325  2 250         DC    @X    -Y@     EXCLUSIVE OR                              7  5511                      48
326  2 260         DC    @XC   - @     EXCLUSIVE OR                              7  5518                      48
327  2 270         DC    @XFR  O @                                               7  5525                      48
328  2 280         DC    @XI   - @     EXCLUSIVE OR,IMMEDIATE                    7  5532                      48
329  2 290         DC    @XR   - @     EXCLUSIVE OR                              7  5539                      48
330  2 300         DC    @ZAP  - @     ZERO AND ADD DECIMAL                      7  5546                      49
331  2 310         DC    @999999 @                                               7  5553                      49
332  2 320  BLDPTS EQU   1200                                                       1200
333  2 330  SYSOR  EQU   4000                                                       4000
334  2 340  HIGH   EQU   *&1                                                        5554
335  2 350         END                                                                    / 000 080           50
318  2 180         DC    @TRUNCJ @                                               7  5462                      46          *****
319  2 190         DC    @UNPK - @     UNPACK                                    7  5469                      46
320  2 200         DC    @USINGJ @     USE BASE ADDRESS REGISTER                 7  5476                      47
321  2 210         DC    @WAIT J @                                               7  5483                      47
322  2 220         DC    @WAITFJ @                                               7  5490                      47
323  2 230         DC    @WRD    @     WRITE DIRECT                              7  5497                      47
324  2 240         DC    @WRITEJ @                                               7  5504                      47
325  2 250         DC    @X    -Y@     EXCLUSIVE OR                              7  5511                      48
326  2 260         DC    @XC   - @     EXCLUSIVE OR                              7  5518                      48
327  2 270         DC    @XFR  O @                                               7  5525                      48
328  2 280         DC    @XI   - @     EXCLUSIVE OR,IMMEDIATE                    7  5532                      48
329  2 290         DC    @XR   - @     EXCLUSIVE OR                              7  5539                      48
330  2 300         DC    @ZAP  - @     ZERO AND ADD DECIMAL                      7  5546                      49
331  2 310         DC    @999999 @                                               7  5553                      49
332  2 320  BLDPTS EQU   1200                                                       1200
333  2 330  SYSOR  EQU   4000                                                       4000
334  2 340  HIGH   EQU   *&1                                                        5554
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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                          1            3ANAQ
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?      2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040      3

                          PHASE I PASS 2 OF ANALYSIS    PRINT COUNT REPORT          3ANAQ              PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    010  000    JOB   PHASE I PASS 2 OF ANALYSIS    PRINT COUNT REPORT
 102    020         CTL   440  1
 103    025  *          VERSION 2  LEVEL 0   JULY 25,1965
 104    030         DC    @$ADD     @                                           9  0341                        4
 105    040         DC    &SYSOR                                              3  0344  800                   4
 106    050         DC    &START                                              3  0347  800                   4
 107    060         DC    &HIGH                                               3  0350  I59                   4
 108    070         ORG   SYSOR                                                         0800
 109    080  SYSOR  EQU   800                                                    0800
 110    090  X1     EQU   089                                                    0089
 111    100  X2     EQU   094                                                    0094
 112    110  X3     EQU   099                                                    0099
 113    120  POS84  EQU   84      PAGE OVERFLOW POSITION                         0084
 114    130  MACH   EQU   82      MACHINE                                        0082
 115    140  LENGTH EQU   3999    LENGTH OF A DICTIONARY ENTRY                   3999
 116    150  T1     EQU   4000    1ST POSITION OF OPCODE DICTIONARY              4000
 117    160  DICOP  EQU   4004    1ST OPCODE DICTIONARY ENTRY                    4004
 118    170  ANACOD EQU   4005    1ST ANALYSIS CODE IN DICTIONARY                4005
 119    180  EJECT  EQU   704                                                    0704
 120    190  PRINT  EQU   747                                                    0747
 121    200  SYSLNK EQU   400                                                    0400
 122    210  SYSIO  EQU   500                                                    0500
 123    220  IOCON4 EQU   400                                                    0400
 124    230  *
 125    240  *          INITIALZE
 126    250  *
 127    260  START  SW    GRP1                                                4  0800  , G14                 5
 128    270         SW    87,92                                               7  0804  , 087 092             5
 129    280         SBR   X1,0                                                7  0811  H 089 000             5
 130    290  *
 131    300  *          READ FROM TAPE UNIT 4 INTO RECORD
 132    310  *
 133    320         B     SYSIO                                               4  0818  B 500                 5
 134    330         DCW   &IOCON4                                             3  0824  400                   5
 135    340         ORG   *-2                                                           0823
 136    350         DC    &RECORD                                             3  0825  E54                   6
 137    360         DC    @R@                                                 1  0826                        6
 138    370         BEF   PRNT                                                5  0827  B 905 K               6
 139    380  *
 140    390  *          TEST FOR BLANK OR ZERO LOCATION
 141    400  *
 142    410         C     LOC,@000@                                           7  0832  C E95 H72             6
 143    420         BE    START                                               5  0839  B 800 S               6
 144    430         BCE   START,LOC,                                          8  0844  B 800 E95             6
 145    440         MA    LOC,X1   MULTIPLY DICOP DISPLACEMENT BY 3           7  0852  # E95 089             7
 146    450         MA    LOC,X1                                              7  0859  # E95 089             7
 147    460         MA    LOC,X1                                              7  0866  # E95 089             7
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                              PHASE I PASS 2 OF ANALYSIS    PRINT COUNT REPORT          3ANAQ              PAGE    2

SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

148    470  *
149    480  *              ADD 1 TO TALLY EACH TIME TABLE LOCATION IS MATCHED
150    490  *
151    500         MLC   TALLY&X1,WORK                                                     7  0873  M X|3 G22           7
152    510         A     @1@,WORK                                                          7  0880  A H73 G22           7
153    520         A     @1@,TOT    COUNT TOTAL NUMBER OP CODES                            7  0887  A H73 G19           8
154    530         MLC   WORK,TALLY&X1                                                     7  0894  M G22 X|3           8
155    540         B     START                                                             4  0901  B 800               8
156    550  *
157    560  *                INITIALIZE FOR PRINTING
158    570  *
159    580  PRNT   B     PRINT                                                             4  0905  B 747               8
160    590         B     HDR    BR TO PRINT HEADINGS                                       4  0909  B T11               8
161    600         RWD   4                                                                 5  0913  U %U4 R             8
162    610         SBR   X2,0                                                              7  0918  H 094 000           8
163    620         SBR   X3,3                                                              7  0925  H 099 003           9
164    630  *
165    640  *                    MOVE DATA TO PRINT
166    650  *
167    660  HERE   BCE   ALLD,T1&4&X2,9   TEST FOR END OF OPCODE TABLE                     8  0932  B /26 0!U 9         9
168    670         BCE   NONE2,TALLY&X3,    BLANK TALLY - DONT PRINT                       8  0940  B /08 X?3           9
169    680         SW    224,237                                                           7  0948  , 224 237           9
170    690         SW    TALLY-2&X3                                                        4  0955  , X?1               9
171    700         MCS   TALLY&X3,239                                                      7  0959  Z X?3 239          10
172    710         MLC   DICOP&X2,228                                                      7  0966  M 0!U 228          10
173    720  ADJUS2 MN    ANACOD&X2,TEST                                                    7  0973  D 0!V H65          10
174    730  *
175    740  *                    CACULATE TOTAL BY TYPES
176    750  *
177    760         SBR   X1,0                                                              7  0980  H 089 000          10
178    770         BCE   MOVE,TEST,1   NUMERIC 1 IS MACRO CODE                             8  0987  B |85 H65 1        10
179    780         SBR   X1,19   LABEL WORK IS 19 LONG - BUMP X1 BY 19                     7  0995  H 089 019          11
180    790         BCE   MOVE,TEST,2   NUMERIC 2 IS INPUT-OUTPUT CODE                      8  1002  B |85 H65 2        11
181    800         SBR   X1,38                                                             7  1010  H 089 038          11
182    810         BCE   MOVE,TEST,3   NUMERIC 3 IS DATA DEFINING CODE                     8  1017  B |85 H65 3        11
183    820         SBR   X1,57                                                             7  1025  H 089 057          11
184    830         BCE   MOVE,TEST,4   NUMERIC 4 OR 9 IS BRANCH CODE                       8  1032  B |85 H65 4        12
185    840         BCE   MOVE,TEST,9                                                       8  1040  B |85 H65 9        12
186    850         SBR   X1,76                                                             7  1048  H 089 076          12
187    860         BCE   MOVE,TEST,5   NUMERIC 5 IS HALT CODE                              8  1055  B |85 H65 5        12
188    870         SBR   X1,95                                                             7  1063  H 089 095          12
189    880         BCE   MOVE,TEST,6   NUMERIC 6 IS ASSEMBLER CODE                         8  1070  B |85 H65 6        13
190    890         SBR   X1,114                                                            7  1078  H 089 114          13
191    900  MOVE   MA    TALLY&X3,LABEL&X1   MOVE TALLY BY TYPE INTO LABEL                 7  1085  # X?3 GU7          13
192    910         B     PRINT                                                             4  1092  B 747              13
193    920         CW    TALLY-2&X3                                                        4  1096  ) X?1              13
194    930         BW    HDR,POS84   WORD MARK IN POS84-END OF PAGE                        8  1100  V T11 084 1        13
195    940  NONE2  MA    @003@,X3   X3 LOCATES TALLY IN TABLE                              7  1108  # H76 099          14
196    950         MA    LENGTH,X2   ADJUST BY LENGTH OF DICT ENTRY                        7  1115  # I99 094          14
197    960         B     HERE                                                              4  1122  B 932              14
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

198    970  ALLD   B     PRINT                                                    4  1126  B 747               14
199    980         MLC   @TYPE@,239                                               7  1130  M H80 239           14
200    990         MLC   @TOTAL@,250                                              7  1137  M H85 250           14
201  1 000         MLCWA @PERCENT@,260                                            7  1144  L H92 260           15
202  1 010         B     PRINT                                                    4  1151  B 747               15
203  1 020         B     PRINT                                                    4  1155  B 747               15
204  1 030         SBR   X1,0                                                     7  1159  H 089 000           15
205  1 040  PRTYPE BCE   SKPDIV,LABEL&X1,   SKIP DIVIDE IF BLANK LABEL            8  1166  B S53 GU7           15
206  1 050         MLC   LABEL&X1,250                                             7  1174  M GU7 250           15
207  1 060         MLC   LABEL&X1,DIVEN-3   DIVIDE TYPE BY TOTAL                  7  1181  M GU7 G25           16
208  1 070         MLC   X1,STOX1     SAVE X1                                     7  1188  M 089 H64           16
209  1 080         B     DIVIDE                                                   4  1195  B T56               16
210  1 090         DSA   TOT                                                      3  1201  G19                 16
211  1 100         DSA   DIVEN                                                    3  1204  G28                 16
212  1 110         DCW   03                                                       2  1206                      16
213  1 120         A     &5,QUOT                                                  7  1207  A H93 W92           16
214  1 130         MLC   QUOT-1,PERCNT                                            7  1214  M W91 H68           17
215  1 140         SW    256,257                                                  7  1221  , 256 257           17
216  1 150         MLC   PERCNT,258                                               7  1228  M H68 258           17
217  1 160         MLC   @.@,256                                                  7  1235  M H94 256           17
218  1 170         B     PRINT                                                    4  1242  B 747               17
219  1 180         MLC   STOX1,X1   RESTORE X1                                    7  1246  M H64 089           17
220  1 190  SKPDIV A     @19@,X1                                                  7  1253  A H96 089           18
221  1 200         C     @133@,X1                                                 7  1260  C H99 089           18
222  1 210         BU    PRTYPE                                                   5  1267  B /66 /             18
223  1 220         B     PRINT                                                    4  1272  B 747               18
224  1 230         B     PRINT                                                    4  1276  B 747               18
225  1 240         MCS   TOT,240                                                  7  1280  Z G19 240           18
226  1 250         MLC   @TOTAL  @,234                                            7  1287  M I06 234           19
227  1 260         B     PRINT                                                    4  1294  B 747               19
228  1 270         CW    GRP1                                                     4  1298  ) G14               19
229  1 280         B     SYSLNK    CALL IN PHASE I PASS 3 OF ANALYSIS             4  1302  B 400               19
230  1 290         DCW   @3ANAR@                                                  5  1310                      19
231  1 300  HDR    SBR   EXIT4&3     PRINT HEADINGS                               4  1311  H T55               19
232  1 310         MLCWA @OPERATION CODE FREQUENCY REPORT@,251                    7  1315  L I37 251           19
233  1 320         B     PRINT                                                    4  1322  B 747               20
234  1 330         B     PRINT                                                    4  1326  B 747               20
235  1 340         MLCWA @MNEMONICS@,230                                          7  1330  L I46 230           20
236  1 350         MLCWA @TALLY@,240                                              7  1337  L I51 240           20
237  1 360         B     PRINT                                                    4  1344  B 747               20
238  1 370         B     PRINT                                                    4  1348  B 747               20
239  1 380  EXIT4  B     0                                                        4  1352  B 000               20
240  1 390  DIVIDE SBR   89                                                       4  1356  H 089               21
241  1 400         MLC   2&X1,DIVID1&3                                            7  1360  M 0|2 U51           21
242  1 410         MLC   5&X1,DIVID2&3                                            7  1367  M 0|5 U58           21
243  1 420         MLC   7&X1,DIVIDG                                              7  1374  M 0|7 W97           21
244  1 430         S     DIVIDA                                                   4  1381  S W50               21
245  1 440         MLC   @003@,DIVIDA-19                                          7  1385  M H76 W31           21
246  1 450         S     DIVIDG,DIVIDA-18                                         7  1392  S W97 W32           22
247  1 460         MLZS  @010@,DIVIDA-18                                          7  1399  Y I54 W32           22
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  1 470         A     DIVIDH,DIVIDA-18                                      7  1406  A X00 W32           22
249  1 480         MLC   DIVIDA-18,DIVID8&6                                    7  1413  M W32 W20           22
250  1 490         A     @001@,DIVIDA-18                                       7  1420  A I57 W32           22
251  1 500         MLC   DIVIDA-18,DIVID4&6                                    7  1427  M W32 V24           23
252  1 510         MLC   DIVIDA-18,DIVID5&6                                    7  1434  M W32 V31           23
253  1 520         MLC   DIVIDA-18,DIVID7&6                                    7  1441  M W32 V75           23
254  1 530  DIVID1 MLCWA 0,DIVIDR                                              7  1448  L 000 W71           23
255  1 540  DIVID2 ZA    0,DIVIDD                                              7  1455  ? 000 W92           23
256  1 550         MLZS  DIVIDD,DIVIDF                                         7  1462  Y W92 W95           24
257  1 560         MLC   @003@,DIVIDC                                          7  1469  M H76 W94           24
258  1 570         MLZS  DIVIDD,DIVIDC                                         7  1476  Y W92 W94           24
259  1 580         BWZ   *&5,DIVIDR,K                                          8  1483  V U95 W71 K         24
260  1 590         B     DIVID3                                                4  1491  B V11               24
261  1 600         S     @9@,DIVIDC                                            7  1495  S I58 W94           25
262  1 610         A     @003@,DIVIDC                                          7  1502  A H76 W94           25
263  1 620         MLZS                                                        1  1509  Y                   25
264  1 630         MLZS                                                        1  1510  Y                   25
265  1 640  DIVID3 MLZS  @001@,DIVIDR                                          7  1511  Y I57 W71           25
266  1 650  DIVID4 S     DIVIDR,0                                              7  1518  S W71 000           25
267  1 660  DIVID5 BWZ   DIVID7,0,K                                            8  1525  V V69 000 K         25
268  1 670         BAV   *&1                                                   5  1533  B V38 Z             26
269  1 680         A     @001@,DIVIDB                                          7  1538  A I57 W93           26
270  1 690         BAV   DIVID6                                                5  1545  B V54 Z             26
271  1 700         B     DIVID4                                                4  1550  B V18               26
272  1 710  DIVID6 MLC   @9@,DIVIDC                                            7  1554  M I58 W94           26
273  1 720         A     DIVIDC                                                4  1561  A W94               26
274  1 730         B     DIVID9                                                4  1565  B W26               26
275  1 740  DIVID7 A     DIVIDR,0                                              7  1569  A W71 000           27
276  1 750         MLC   DIVIDB,DIVIDA                                         7  1576  M W93 W50           27
277  1 760         ZA                                                          1  1583  ?                   27
278  1 770         MLC   DIVIDA&1,DIVIDB                                       7  1584  M W51 W93           27
279  1 780         ZA                                                          1  1591  ?                   27
280  1 790         S     @001@,DIVIDG                                          7  1592  S I57 W97           27
281  1 800         BWZ   DIVID4,DIVIDG,B                                       8  1599  V V18 W97 B         27
282  1 810         MLZS  DIVIDC,DIVIDD                                         7  1607  Y W94 W92           28
283  1 820  DIVID8 MLZS  DIVIDF,0                                              7  1614  Y W95 000           28
284  1 830         BAV   *&1                                                   5  1621  B W26 Z             28
285  1 840  DIVID9 B     8&X1                                                  4  1626  B 0|8               28
286  1 850  DIVIDA DCW   #21                                                  21  1650                      29
287  1 860         DCW   @0@                                                   1  1651                      29
288  1 870  DIVIDR DCW   #20                                                  20  1671                      30
289  1 880  DIVIDD DCW   #21                                                  21  1692                      31
290  1 890  DIVIDB DCW   @ @                                                   1  1693                      31
291  1 900  DIVIDC DCW   @ @                                                   1  1694                      31
292  1 910  DIVIDF DCW   @1@                                                   1  1695                      31
293  1 920  DIVIDG DCW   @00@                                                  2  1697                      31
294  1 930  DIVIDH DSA   &DIVIDD-31                                            3  1700  W61                 31
295  1 940  QUOT   EQU   DIVIDD                                                   1692
296  1 950  TALLY  DCW   #3                                                    3  1703                      31
297  1 960         DA    1X1850                                                   1704   3553               32
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

298  1 970  RECORD DA    1X160                                                    3554   3713              32
299  1 980  LOC          40,42                                                    3595               FIELD   32
300  1 990  GRP1   DC    @}@                                                   1  3714                     33
301  2 000  TOT    DCW   #5                                                    5  3719                     33
302  2 010  WORK   DCW   #3                                                    3  3722                     33
303  2 020  DIVEN  DCW   @000000@                                              6  3728                     33
304  2 030  LABEL  DCW   @MACRO             @                                 19  3747                     33
305  2 040         DCW   @INPUT-OUTPUT      @                                 19  3766                     34
306  2 050         DCW   @DATA DEFINING     @                                 19  3785                     34
307  2 060         DCW   @BRANCH            @                                 19  3804                     35
308  2 070         DCW   @HALT              @                                 19  3823                     35
309  2 080         DCW   @ASSEMBLER         @                                 19  3842                     36
310  2 090         DCW   @OTHER             @                                 19  3861                     36
311  2 100  STOX1  DCW   #3                                                    3  3864                     37
312  2 110  TEST   DCW   #1                                                    1  3865                     37
313  2 120  PERCNT DCW   #3                                                    3  3868                     37
314  2 130         LTORG *&1                                                            3870
                   DCW   @000@                                                 3  3872               LIT     38
                         @1@                                                   1  3873               LIT     38
                         @003@                                                 3  3876               LIT     38
                         @TYPE@                                                4  3880               LIT     38
       200               @TOTAL@                                               5  3885               LIT     38
       201               @PERCENT@                                             7  3892               LIT     38
                         &5                                                    1  3893               LIT     38
                         @.@                                                   1  3894               LIT     39
                         @19@                                                  2  3896               LIT     39
                         @133@                                                 3  3899               LIT     39
       226               @TOTAL  @                                             7  3906               LIT     39
       232               @OPERATION CODE FREQUENCY REPORT@                    31  3937               LIT     40
       235               @MNEMONICS@                                           9  3946               LIT     41
       236               @TALLY@                                               5  3951               LIT     41
                         @010@                                                 3  3954               LIT     41
                         @001@                                                 3  3957               LIT     41
                         @9@                                                   1  3958               LIT     41
315  2 140  HIGH   EQU   *&1                                                      3959
316  2 150         END   START                                                      / 800 080          42
                         @1@                                                   1  3873               LIT     38             *****
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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                      1             3ANAR
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?   2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040    3

                          PHASE I  PASS 3 OF ANALYZE STEM 360                   3ANAR             PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101  1 00   000    JOB   PHASE I  PASS 3 OF ANALYZE STEM 360
 102  1 02          CTL   440  1
 103  1 025  *              VERSION 2  LEVEL 0   JULY 25,1965
 104  1 03   *
 105  1 04   *                GENERATE $ADD CARD
 106  1 05   *
 107  1 06          DCW   @$ADD     @                                              9  0341                    4
 108  1 07          DCW   &S                                                     3  0344  800               4
 109  1 08          DCW   &S                                                     3  0347  800               4
 110  1 09          DCW   &HIGH                                                  3  0350  85Y               4
 111  1 10          ORG   800                                                             0800
 112  1 11   COLUM1 EQU   DAREC&7                                                   4516
 113  1 12   TBLSW  EQU   86                    CONTAINS Y IF CROSS OPTIONS         0086
 114  1 13   X1     EQU   89                                                        0089
 115  1 14   X2     EQU   94                                                        0094
 116  1 15   X3     EQU   99                                                        0099
 117  1 16   IOCON2 EQU   200                   TAPE UNIT TWO                       0200
 118  1 17   IOCON4 EQU   400                   TAPE UNIT FOUR                      0400
 119  1 18   SYSLNK EQU   400                   SYSTEM READ ENTRY                   0400
 120  1 19   SYSIO  EQU   500                   CONTROLLER TAPE I-O ENTRY           0500
 121  1 20   MESSG  EQU   660                   MESSAGE WRITER ENTRY                0660
 122  1 21   EJECT  EQU   704                   CONTROLLER CARRIAGE EJCECT          0704
 123  1 22   READ   EQU   781                                                       0781
 124  1 23   PRINT  EQU   747                   CONTROLLER PRINT ENTRY              0747
 125  1 24   FLAGSA EQU   EXSEQ-4                                                   4526
 126  1 25   ANFLAG EQU   FLAGSA                CONTAINS ANALYSIS FLAGS             4526
 127  1 26   RELT   EQU   ANFLAG                RELATIVE ADDRESSING FLAG            4526
 128  1 27   INDX   EQU   ANFLAG&1              INDEXING FLAG                       4527
 129  1 28   COPL   EQU   ANFLAG&2              COMPLEX OPERAND FLAG                4528
 130  1 29   F1     EQU   FIELD1                                                    4553
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

131  1 30          JOB   PHASE I, PASS 3 OF ANALYSIS       MAIN PROGRAM
132  1 31   *
133  1 32   *                   INITIALYZE
134  1 33   *
135  1 34   S      SW    GRPMRK                                                   4  0800  , 66Z                5
136  1 35          BCE   ST,2,A                  AN   Y - $ANALYZE                8  0804  B 823 002 A          5
137  1 36          MLC   @N@,AN                       N - $CHART                  7  0812  M 68U 67|            5
138  1 37          B     RTAPE                                                    4  0819  B 830                5
139  1 38   ST     MLC   @Y@,AN                                                   7  0823  M 68V 67|            5
140  1 39   *
141  1 40   *                   BEGIN PROCESSING OF RECORD
142  1 41   *
143  1 42   RTAPE  B     SYSIO                   READ UNIT 4 INTO DAREC           4  0830  B 500                5
144  1 43          DCW   &IOCON4                                                  3  0836  400                  5
145  1 44          ORG   *-2                                                               0835
146  1 45          DC    &DAREC                                                   3  0837  50Z                  6
147  1 46          DC    @R@                                                      1  0838                       6
148  1 47   *
149  1 48   *
150  1 49          BEF   CK                                                       5  0839  B S52 K              6
151  1 50          BCE   CKOPT&14,ANCODE,T                                        8  0844  B |49 54X T          6
152  1 51          BWZ   SETMAC,ANCODE,K         TEST WHETHER TO SCAN OPERAND     8  0852  V 872 54X K          6
153  1 52          BWZ   SETMAC,ANCODE,B                                          8  0860  V 872 54X B          6
154  1 53          B     CKOPT&14                                                 4  0868  B |49                7
155  1 54   *
156  1 55   *                   INITIALYZE FOR SCAN
157  1 56   *
158  1 57   SETMAC MN    ANCODE,TESTAN                                            7  0872  D 54X 67S            7
159  1 58          MLC   @N@,SWF1X2                                               7  0879  M 68U 47Y            7
160  1 59          MLC   @N@,SWF1X3                                               7  0886  M 68U 35X            7
161  1 60          MLC   @N@,SWRX                                                 7  0893  M 68U 35Z            7
162  1 61          MLC   @N@,SWDATA                                               7  0900  M 68U 35Y            7
163  1 62          BCE   YF1X2,TESTAN,9                                           8  0907  B 927 67S 9          8
164  1 63          BCE   YF1X3,TESTAN,8                                           8  0915  B 938 67S 8          8
165  1 64          B     TMACR                                                    4  0923  B 945                8
166  1 65   YF1X2  MLC   @Y@,SWF1X2                                               7  0927  M 68V 47Y            8
167  1 66          B     TMACR                                                    4  0934  B 945                8
168  1 67   YF1X3  MLC   @Y@,SWF1X3                                               7  0938  M 68V 35X            8
169  1 68   TMACR  BCE   YMACR,TESTAN,1                                           8  0945  B 964 67S 1          9
170  1 69          MLC   @N@,MACR                                                 7  0953  M 68U 68S            9
171  1 70          B     TBRAN                                                    4  0960  B 971                9
172  1 71   YMACR  MLC   @Y@,MACR                                                 7  0964  M 68V 68S            9
173  1 72   TBRAN  BWZ   YBRAN,ANCODE,B                                           8  0971  V 990 54X B          9
174  1 73          MLC   @N@,BRANCH                                               7  0979  M 68U 48W           10
175  1 74          B     TESTD                                                    4  0986  B 997               10
176  1 75   YBRAN  MLC   @Y@,BRANCH                                               7  0990  M 68V 48W           10
177  1 76   TESTD  BCE   CODED,TESTAN,3   TEST FOR DATA DEFINING                  8  0997  B |09 67S 3         10
178  1 77          B     TESTRX                                                   4  1005  B |16               10
179  1 78   CODED  MLC   @Y@,SWDATA                                               7  1009  M 68V 35Y           10
180  1 79   TESTRX BCE   GOSCAN,RX,                                               8  1016  B |31 52V           11
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SEQ PG LIN  LABEL  OP    OPERANDS                                                   SFX CT  LOCN  INSTRUCTION TYPE  CARD

181  1 80          MLC   @Y@,SWRX                                                        7  1024  M 68V 35Z           11
182  1 81   *
183  1 82   *
184  1 83   GOSCAN B     SCAN                    SCAN OPERAND                            4  1031  B V20               11
185  1 84   *
186  1 85   *                  EXAMINE CONTROL CARD INFORMATION
187  1 86   *
188  1 87   CKOPT  MLC   SAVX2,X2                                                        7  1035  M 74U 094           11
189  1 88          MLC   A&1&X2,CARD&79                                                  7  1042  M 3O/ 66Y           11
190  1 89          BCE   NOPT,2,C    TEST FOR $CHART                                     8  1049  B |69 002 C         12
191  1 90          BCE   CODE,TBLSW,Y            TEST FOR REFERENCE OPTIONS              8  1057  B /42 086 Y         12
192  1 91   *
193  1 92   *                  CONTROL CARD IS $ANALYZE WITH NO
194  1 93   *                  FURTHUR OPTIONS.  PRINT FLAGGED LIST LINE
195  1 94   *
196  1 95          B     PLIST                                                           4  1065  B I90               12
197  1 96   NOPT   BCE   WT,ANCODE,T             DONT MOVE IF TRANSPARENT                8  1069  B /20 54X T         12
198                MLC   F1&9,SORT&9                                                     7  1077  M 56S 52T           12
199                B     SFILL                                                           4  1084  B 25V               12
200                MLC   SORT&9,F1&9                                                     7  1088  M 52T 56S           13
201                MLC   F2&9,SORT&9                                                     7  1095  M 57Y 52T           13
202                B     SFILL                                                           4  1102  B 25V               13
203                MLC   SORT&9,F2&9                                                     7  1106  M 52T 57Y           13
204  1 97          MLC   CARD&79,EXSEQ                                                   7  1113  M 66Y 53|           13
205  1 98   *
206  1 99   *                  WRITE INPUT TAPE TO FLOWCHART
207  2 00   *
208  2 01   WT     MLC   GRPMRK,CARD                                                     7  1120  M 66Z 58Z           13
209  2 02          B     WTAPE                                                           4  1127  B 32Y               14
210  2 03          MLC   1,CARD                  DESTROY GROUP MARK                      7  1131  M 001 58Z           14
211  2 04   *
212  2 05   *                  RETURN TO GET NEXT RECORD
213  2 06   *
214  2 07          B     RTAPE                                                           4  1138  B 830               14
215  2 08   *
216  2 09   *                  CONTROL CARD IS $ANALYZE WITH
217  2 10   *                  CROSS AND/OR OPERAND OPTION.  WRITE
218  2 11   *                  INPUT TAPE TO PHASE II, PASS 1 OF ANALYSIS
219  2 12   *
220  2 13   *
221  2 14   CODE   MLC   @0@,SORTCD              CODE LABEL RECORD ZERO                  7  1142  M 68W 52U           14
222  2 15          MLC   @   @,SORT&2                                                    7  1149  M 68Z 51W           14
223  2 16          BCE   W,ANCODE,T              TEST IF TRANSPARENT                     8  1156  B /71 54X T         14
224  2 17          MLC   LABEL&9,SORT&9          NO. MOVE LABEL TO SORT FIELD            7  1164  M 54| 52T           15
225  2 18   W      B     WTAPE                   WRITE RECORD                            4  1171  B 32Y               15
226  2 19   *
227  2 20   *                  WRITE A RECORD FOR EACH SYMBOL IN THE
228  2 21   *                  OPERAND FIELD.
229  2 22   *
230  2 23          SBR   X2,0                                                            7  1175  H 094 000           15
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SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD

231  2 24   C      C     COUNT,@00@               TEST IF SYMBOL COUNT IS ZERO     7  1182  C 48Y 69/             15
232  2 25          BE    INTSET                                                    5  1189  B S41 S               15
233  2 26          MLC   @           @,SORT&9                                      7  1194  M 70/ 52T             15
234  2 27   F      B     FETCH                    NO. FETCH SYMBOL FROM TABLE.     4  1201  B 20X                 16
235  2 28          A     @1@,X2                                                    7  1205  A 70S 094             16
236  2 29          MLC   X2,SORTCD                CODE REFERENCE RECORD            7  1212  M 094 52U             16
237  2 30          B     WTAPE                    WRITE RECORD                     4  1219  B 32Y                 16
238  2 31          S     @1@,COUNT                                                 7  1223  S 70S 48Y             16
239  2 32          MZ    @ @,COUNT                                                 7  1230  Y 70T 48Y             16
240  2 33          B     C                                                         4  1237  B /82                 17
241  2 34   INTSET SBR   FETCH&3,TABLE                                             7  1241  H 21| 44X             17
242  2 35          B     RTAPE                                                     4  1248  B 830                 17
243  2 36   *
244  2 37   *                   END OF FILE
245  2 38   *
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

246  2 39          JOB   EOF ACTIVITY FOR 3ANAV
247  2 40   CK     WTM   2                                                     5  1252  U %U2 M             18
248  2 41          RWD   2                                                     5  1257  U %U2 R             18
249  2 42          RWD   4                                                     5  1262  U %U4 R             18
250  2 43          MLC   1,GRPMRK               DESTROY GROUP MARK             7  1267  M 001 66Z           18
251  2 44          BCE   CHART,2,C              TEST IF $CHART                 8  1274  B T71 002 C         18
252  2 45          BCE   OPTION,TBLSW,Y         TEST FOR REFERENCE OPTIONS     8  1282  B T80 086 Y         18
253  2 46          B     READ                   NO. READ NEW CONTROL CARD.     4  1290  B 781               19
254  2 47          C     @$CHART@,6             TEST IF IT IS $CHART           7  1294  C 70Z 006           19
255  2 48          BE    CHART                  YES.                           5  1301  B T71 S             19
256  2 49          C     @$VERIFY@,7            NO. TEST IF IT IS $VERIFY.     7  1306  C 71W 007           19
257  2 50          BE    VERIFY                 YES.                           5  1313  B U24 S             19
258  2 51          C     @$SYSTEM@,7            NO. TEST IF IT IS $SYSTEM      7  1318  C 72T 007           19
259  2 52          BE    SYSTEM                 YES.                           5  1325  B U33 S             20
260  2 53          C     @$DAEND@,6             NO. TEST IF IT IS $DAEND.      7  1330  C 72Z 006           20
261  2 54          BE    DAEND                  YES.                           5  1337  B T57 S             20
262  2 55          B     EJECT                  NO.  ILLEGAL CONTROL CARD.     4  1342  B 704               20
263  2 56          MLCWA ERMESG,247             PRINT ERROR MESSAGE            7  1346  L U87 247           20
264  2 57          B     PRINT                                                 4  1353  B 747               20
265  2 58   DAEND  RWD   1                                                     5  1357  U %U1 R             20
266  2 59          B     SYSLNK                 CALL IN CONTROLLER             4  1362  B 400               21
267  2 60          DCW   @1CONA@                                               5  1370                      21
268  2 61   CHART  B     SYSLNK                 CALL IN FLOWCHART PROGRAM      4  1371  B 400               21
269  2 62          DCW   @4CHRA@                                               5  1379                      21
270  2 63   OPTION MLCWA @2@,675                SET SORT PARAMETERS            7  1380  L 73| 675           21
271  2 64          MLCWA @2@,676                                               7  1387  L 73| 676           21
272  2 65          MLCWA @16@,679                                              7  1394  L 73S 679           21
273  2 66          MLCWA @11@,681                                              7  1401  L 73U 681           22
274  2 67          MLCWA @3ANLC@,686                                           7  1408  L 73Z 686           22
275  2 68          B     SYSLNK                 CALL IN PHASE II OF ANALYSIS   4  1415  B 400               22
276  2 69          DCW   @3ANLA@                                               5  1423                      22
277  2 70   VERIFY B     SYSLNK                 CALL IN VERIFY PROGRAM.        4  1424  B 400               22
278  2 71          DCW   @5VERA@                                               5  1432                      22
279  2 72   SYSTEM B     SYSLNK                 CALL IN SYSTEM MAINTENANCE     4  1433  B 400               22
280  2 73          DCW   @6CONA@                                               5  1441                      23
281  2 74   ERMESG DCW   @ERROR - ILLEGAL CONTROL CARD.  RUN TERMINATED.@     46  1487                      25
282  2 75   OVFLW  MLCWA OVFMES,251                                            7  1488  L 85X 251           25
283  2 76          B     MESSG                                                 4  1495  B 660               25
284  2 77          H     6,6                                                   7  1499  . 006 006           25
285  2 78          RWD   4                                                     5  1506  U %U4 R             25
286  2 79          RWD   2                      OUTPUT ERROR RE-ENTRY POINT    5  1511  U %U2 R             26
287  2 80          B     S                 RESTART                             4  1516  B 800               26
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SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD

288  2 81          JOB   PHASE I, PASS 3 OF ANALYSIS       SCAN   ROUTINE
289  2 82   *
290  2 83   *
291  2 84   *                   -SCAN-    THIS ROUTINE ANALYZES THE OPERAND
292  2 85   *                             FIELD OF THE ASSEMBLER LANGUAGE
293  2 86   *                             SOURCE STATEMENT.
294  2 87   *
295  2 88   *
296  2 89   *
297  2 90   *
298  2 91   SCAN   SBR   X1,0               ZERO INDEX REGISTERS X1,             7  1520  H 089 000           27
299  2 92          SBR   X3                                                     4  1527  H 099               27
300  2 93          SBR   X2                                                     4  1531  H 094               27
301  2 94          MLC   COLUM1,COLUM       PUT START OP. FIELDS TO              7  1535  M 51W 50|           27
302  2 95          MLC   @0@,COLUM-2        SCAN IND.                            7  1542  M 68W 49Y           27
303  2 96          MLC   COLUM,X1           PUT START OP. IN X1.                 7  1549  M 50| 089           27
304  2 97          ZA    &79,ACC            COMPUTE ENTRY TO SCAN AREA.          7  1556  ? 74/ 79W           28
305  2 98          S     COLUM,ACC                                              7  1563  S 50| 79W           28
306  2 99          A     ACC,X2                                                 7  1570  A 79W 094           28
307  3 00          MLC   X2,SAVX2#3                                             7  1577  M 094 74U           28
308  3 01          MLC   @ @,A&76           MOVE BLANKS TO SCAN AREA.            7  1584  M 70T 43W           28
309  3 02          MLC   A&76,A&75                                              7  1591  M 43W 43V           29
310  3 03          SW    CARD-1&X1          PUT MOVEMENT LIMIT.                  4  1598  , 5YY               29
311  3 04          MLC   CARD&79,A&1&X2     MOVE OPERANDS TO SCAN AREA.          7  1602  M 66Y 3O/           29
312  3 05          CW    CARD-1&X1          CLEAR MOVEMENT LIMIT.                4  1609  ) 5YY               29
313  3 06          SBR   X1,0               ZERO TO INDEX REGISTERS X1,          7  1613  H 089 000           29
314  3 07          B     SSUST                                                  4  1620  B H42               29
315  3 08          SBR   X2,0                                                   7  1624  H 094 000           30
316  3 09          SBR   X1                                                     4  1631  H 089               30
317  3 10          MLC   @0@,NUOP           ZERO TO NUMBER OF OPERANDS.          7  1635  M 68W 49|           30
318  3 11          MLC   AOFF,ASWPT&1                                           7  1642  M 50Y 44W           30
319  3 12          BCE   *&9,SWF1X2,Y       TEST IF OP.1 GOES TO FIELD1.         8  1649  B W65 47Y Y         30
320  3 13          BCE   *&8,SWF1X3,N       NO. TEST IF OP.3 GOES TO FIELD1.     8  1657  B W72 35X N         31
321  3 14          MLC   @Y@,SWPASS         YES. PRETEND OP.2 OR 3 BY OP.1.      7  1665  M 68V 44V           31
322  3 15   *
323  3 16   *     THE SUCCESSIVE OPERANDS WILL BE SCANNED
324  3 17   *     FROM LEFT TO RIGHT. THE ROUTINE IS
325  3 18   *     DIVIDED IN TWO MAIN TESTS AS FOLLOWS:
326  3 19   *
327  3 20   *         TEST1- IF FIRST CHARACTER IS SPECIAL.
328  3 21   *         TEST2- IF SPECIAL CHARACTER IS PRECEDED
329  3 22   *                BY SIMBOL.
330  3 23   *
331  3 24   *     THE DESISCIONS OF EACH TEST WILL BE IN ACCORD
332  3 25   *     WITH THE RULES IN FORMING RELATIVE, LOCATION
333  3 26   *     COUNTER, SIMPLE SYMBOL, INDEX FORMAT OR EXPR-
334  3 27   *     ESSIONS. HOWEVER, IN TABLE MODE, ONLY SIMPLE
335  3 28   *     SYMBOLS ARE FETCHED.
336  3 29   *
337  3 30   INIT   B     SHKEEP             TO HOUSE-KEEP SUBROUTINE.            4  1672  B F97               31
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SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

338  3 31          B     SCLAS              TO CLASSIFY CHARACTER.                      4  1676  B D65                 31
339  3 32          BCE   ALPHA,CH,A         TEST IF CHARACTER IS ALPHABETIC             8  1680  B X00 79/ A           31
340  3 33          BCE   NUMER,CH,N         TEST IF CHARACTER IS NUMERIC.               8  1688  B X91 79/ N           31
341  3 34          B     SPECL              NO. CHARACTER IS SPECIAL.                   4  1696  B Y27                 32
342  3 35   ALPHA  BCE   A1,SWFC,N          TEST IF FIRST CHARACTER.                    8  1700  B X16 43Z N           32
343  3 36          BCE   A0,SWD,Y           YES. TEST IF SELF-DEFINING VALUE            8  1708  B X53 44S Y           32
344  3 37   A1     MLC   @N@,SWNN1          NO. SET SWITCH FIRST NO NUMERIC.            7  1716  M 68U 43X             32
345  3 38          MLC   @N@,SWFC           OFF. PAST FIRST CHARACTER.                  7  1723  M 68U 43Z             32
346  3 39          B     SCH10              MOVE TO NEXT CHARACTER.                     4  1730  B C19                 32
347  3 391         BCE   *&8,SWCH10,Y       IF 10 CHARACTERS.                           8  1734  B X49 44/ Y           33
348  3 40          A     &1,X2              NO. INCREMENT X2 FOR MOVES.                 7  1742  A 74V 094             33
349  3 41          B     INIT&4             GO TO CLASSIFY NEXT CH.                     4  1749  B W76                 33
350  3 42   A0     B     SCH10                                                          4  1753  B C19                 33
351  3 43          B     SMARK                                                          4  1757  B G54                 33
352  3 44          MLC   @N@,SWD            OFF. SWITCH DISCRIMINATION.                 7  1761  M 68U 44S             33
353  3 45          B     SFLAG              FLAG OPERAND OTHERS.                        4  1768  B D35                 33
354  3 46          BCE   RM,SWTAB,N         TEST IF TABLE MODE.                         8  1772  B N18 44W N           34
355  3 47          MLC   @Y@,SWNN1                                                      7  1780  M 68V 43X             34
356  3 48          B     SYMTAB             YES. GO TO LOOK NEXT LABEL.                 4  1787  B A99                 34
357  3 49   NUMER  BCE   *&5,SWFC,Y         TEST IF FIRST CH. IS NUMERIC.               8  1791  B Y03 43Z Y           34
358  3 50          B     A1&14              NO. GO TO PAST FIRST CHARACTER.             4  1799  B X30                 34
359  3 51          BCE   LOOPT,SWTAB,Y      TEST IF TABLE MODE.                         8  1803  B B79 44W Y           34
360  3 52          B     SFLAG                                                          4  1811  B D35                 35
361  3 53          BCE   A1&7,AN,Y          NO. TEST IF ANALYSIS MODE.                  8  1815  B X23 67| Y           35
362  3 54          B     RM                 NO. GO TO MOVEMENTS.                        4  1823  B N18                 35
363  3 55   SPECL  BCE   TEST1,SWFC,Y       TEST IF FIRST CH. IS SPECIAL.               8  1827  B Y39 43Z Y           35
364  3 56          B     TEST2              NO. GO TO TEST FORMATION.                   4  1835  B !96                 35
365  3 57   TEST1  BCE   T00,A&X1,#                                                     8  1839  B Z11 3W| #           35
366  3 58          BCE   SMARK,A&X1,@                                                   8  1847  B G54 3W| @           36
367  3 59          BCE   SYMTAB,SWTAB,Y                                                 8  1855  B A99 44W Y           36
368  3 60          BCE   T01,A&X1,*         NO. TEST IF LOCATION COUNTER.               8  1863  B Z31 3W| *           36
369  3 61          B     SFLAG              NO. FLAG OP. OTHERS.                        4  1871  B D35                 36
370  3 62          BCE   T11,A&X1,          TEST IF BLANK TERMINATOR.                   8  1875  B !07 3W|             36
371  3 63          BCE   T11&8,A&X1,,                                                   8  1883  B !15 3W| ,           37
372  3 64          BCE   T21,A&X1,%                                                     8  1891  B !41 3W| %           37
373  3 65          BCE   T42,C00,0                                                      8  1899  B K77 48Z 0           37
374  3 66          B     RM                 NO. GO TO MOVEMENTS.                        4  1907  B N18                 37
375  3 67   T00    B     SFLAG                                                          4  1911  B D35                 37
376  3 68          B     SCH10                                                          4  1915  B C19                 37
377  3 69          BCE   LOOPT,SWTAB,Y                                                  8  1919  B B79 44W Y           38
378  3 70          B     RM                                                             4  1927  B N18                 38
379  3 71   T01    BCE   *&8,SWPASS,Y       TEST IF LOGIC OPERAND.                      8  1931  B Z46 44V Y           38
380  3 72          A     &1,X2              YES. INCREMENT X2 FOR MOVES.                7  1939  A 74V 094             38
381  3 73          MLC   X2,TX2                                                         7  1946  M 094 48/             38
382  3 74          MLC   ON,SWR                                                         7  1953  M 48U M18             39
383  3 75          B     SCH10              MOVE TO NEXT CHARACTER.                     4  1960  B C19                 39
384  3 76          B     SCLAS                                                          4  1964  B D65                 39
385  3 77          BCE   RELA,C00,0         TEST IF & OR - OPERATOR                     8  1968  B K88 48Z 0           39
386  3 78          BCE   T31,A&X1,,         NO. TEST IF BLANK TERMINATOR.               8  1976  B !70 3W| ,           39
387  3 79          BCE   T31,A&X1,          NO. TEST IF COMMA TERMINATOR.               8  1984  B !70 3W|             39
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SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

388  3 80          B     SFLAG              NO. FLAG OP. OTHERS.                        4  1992  B D35                40
389  3 81          MLC   @C@,COPL                                                       7  1996  M 74W 52Y            40
390  3 82          B     RM                 GO TO MOVEMENTS.                            4  2003  B N18                40
391  3 83   T11    BCE   T110,NUOP,0                                                    8  2007  B !26 49| 0          40
392  3 84          MLC   OFF,SWM            OFF, DO NOT MOVE OPERAND                    7  2015  M 48V O41            40
393  3 85          B     RM                 GO TO MOVEMENTS.                            4  2022  B N18                40
394  3 86   T110   MLC   @Y@,SWNOPS                                                     7  2026  M 68V 44U            41
395  3 87          B     RM                                                             4  2033  B N18                41
396  3 88          B     SCH10                                                          4  2037  B C19                41
397  3 89   T21    A     &1,LFTCT                                                       7  2041  A 74V 68/            41
398  3 90   TT     B     SCH10                                                          4  2048  B C19                41
399  3 92          MLC   @Y@,SWNN1                                                      7  2052  M 68V 43X            41
400  3 93          MLC   @Y@,SWFC                                                       7  2059  M 68V 43Z            42
401  3 94          B     INIT&4                                                         4  2066  B W76                42
402  3 95   T31    BCE   *&8,SWPASS,Y       TEST IF LOGIG OPERAND.                      8  2070  B !85 44V Y          42
403  3 96          MLC   @L@,FLAG           YES. FLAG LOCATION COUNTER.                 7  2078  M 74X 55/            42
404  3 97          MLC   @Y@,SWPASS         ON. PAST LOGIC OPERAND.                     7  2085  M 68V 44V            42
405  3 98          B     RM                 GO TO MOVEMENTS.                            4  2092  B N18                42
406  3 99   TEST2  BCE   T02,A&X1,@         TEST IF SELF-DEFING VALUE.                  8  2096  B J60 3W| @          43
407  4 00          BCE   SYMTAB,SWTAB,Y     NO. TEST IF TABLE MODE.                     8  2104  B A99 44W Y          43
408  4 01          BCE   T12,A&X1,          NO. TEST IF BLANK TERMINATOR.               8  2112  B J90 3W|            43
409  4 02          BCE   T12,A&X1,,         NO. TEST IF COMMA TERMINATOR.               8  2120  B J90 3W| ,          43
410  4 03          BCE   T22,C00,0          NO. TEST IF & OR - OPERATOR.                8  2128  B K16 48Z 0          44
411  4 04          B     SFLAG              NO. FLAG OPERAND OTHERS.                    4  2136  B D35                44
412  4 05          BCE   T32,A&X1,%         TEST IF RX FORMAT.                          8  2140  B K35 3W| %          44
413  4 06          BCE   T42,C00,1          TEST IF * OR / OPERATOR.                    8  2148  B K77 48Z 1          44
414  4 07          B     RM                 NO. GO TO MOVEMENTS.                        4  2156  B N18                44
415  4 08   T02    B     SFLAG                                                          4  2160  B D35                44
416  4 09          BCE   RM,SWTAB,N                                                     8  2164  B N18 44W N          45
417  4 10          MLC   @Y@,SWSUST                                                     7  2172  M 68V 44|            45
418  4 11          MLC   @Y@,SWNN1                                                      7  2179  M 68V 43X            45
419  4 12          B     SYMTAB             GO TO SCAN NEXT LABEL.                      4  2186  B A99                45
420  4 13   T12    BCE   *&8,SWPASS,Y       TEST IF LOGIC OPERAND.                      8  2190  B K05 44V Y          45
421  4 14          MLC   @S@,FLAG           YES. FLAG SIMPLE SYMBOL.                    7  2198  M 74Y 55/            46
422  4 15          MLC   @Y@,SWPASS         ON. PAST FLAG.                              7  2205  M 68V 44V            46
423  4 16          B     RM                 GO TO MOVEMENTS.                            4  2212  B N18                46
424  4 17   T22    BCE   *&8,SWPASS,Y       TEST IF LOGIC OPERAND.                      8  2216  B K31 44V Y          46
425  4 18          MLC   X2,TX2             YES. SAVE X2.                               7  2224  M 094 48/            46
426  4 19          B     RELA               GO TO SCAN RELATIVE OP.                     4  2231  B K88                46
427  4 20   T32    A     &1,LFTCT                                                       7  2235  A 74V 68/            47
428  4 21          B     SCH10                                                          4  2242  B C19                47
429  4 22          BCE   TT,SWRX,N                                                      8  2246  B !48 35Z N          47
430  4 23          BCE   *&8,A&X1,0         TEST IF INDEX.                              8  2254  B K69 3W| 0          47
431  4 24          MLC   @X@,INDX           YES. FLAG INDEX OP.                         7  2262  M 74Z 52X            47
432  4 25          B     SCH10              MOVE TO NEXT CHARACTER.                     4  2269  B C19                47
433  4 26          B     RM                 YES. GO TO MOVEMENTS.                       4  2273  B N18                48
434  4 27   T42    MLC   @C@,COPL           FLAG COMPLEX OP.                            7  2277  M 74W 52Y            48
435  4 28          B     RM                 GO TO MOVEMENTS.                            4  2284  B N18                48
436  4 29   *
437  4 30   *
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

438  4 31   *
439  4 32   RELA   B     SCH10             MOVE TO NEXT  CHARACTER.                  4  2288  B C19                 48
440  4 33          B     SCLAS             CLASSIFY CHARACTER.                       4  2292  B D65                 48
441  4 34          BCE   R03,CH,N          TEST IF CHARACTER NUMERIC.                8  2296  B L16 79/ N           48
442  4 35          B     R13,SWNN2,Y       NO. TEST IF ADJ. WAS NUMERIC.             8  2304  B L27 43Y Y           48
443  4 36          B     R23               NO. TO FURTHER TEST.                      4  2312  B L68                 49
444  4 37   R03    MLC   @N@,SWNN2         OFF. FORST CH. OF ADJ. IS NUMER.          7  2316  M 68U 43Y             49
445  4 38          B     RELA              CONTINUE SCAN OF NUMERICS.                4  2323  B K88                 49
446  4 39   R13    BCE   SFLAG             FLAG OTHERS IF OP.1.                      4  2327  B D35                 49
447  4 40          BCE   RC0,SWD,Y                                                   8  2331  B L50 44S Y           49
448  4 41          MLC   @C@,COPL          NO. FLAG OP. COMPLEX.                     7  2339  M 74W 52Y             49
449  4 42          B     RM                GO TO MOVEMENTS.                          4  2346  B N18                 49
450  4 43   RC0    MLC   @C@,COPL                                                    7  2350  M 74W 52Y             50
451  4 44          MLC   @R@,RELT                                                    7  2357  M 75| 52W             50
452  4 45          B     RM                                                          4  2364  B N18                 50
453  4 46   R23    BCE   R04,A&X1,,        TEST IF COMMA TERMINATOR.                 8  2368  B L88 3W| ,           50
454  4 47          BCE   R14,A&X1,         NO. TEST IF BLANK TERMINATOR.             8  2376  B M40 3W|             50
455  4 48          B     R44               NO. GO TO FURTHER TEST.                   4  2384  B M83                 50
456  4 49   R04    MLC   ON,SWOP           ON. THERE ARE MORE OPERANDS.              7  2388  M 48U ?93             51
457  4 50          BCE   R34,SWPASS,Y      TEST IF LOGIC OPERAND.                    8  2395  B M72 44V Y           51
458  4 51          BCE   *&8,BRANCH,N      TEST IF BRANCH INSTRUCTION.               8  2403  B M18 48W N           51
459  4 52          MLC   @Y@,SWAJ          YES. ON. SPLIT OPERAND.                   7  2411  M 68V 44T             51
460  4 53   SWR    B     R24               GO TO FLAG LOC. COUNTER,                  4  2418  B M51                 51
461  4 54          MLC   @R@,FLAG          OTHERWISE FLAG RELATIVE.                  7  2422  M 75| 55/             52
462  4 55          MLC   @Y@,SWPASS        AND MOVE ON TO FLAG IND.                  7  2429  M 68V 44V             52
463  4 56          B     R34               GO TO FLAG RELATIVE.                      4  2436  B M72                 52
464  4 57   R14    MLC   OFF,SWOP          END OP. INDICATOR.                        7  2440  M 48V ?93             52
465  4 58          B     R04&7             GO TO TEST OF LOGIC OP.                   4  2447  B L95                 52
466  4 59   R24    MLC   @L@,FLAG          FLAG LOCATION COUNTER.                    7  2451  M 74X 55/             52
467  4 60          MLC   @Y@,SWPASS        PAST FLAG INDICATOR.                      7  2458  M 68V 44V             53
468  4 61          MLC   OFF,SWR           OFF RELATIVE SWITCH.                      7  2465  M 48V M18             53
469  4 62   R34    MLC   @R@,RELT          FLAG OP. RELATIVE.                        7  2472  M 75| 52W             53
470  4 63          B     RM                GO TO MOVEMENTS.                          4  2479  B N18                 53
471  4 64   R44    B     SFLAG             FLAG OP. OTHERS.                          4  2483  B D35                 53
472  4 65          BCE   R54,C00,0         TEST IF & OR - OPERATOR.                  8  2487  B N07 48Z 0           53
473  4 66          BCE   R54,C00,1         TEST IF * OR / OPERATOR.                  8  2495  B N07 48Z 1           54
474  4 67          B     RM                NO. GO TO MOVEMENTS.                      4  2503  B N18                 54
475  4 68   R54    MLC   @C@,COPL          YES. FLAG OP. COMPLEX.                    7  2507  M 74W 52Y             54
476  4 69          B     RM                GO TO MOVEMENTS.                          4  2514  B N18                 54
477  4 70   *
478  4 71   *     MOVEMENTS-ROUTINE.  THIS ROUTINE MOVES THE FIRST THREE
479  4 72   *                          OPERANDS INTO THE DA RECORD. IF A
480  4 73   *                          BRANCH INSTRUCTIONS IS RELATIVE OR
481  4 74   *                          LOCATION COUNTER THE FIRST OPERAND
482  4 75   *                          IS SEPARATED IN LABEL AND ADJUSTMENT.
483  4 76   RM     BCE   MR,SWAJ,Y         TEST IF SPLIT OP.                         8  2518  B Q87 44T Y           54
484  4 77          C     LFTCT,@000@                                                 7  2526  C 68/ 75T             54
485  4 78          BU    TE2                                                         5  2533  B N46 /               55
486  4 79          BCE   E1,A&X1,,         NO. TEST IF COMMA TERMINATOR.             8  2538  B O27 3W| ,           55
487  4 80   TE2    BCE   E2,A&X1,          NO. TEST IF BLANK TERMINATOR.             8  2546  B P05 3W|             55
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

488  4 81          MLC   ON,SWM              NO. ON TO MOVEMENTS.                 7  2554  M 48U O41               55
489  4 82          BCE   SMARK,A&X1,@        TEST OF COGNOTATION MARK.            8  2561  B G54 3W| @             55
490  4 83          BCE   SPTH,A&X1,%         NO. TEST IF PARENTHESES.             8  2569  B O05 3W| %             56
491  4 84          BCE   SPTHR,A&X1,)                                             8  2577  B O16 3W| )             56
492  4 85   R10    B     SCH10               MOVE TO NEXT CHARACTER.              4  2585  B C19                   56
493  4 86          C     X1,@060@                                                 7  2589  C 089 75W               56
494  4 87          BE    E2                                                       5  2596  B P05 S                 56
495  4 88          B     RM&8                NO. GO TO TEST TERMINATOR.           4  2601  B N26                   56
496  4 89   SPTH   A     &1,LFTCT                                                 7  2605  A 74V 68/               57
497  4 90          B     R10                                                      4  2612  B N85                   57
498  4 91   SPTHR  MA    @I9I@,LFTCT                                              7  2616  # 75Z 68/               57
499  4 92          B     R10                                                      4  2623  B N85                   57
500  4 93   E1     MLC   ON,SWOP             THERE ARE MORE OPERANDS.             7  2627  M 48U ?93               57
501  4 94          A     &1,NUOP             INCREMENT COUNT OF OPERANDS.         7  2634  A 74V 49|               57
502  4 95   SWM    B     MOP                 GO TO MOVE OPERAND.                  4  2641  B O63                   58
503  4 96          MLC   @N@,SWF1X2          RESET MOVEM. OP.2. INTO FIELD 1.     7  2645  M 68U 47Y               58
504  4 97          MLC   @N@,SWF1X3          RESET MOVEM. OP.3. INTO FIELD 1.     7  2652  M 68U 35X               58
505  4 98          B     CLW                 GO TO END OF MOVEMENTS.              4  2659  B ?36                   58
506  4 99   MOP    MLC   OFF,SWM             OFF TO MOVEMENTS.                    7  2663  M 48V O41               58
507  5 00          BCE   *&8,SWCH10,Y        TEST IF MORE THAN 10 CH.             8  2670  B O85 44/ Y             58
508  5 01          MLC   NUCH,X3             NO. SET X3 FOR MOVES.                7  2678  M 49Y 099               59
509  5 02          BCE   M1,NUOP,1           YES, TEST IF OP.1.                   8  2685  B P38 49| 1             59
510  5 03          BCE   M2,NUOP,2           NO.TEST IF OP.2.                     8  2693  B Q01 49| 2             59
511  5 04          B     M3                  NO. GO TO MOVEMENT OP. IN F3.        4  2701  B Q57                   59
512  5 05   E2     MLC   OFF,SWOP            END OF OPERANDS.                     7  2705  M 48V ?93               59
513  5 06          BCE   *&8,SWNOPS,Y        TEST IF NO OPERANDS.                 8  2712  B P27 44U Y             60
514  5 07          A     &1,NUOP             INCREMENT COUNT OF OPERANDS.         7  2720  A 74V 49|               60
515  5 08          MLC   @N@,SWNOPS          OFF. THERE ARE OPERANDS.             7  2727  M 68U 44U               60
516  5 09          B     SWM                 GO TO DECIDE MOVEMENTS.              4  2734  B O41                   60
517  5 10   M1     BCE   M1X2,SWF1X2,Y       TEST IF OP1. GOES TO FIELD 2.        8  2738  B P72 47Y Y             60
518  5 11          BCE   M1X2&7,SWF1X3,Y     TEST IF OP1. GOES TO FIELD 2.        8  2746  B P79 35X Y             61
519  5 12   M1X3   SBR   MVMN10&6,F1-1&X3    NO. MODIFY MOVEMENTS IN              7  2754  H D05 5ES               61
520  5 13          SBR   MVMY10&6,F1-1&X3    MOVEMENTS SUBROUTINE BY FIELD 1.     7  2761  H D16 5ES               61
521  5 14          B     SM                  EXIT MOVEMENTS.                      4  2768  B P93                   61
522  5 15   M1X2   MLC   @N@,SWPASS          OFF. PRETEND IS SECOND OPERAND.      7  2772  M 68U 44V               61
523  5 16          SBR   MVMN10&6,F2-1&X3    MODIFY MOVEMENTS IN MOVEMENTS        7  2779  H D05 5FY               62
524  5 17          SBR   MVMY10&6,F2-1&X3    SUBROUTINE BY FIELD 2.               7  2786  H D16 5FY               62
525  5 18   SM     B     SMOVF               EXIT MOVEMENTS.                      4  2793  B C87                   62
526  5 19          B     CLW                 GO TO CLEAR WORK-MARK.               4  2797  B ?36                   62
527  5 20   M2     BCE   M2X3-7,SWF1X3,Y                                          8  2801  B Q32 35X Y             62
528  5 21          BCE   *&5,SWF1X2,Y        NO. TEST IF OP.2 GOES TO FIELD 1.    8  2809  B Q21 47Y Y             62
529  5 22          B     M1X2&7              NO. GO TO MODIFY MOVEMENTS BY F2.    4  2817  B P79                   63
530  5 23          MLC   @N@,SWF1X2          OFF. PRETEND OP.2 BY OP.1.           7  2821  M 68U 47Y               63
531  5 24          B     M1&16               GO TO MODIFY MOVEMENTS BY F1.        4  2828  B P54                   63
532  5 25          MLC   @N@,SWPASS          OFF. PRETEND IS OP.1.                7  2832  M 68U 44V               63
533  5 26   M2X3   SBR   MVMN10&6,F3-1&X3    MODIFY MOVEMENTS IN MOVEMENTS        7  2839  H D05 5GY               63
534  5 27          SBR   MVMY10&6,F3-1&X3    SUBROUTINE BY FIELD 3.               7  2846  H D16 5GY               63
535  5 28          B     SM                  GO TO CLEAR W-M.                     4  2853  B P93                   64
536  5 29   M3     MLC   OFF,SWOP            END OF OPERANDS.                     7  2857  M 48V ?93               64
537  5 30          BCE   *&5,SWF1X3,Y        TEST IF OP.3 GOES TO FIELD 1.        8  2864  B Q76 35X Y             64
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SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

538  5 31          B     M2X3               NO. GO TO MODIFY MOVEMENTS BY F3.      4  2872  B Q39               64
539  5 32          MLC   @N@,SWF1X3                                                7  2876  M 68U 35X           64
540  5 33          B     M1X3                                                      4  2883  B P54               64
541  5 34   *
542  5 35   *    SPLIT OPERAND ROUTINE INTO FIELD 1.
543  5 36   *
544  5 37   MR     MLC   @N@,SWAJ           OFF. TO SPLIT INDICATOR                7  2887  M 68U 44T           65
545  5 38          MLC   OFF,SWM            OFF. TO MOVEMENT FIELDS.               7  2894  M 48V O41           65
546  5 39          A     &1,NUOP            INCREMENT OP. COUNT.                   7  2901  A 74V 49|           65
547  5 40   TX2C   BCE   TX22,SWCH10,Y      TEST IF 10 CHARACTER LIMIT.            8  2908  B R65 44/ Y         65
548  5 41          BCE   STX,SWF1X2,Y       NO. TEST IF OP.2 GOES TO FIELD 1.      8  2916  B R83 47Y Y         65
549  5 42          BCE   STX,SWF1X3,Y       NO. TEST IF OP.3 GOES TO FIELD 1.      8  2924  B R83 35X Y         66
550  5 43          MLC   A-1&X2,F1-1&X2     NO. MOVE SYMBOL TO FIELD 1.            7  2932  M 3NZ 5NS           66
551  5 44   MSN    MLC   A&X2,SIGNF         MOVE OPERAND TO ITS FIELD.             7  2939  M 3O| 56T           66
552  5 45          SW    A&1&X2             SET W-M IN AJUSTMENT.                  4  2946  , 3O/               66
553  5 46          MLC   A-1&X1,NUMF        MOVE AJUSTMENT TO ITS FIELD.           7  2950  M 3VZ 56Y           66
554  5 47          CW    A&1&X2             CLEAR W-M IN AJUSTMENT.                4  2957  ) 3O/               66
555  5 48          B     CLW                GO TO CLEAR W-M IN OPERAND.            4  2961  B ?36               67
556  5 49   TX22   MLC   TX2,X2             MOVE TEMPORARU X2 INTO X2.             7  2965  M 48/ 094           67
557  5 50          MLC   @N@,SWCH10         RESET 10 CHARACTER INDICATOR.          7  2972  M 68U 44/           67
558  5 51          B     TX2C&8             GOT TO TEST IF OP.2 GOES TO F1.        4  2979  B R16               67
559  5 52   STX    MLC   X2,SX2X1           COMPUTE THE MOVE ADDRESS,              7  2983  M 094 49T           67
560  5 53          S     TX1,SX2X1          SUBTRACTINF THE DISPLACEMENT,          7  2990  S 49W 49T           67
561  5 54          MZ    @ @,SX2X1          OF X2 WHICH IS THE FIRST POSITION      7  2997  Y 70T 49T           68
562  5 55          MLC   SX2X1,X3           OF THE OPERAND 2 OR 3.                 7  3004  M 49T 099           68
563  5 56          MLC   A-1&X2,F1-1&X3     MOVE LABEL TO FIELD 1.                 7  3011  M 3NZ 5ES           68
564  5 57          MLC   @N@,SWF1X2         RESET MOVEMENT CHANGES IN OP.2         7  3018  M 68U 47Y           68
565  5 58          MLC   @N@,SWF1X3         OR OP.3.                               7  3025  M 68U 35X           68
566  5 59          B     MSN                GO TO MOVE OPERATOR AND ADJUST.        4  3032  B R39               68
567  5 60   CLW    B     SRCLW              CLEAR W-M.                             4  3036  B F66               69
568  5 61          BCE   SWOP&4,NUOP,3                                             8  3040  B ?97 49| 3         69
569  5 62          BCE   *&9,SWF1X2,Y                                              8  3048  B ?64 47Y Y         69
570  5 63          BCE   SWOP,SWF1X3,N      TEST IF 3&.3 GOES TO FIELD 1.          8  3056  B ?93 35X N         69
571  5 64          A     &1,X1              YES. MOVE TO NEXT OPERAND.             7  3064  A 74V 089           69
572  5 65          B     SRSETW             SET W-M IN START POSITION.             4  3071  B F78               69
573  5 66          MLC   X1,X2              EQUATE X1 AND X2.                      7  3075  M 089 094           70
574  5 67          MLC   X1,TX1             SAVE X1.                               7  3082  M 089 49W           70
575  5 68          B     INIT               GO TO INITIALIZE SCAN.                 4  3089  B W72               70
576  5 69   SWOP   B     RIN                ON. GO TO SCAN NEXT OPERAND.           4  3093  B A53               70
577  5 70          MLC   NUOP,NOPRD         OFF. SET NUMBER OF OPERANDS.           7  3097  M 49| 55S           70
578  5 71          MLC   @00@,NUOP          RESET NUM. OF  OPERANDS.               7  3104  M 69/ 49|           70
579  5 72          SBR   X1,0               RESET X1                               7  3111  H 089 000           71
580  5 73          SBR   X2                 X2 AND                                 4  3118  H 094               71
581  5 74          SBR   X3                 X3.                                    4  3122  H 099               71
582  5 75          BCE   CKOPT,TBLSW,N      TEST IF HANDLING SYMBOLS.              8  3126  B |35 086 N         71
583  5 76          MLC   @Y@,SWTAB          YES. SET SCAN IN TABLE MODE.           7  3134  M 68V 44W           71
584  5 77          BCE   LOOPT,SWDATA,Y                                            8  3141  B B79 35Y Y         71
585  5 78          B     INIT               GO TO INITIALIZE.                      4  3149  B W72               72
586  5 79   RIN    A     &1,X1              MOVE TO NEXT CHARACTER.                7  3153  A 74V 089           72
587  5 80          B     SRSETW             SET W-M IN FIRST CH. OF OP.            4  3160  B F78               72
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

588  5 81          MLC   @00@,NUCH           RESET NUMBER OF CHARACTERS.             7  3164  M 69/ 49Y           72
589  5 82          BCE   INIT,SWF1X2,Y       TEST IF OP.2 GOES TO FIELD 1.           8  3171  B W72 47Y Y         72
590  5 83          BCE   INIT,SWF1X3,Y       TEST IF OP.3 GOES TO FIELD 2.           8  3179  B W72 35X Y         72
591  5 84          BCE   INIT,AN,Y           TEST IF ANALYSIS.                       8  3187  B W72 67| Y         73
592  5 85          B     RM&8                NO. GO TO TEST OPERAND TERMINATOR       4  3195  B N26               73
593  5 86   *                                       THE SYMBOL TABLE ROUTINE
594  5 87   *     SYMBOL-TABLE                      FETCH THE SYMBOLS IN THE
595  5 88   *                                       OPERAND.
596  5 89   SYMTAB BCE   S00,SWSUST,Y        TEST IF IT WAS LABEL.                   8  3199  B B57 44| Y         73
597  5 90          BCE   SRMTAB,SWNN1,N      YES. MOVE SYMBOL TO TABLE.              8  3207  B F18 43X N         73
598  5 91          B     SRCLW               CLEAR W-M.                              4  3215  B F66               73
599  5 92          BCE   OUTTAB,A&X1,        TEST IF THERE ARE MORE LABELS.          8  3219  B C11 3W|           74
600  5 93          A     &1,X1               YES. MOVE TO NEXT LABEL.                7  3227  A 74V 089           74
601  5 94          BCE   OUTTAB,A&X1,                                                8  3234  B C11 3W|           74
602  5 95          MLC   @00@,NUCH           RESET NUMBER OF CHAR.                   7  3242  M 69/ 49Y           74
603  5 96          B     SRSETW              SET W-M AT FIRST CHAR. OF LABEL.        4  3249  B F78               74
604  5 97          B     INIT                GO TO INITIALIZE.                       4  3253  B W72               74
605  5 98   S00    S     NUCH,X2             DECREMENT X2.                           7  3257  S 49Y 094           75
606  5 99          MZ    NUCH,X2                                                     7  3264  Y 49Y 094           75
607  6 00          B     SMARK                                                       4  3271  B G54               75
608  6 01          B     SYMTAB&16           GO TO CLEAR W-M.                        4  3275  B B15               75
609  6 02   LOOPT  B     SCH10                                                       4  3279  B C19               75
610  6 03          B     SCLAS                                                       4  3283  B D65               75
611  6 04          BCE   *&5,CH,S                                                    8  3287  B B99 79/ S         75
612  6 05          B     LOOPT                                                       4  3295  B B79               76
613  6 06          BCE   SMARK,A&X1,@                                                8  3299  B G54 3W| @         76
614  6 07          B     SYMTAB&16                                                   4  3307  B B15               76
615  6 08   OUTTAB B     SRCLW               CLEAR W-M.                              4  3311  B F66               76
616  6 09          B     CKOPT                                                       4  3315  B |35               76
617  6 10   *                                       THIS SUBROUTINE INCREMENTS
618  6 11   *     LIMIT-10-CHARACTERS SUBROUTINE.  X1 TO MOVE AT NEXT CHAR. IN
619  6 12   *                                       ORDER TO SCAN THE OPERAND.
620  6 13   SCH10  SBR   OUTCH&3             IN.                                     4  3319  H C86               76
621  6 14          A     &1,NUCH             INCREMENT NO. OF CHAR.                  7  3323  A 74V 49Y           76
622  6 15          A     &1,X1               MOVE TO NEXT CHAR.                      7  3330  A 74V 089           77
623  6 16          C     TEN,NUCH            TEST IF ID CHARACTERS LIMIT.            7  3337  C 79T 49Y           77
624  6 17          BE    *&6                 YES.GO TO SET 10 CH.INDICATOR.          5  3344  B C54 S             77
625  6 18          BU    OUTCH               NO.RETURN.                              5  3349  B C83 /             77
626  6 19          MLC   @Y@,SWCH10          ON. THERE ARE 10 CHAR.                  7  3354  M 68V 44/           77
627  6 20          BCE   OUTCH,SWTAB,Y       TEST IF BUILDING TABLE.                 8  3361  B C83 44W Y         77
628  6 21          MLC   X1,X2               NO.  STORE TENTH POS IN X2.             7  3369  M 089 094           78
629  6 22          MLC   TEN,X3              SET TO MOVE 10 CHAR.                    7  3376  M 79T 099           78
630  6 23   OUTCH  B     0                   OUT.                                    4  3383  B 000               78
631  6 24   *                                     THE FIELD MOVED IN WILL BE
632  6 25   *     MOVEMENTS FIELD SUBROUTINE.      DEPEDING OF THE NUMBER OF
633  6 26   *                                      OPERANDS OR SWF1X2,SWF1X3.
634  6 27   SMOVF  SBR   OUTMOV&3            IN.                                     4  3387  H D34               78
635  6 28          BCE   *&12,SWCH10,Y       TEST IF MORE THAN 10 CHAR.              8  3391  B D10 44/ Y         78
636  6 29   MVMN10 MLC   A-1&X1,0            NO. MOVE OPERAND TO FIELD.              7  3399  M 3VZ 000           78
637  6 30          B     OUTMOV              RETURN.                                 4  3406  B D31               79
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

638  6 31  MVMY10 MLC   A-1&X2,0           MOVE OPERAND TO FIELD.                 7  3410  M 3NZ 000            79
639  6 32         MLC   @N@,SWCH10         OFF. RESET 10 CH. INDICATOR.           7  3417  M 68U 44/            79
640  6 33         MLC   @00@,NUCH          ZERO NO. OF CHARACTERS.                7  3424  M 69/ 49Y            79
641  6 34  OUTMOV B     0                  OUT.                                   4  3431  B 000                79
642  6 35  *                                      IF THE OP. IS NOT SIMPLE-
643  6 36  *     FLAG OTHERS SUBROUTINE.          SYMBOL,LOC.COUNTER OR RELA.
644  6 37  *                                      THE FLAG WILL BE OTHERS.
645  6 38  SFLAG  SBR   OUTFL&3            IN.                                    4  3435  H D64                79
646  6 39         BCE   OUTFL,SWPASS,Y     TEST IF PAST FLAG.                     8  3439  B D61 44V Y          80
647  6 40         MLC   @Y@,SWPASS         NO.PAST FLAG INDICATION.               7  3447  M 68V 44V            80
648  6 41         MLC   @O@,FLAG           FLAG OP. OTHERS.                       7  3454  M 76| 55/            80
649  6 42  OUTFL  B     0                  OUT.                                   4  3461  B 000                80
650  6 43  *                                      THIS SUBROUTINE CLASSIFY A
651  6 44  *     CLASSIFICATION SUBROUTINE.       SINGLE CH. IN SPECIAL,NUME-
652  6 45  *                                      RIC,ALPHABETIC OR OPERATOR.
653  6 46  SCLAS  SBR   OUTCL&3            IN.                                    4  3465  H F17                80
654  6 47         C     A&X1,INT           TEST FOR SPECIAL.                      7  3469  C 3W| 48T            80
655  6 48         BL    CZET               NO. TEST FURTHER.                      5  3476  B E53 T              81
656  6 49  SP     MLC   @S@,CH             YES. FLAG CH. SPECIAL.                 7  3481  M 74Y 79/            81
657  6 50         BCE   FC00,A&X1,&        TEST IF & OR -                         8  3488  B E31 3W| &          81
658  6 51         BCE   FC00,A&X1,-                                               8  3496  B E31 3W| -          81
659  6 52         BCE   FC11,A&X1,*        TEST IF * OR /                         8  3504  B E42 3W| *          81
660  6 53         BCE   FC11,A&X1,/        OPERATOR.                              8  3512  B E42 3W| /          82
661  6 54         MLC   @9@,C00            NO. OFF TO OPERATOR IND. & OR -.       7  3520  M 76/ 48Z            82
662  6 55         B     OUTCL              GO TO OUT.                             4  3527  B F14                82
663  6 56  FC00   MLC   @0@,C00            SET & OR - IND.                        7  3531  M 68W 48Z            82
664  6 57         B     OUTCL              GO TO OUT.                             4  3538  B F14                82
665  6 58  FC11   MLC   @1@,C00            SET * OR / IND.                        7  3542  M 70S 48Z            82
666  6 59         B     OUTCL              GO TO OUT.                             4  3549  B F14                83
667  6 60  CZET   C     A&X1,ZET           TEST FOR ALPHA.                        7  3553  C 3W| 48S            83
668  6 61         BL    MUM                TEST FOR NUMERIC.                      5  3560  B F07 T              83
669  6 62         C     A&X1,REC           NO. TEST IF SPECIAL BETWEEN ALPH.      7  3565  C 3W| 79X            83
670  6 63         BE    SP                 YES. GO TO SET CH. SPECIAL.            5  3572  B D81 S              83
671  6 64         MLC   @A@,CH             NO. SET ALPHA IN CH.                   7  3577  M 76S 79/            83
672  6 65         BCE   *&5,A&1&X1,@       TEST IF SELF-DEFINITION.               8  3584  B E96 3W/ @          84
673  6 66         B     OUTCL              NO. GO TO OUT.                         4  3592  B F14                84
674  6 67         MLC   @Y@,SWD            YES. PUT SELF-DEF. INDICATOR           7  3596  M 68V 44S            84
675  6 68         B     OUTCL              GO TO OUT.                             4  3603  B F14                84
676  6 69  MUM    MLC   @N@,CH             SET CH NUMERIC.                        7  3607  M 68U 79/            84
677  6 70  OUTCL  B     0                  OUT.                                   4  3614  B 000                84
678  6 71  *
679  6 72  *     MOVEMENT-TABLE SUBROUTINE.
680  6 73  *
681  6 74  SRMTAB SBR   OMTAB&3            IN.                                    4  3618  H F65                84
682  6 75         C     @060@,X1                                                  7  3622  C 75W 089            85
683  6 76         BE    OUTTAB                                                    5  3629  B C11 S              85
684  6 77         MLC   A-1&X1,TABLE-1&X2  MOVE LABEL TO LABEL TABLE.             7  3634  M 3VZ 4MW            85
685  6 78         MLC   @|@,TABLE&X2       MOVE SEPARATOR BETWEEN LABELS.         7  3641  M 76T 4MX            85
686  6 79         A     &1,COUNT           INCREMENT LABEL COUNT.                 7  3648  A 74V 48Y            85
687  6 80         A     &1,X2              INCREMENT POSITION IN TABLE.           7  3655  A 74V 094            86
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

688  6 81   OMTAB  B     0                 OUT.                                 4  3662  B 000                86
689  6 82   *
690  6 83   *     CLEAR W-M SUBROUTINE.
691  6 84   *
692  6 85   SRCLW  SBR   OCLW&3            IN.                                  4  3666  H F77                86
693  6 86          CW    A&42              CLEAR W-M IN START POSITION.         4  3670  ) 40S                86
694  6 87   OCLW   B     0                 OUT.                                 4  3674  B 000                86
695  6 88   *
696  6 89   *     SET  W-M SUBROUTINE.
697  6 90   *
698  6 91   SRSETW SBR   OSETW&3           IN.                                  4  3678  H F96                86
699  6 92          SW    A&X1              SET W-M. IN  START POSITION.         4  3682  , 3W|                86
700  6 93          SBR   SRCLW&7,A&X1      STORE ADD. IN CLEAR W-M.             7  3686  H F73 3W|            87
701  6 94   OSETW  B     0                 OUT.                                 4  3693  B 000                87
702  6 95   *
703  6 96   *     HOUSE KEEPING SUBROUTINE.
704  6 97   *
705  6 98   SHKEEP SBR   OHK&3                                                  4  3697  H G53                87
706  6 99          MLC   AON,ASWON&2                                            7  3701  M 50T 43Z            87
707  7 00          MLC   AOFF,ASWOFF&4                                          7  3708  M 50Y 44U            87
708  7 01          MLC   OFF,SWOP                                               7  3715  M 48V ?93            87
709  7 02          MLC   ON,SWM                                                 7  3722  M 48U O41            88
710  7 03          MLC   OFF,SWR                                                7  3729  M 48V M18            88
711  7 04          MLC   @00@,NUCH                                              7  3736  M 69/ 49Y            88
712  7 05          MLC   @000@,LFTCT                                            7  3743  M 75T 68/            88
713  7 06   OHK    B     0                                                      4  3750  B 000                88
714  7 07   *
715  7 08   *     QUOTATION MARK SUBROUTINE
716  7 09   *
717  7 10   SMARK  SBR   OMARK&3                                                4  3754  H H41                88
718  7 11          SW    A-1&X1                                                 4  3758  , 3VZ                89
719  7 12          MLC   A-1&X1,ATT&7                                           7  3762  M 3VZ G92            89
720  7 13          C     X1,@001@                                               7  3769  C 089 76W            89
721  7 14          BE    *&5                                                    5  3776  B G85 S              89
722  7 15          CW    A-1&X1                                                 4  3781  ) 3VZ                89
723  7 16   ATT    BCE   OMARK,FLD,*                                            8  3785  B H38 67T *          89
724  7 17          BCE                                                          1  3793  B                    89
725  7 18          BCE                                                          1  3794  B                    90
726  7 19          BCE                                                          1  3795  B                    90
727  7 20          BCE                                                          1  3796  B                    90
728  7 21          BCE                                                          1  3797  B                    90
729  7 22   LOOP   B     SCH10                                                  4  3798  B C19                90
730  7 23          C     X1,@060@                                               7  3802  C 089 75W            90
731  7 24          BE    OMARK                                                  5  3809  B H38 S              90
732  7 25          BCE   *&5,A&X1,@                                             8  3814  B H26 3W| @          91
733  7 26          B     LOOP                                                   4  3822  B G98                91
734  7 27          B     SCH10                                                  4  3826  B C19                91
735  7 28          BCE   LOOP,A&X1,@                                            8  3830  B G98 3W| @          91
736  7 29   OMARK  B     0                                                      4  3838  B 000                91
737  7 30   *
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

738  7 31   *
739  7 32   *
740  7 33   SSUST  SBR   OSUST&3            IN.                                          4  3842  H I70                91
741  7 34          BCE   CC00,A&X1,[        TEST RIGHT PARENTHESES.                      8  3846  B H90 3W| [          92
742  7 35          BCE   CC01,A&X1,<        TEST & OPERATOR.                             8  3854  B I01 3W| <          92
743  7 36          BCE   CC02,A&X1,]        TEST LEFT PARENTHESES.                       8  3862  B I12 3W| ]          92
744  7 37          BCE   CC03,A&X1,:        TEST QUOTE.                                  8  3870  B I23 3W| :          92
745  7 38          BCE   CC04,A&X1,>        TEST IF EQUAL CHARACTER.                     8  3878  B I34 3W| >          93
746  7 39          B     AX1                                                         4  3886  B I41                93
747  7 40   CC00   MLC   @%@,A&X1           CHANGE CHARACTER TO 1401.                    7  3890  M 76X 3W|            93
748  7 41          B     AX1                                                         4  3897  B I41                93
749  7 42   CC01   MLC   @&@,A&X1           CHANGE CHARACTER TO 1401.                    7  3901  M 76Y 3W|            93
750  7 43          B     AX1                                                         4  3908  B I41                93
751  7 44   CC02   MLC   @)@,A&X1           CHANGE CHARACTER TO 1401.                    7  3912  M 76Z 3W|            94
752  7 45          B     AX1                                                         4  3919  B I41                94
753  7 46   CC03   MLC   @@@,A&X1           CHANGE CHARACTER TO 1401.                    7  3923  M 77| 3W|            94
754  7 47          B     AX1                                                         4  3930  B I41                94
755  7 48   CC04   MLC   @#@,A&X1           CHANGE CHARACTER TO 1401.                    7  3934  M 77/ 3W|            94
756  7 49   AX1    A     &1,X1                                                       7  3941  A 74V 089            94
757  7 50          C     X1,X2              TEST IF LIMIT OF OPERANDS.                   7  3948  C 089 094            95
758  7 51          BH    SSUST&4            NO. CONTINUE TEST.                           5  3955  B H46 U              95
759  7 52          MLC   A&1&X2,CARD&79     YES. CHANGE CARD IMAGE.                      7  3960  M 3O/ 66Y            95
760  7 53   OSUST  B     0                  OUT.                                         4  3967  B 000                95
761  7 54   LABL   BCE   CKOPT,LABEL,   RETURN IF LABEL IS BLANK                         8  3971  B |35 53/            95
762  7 55          MLC   LABEL&9,SORT&9                                                  7  3979  M 54| 52T            95
763  7 56          B     CKOPT                                                       4  3986  B |35                96
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SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD

764  7 57          JOB   PHASE I, PASS 3 OF ANALYSIS       PLIST  ROUTINE
765  7 58   *
766  7 59   *
767  7 60   *                  -PLIST-   THIS ROUTINE PRINTS THE
768  7 61   *                            FLAGGED LISTING.
769  7 62   *
770  7 63   *
771  7 64   PLIST  BWZ   FIRST,FSW#1,1           BRANCH FIRST TIME TO INIT.       8  3990  V 17S 77S 1          97
772  7 65   HEADR  BWZ   HEAD,84,1               BRANCH IF NEW PAGE               8  3998  V 18U 084 1          97
773  7 66   MCARD  MLCWA CARD&79,301                                              7  4006  L 66Y 301            97
774  7 67          MLCWA INSEQ,215                                                7  4013  L 51T 215            97
775  7 68          CW    CARD&5                                                   4  4020  ) 59U                97
776  7 69          BCE   WRITE,ANCODE,T          BRANCH IF TANSPARENT             8  4024  B 15X 54X T          98
777  7 70   *
778  7 71   *                            PRINT FROM SCAN AND PASS 1
779  7 72   *
780  7 73          SW    FLAGSA&4                IN ORDER TO LOAD                 4  4032  , 53|                98
781  7 74          SW                                                             1  4036  ,                    98
782  7 75          SW                                                             1  4037  ,                    98
783  7 76          SW                                                             1  4038  ,                    98
784  7 77          SBR   X1,0                                                     7  4039  H 089 000            98
785  7 78          SBR   X2                                                       4  4046  H 094                98
786  7 79   TSTLIM BCE   ONWARD,X1,5             TEST IF HAVE CHECKED FOR         8  4050  B 11T 089 5          99
787  7 80   *                                      ALL FLAGS
788  7 81          BCE   A1TOX1,FLAGSA&X1,       TEST IF THERE IS FLAG            8  4058  B 10S 5SW            99
789  7 82          BCE   MFLAG,X2,0              IF X2 IS ZERO PRINT NO COMMA     8  4066  B 08Y 094 0          99
790  7 83          MLCWA @,@,203&X2                                               7  4074  L 77T 2!3            99
791  7 84          A     @1@,X2                  X2 POINTS WHERE NEXT TO LOAD     7  4081  A 70S 094            99
792  7 85   MFLAG  MLCWA FLAGSA&X1,203&X2                                         7  4088  L 5SW 2!3           100
793  7 86          A     @1@,X2                                                   7  4095  A 70S 094           100
794  7 87   A1TOX1 A     @1@,X1                                                   7  4102  A 70S 089           100
795  7 88          B     TSTLIM                                                   4  4109  B 05|               100
796  7 89   *
797  7 90   *                            PRINT FLAG FROM ANCODE
798  7 91   *
799  7 92   ONWARD MN    ANCODE,X1                                                7  4113  D 54X 089           100
800  7 93          BCE   WRITE,FLGTBL&X1,                                         8  4120  B 15X 7ZY           101
801  7 94          BCE   MOVFLG,X2,0             TEST IF PRINT COMMA              8  4128  B 15| 094 0         101
802  7 95          MLCWA @,@,203&X2                                               7  4136  L 77T 2!3           101
803  7 96          A     @1@,X2                                                   7  4143  A 70S 094           101
804  7 97   MOVFLG MLCWA FLGTBL&X1,203&X2                                         7  4150  L 7ZY 2!3           101
805  7 98   WRITE  B     PRINT                                                    4  4157  B 747               102
806  7 99          CW    FLAGSA&4                                                 4  4161  ) 53|               102
807  8 00          CW                                                             1  4165  )                   102
808  8 01          CW                                                             1  4166  )                   102
809  8 02          CW                                                             1  4167  )                   102
810  8 03          B     NOPT                    RETURN                           4  4168  B |69               102
811  8 04   *
812  8 05   *                            INITIALYZE PUNCH AREA
813  8 06   *
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

814  8 07   FIRST  CW    FSW                                                   4  4172  ) 77S               102
815  8 08          B     EJECT                                                 4  4176  B 704               103
816  8 09          B     PLIST&8                                               4  4180  B I98               103
817  8 10   *
818  8 11   *                             WRITE HEADER
819  8 12   *
820  8 13   HEAD   B     PRINT                       TO SPACE                  4  4184  B 747               103
821  8 14          MLCWA @FLAGGED LISTING@,272                                 7  4188  L 78Y 272           103
822  8 15          B     PRINT                                                 4  4195  B 747               103
823  8 16          B     PRINT                       TO SPACE                  4  4199  B 747               103
824  8 17          B     HEADR&8                                               4  4203  B 00W               103
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SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

825  8 18          JOB   PHASE I, PASS 3 OF ANALYSIS       FETCH  ROUTINE
826  8 19   *
827  8 20   *
828  8 21   *                  -FETCH-   THIS ROUTINE MOVES A SYMBOL FROM
829  8 22   *                            THE SYMBOL TABLE TO SORT.  THE
830  8 23   *                            SYMBOLS ARE SEPERATED BY RECORD
831  8 24   *                            MARKS.
832  8 25   *
833  8 26   *
834  8 27   FETCH  MRCM  TABLE,SORT              THE A OPERAND IS MODIFIED          7  4207  P 44X 51U           104
835  8 28          SAR   FETCH&3                 TO PICK UP THE NEXT SYMBOL.        4  4214  Q 21|               104
836  8 29   *
837  8 30   *                            REMOVE THE RECORD MARK IN SORT
838  8 31   *
839  8 32          SBR   X1,0                                                       7  4218  H 089 000           104
840  8 33   SCH    A     @1@,X1                                                     7  4225  A 70S 089           104
841  8 34          BCE   CLR,SORT&X1,|                                              8  4232  B 24U 5/U |         104
842  8 35          B     SCH                                                        4  4240  B 22V               104
843  8 36   CLR    MLC   @ @,SORT&X1                                                7  4244  M 70T 5/U           105
844  8 37          B     F&4                                                        4  4251  B S05               105
845         *  -SFILL- THIS SUBROUTINE REPLACES EMBEDDED BLANKS
846         *          IN THE SORT FIELD WITH THE SPECIAL CHARACTER COLON.
847         *
848         *
849         SFILL  SBR   OFILL&3                                                    4  4255  H 32X               105
850                SBR   X3,10                                                      7  4259  H 099 010           105
851         TBLNK  BCE   TSWPAD,SORT-1&X3,                                          8  4266  B 28S 5AT           105
852                SW    SWFILL                                                     4  4274  , 67/               105
853                B     DECRX3                                                     4  4278  B 30/               105
854         TSWPAD BWZ   *&5,SWFILL,1                                               8  4282  V 29U 67/ 1         106
855                B     *&8                                                        4  4290  B 30/               106
856                MLC   @:@,SORT-1&X3                                              7  4294  M 78Z 5AT           106
857         DECRX3 MA    @I9I@,X3                                                   7  4301  # 75Z 099           106
858                BCE   CSWFIL,X3,0                                                8  4308  B 32| 099 0         106
859                B     TBLNK                                                      4  4316  B 26W               106
860         CSWFIL CW    SWFILL                                                     4  4320  ) 67/               107
861         OFILL  B     0                                                          4  4324  B 000               107
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

862  8 38          JOB   PHASE I, PASS 3 OF ANALYSIS       -SUBROUTINES-
863  8 39   *
864  8 40   *
865  8 41   *                   -WTAPE-   THIS SUBROUTINE WRITES A RECORD
866  8 42   *                             FROM DAREC ONTO UNIT 2
867  8 43   *
868  8 44   *
869  8 45   WTAPE  SBR   R&3                                                  4  4328  H 35W              108
870  8 46          MLC   @D@,RX                                               7  4332  M 79| 52V          108
871  8 47          B     SYSIO                                                4  4339  B 500              108
872  8 48          DCW   &IOCON2                                              3  4345  200                108
873  8 49          ORG   *-2                                                          4344
874  8 50          DC    &DAREC                                               3  4346  50Z                109
875  8 51          DC    @W@                                                  1  4347                     109
876  8 52          BEF   OVFLW                  BRANCH IF EXCEED REEL         5  4348  B U88 K            109
877  8 53   R      B     0                                                    4  4353  B 000              109
878  8 54   SWF1X3 DCW   #1                                                   1  4357                     109
879  8 55   SWDATA DCW   #1                                                   1  4358                     109
880  8 56   SWRX   DCW   #1                                                   1  4359                     110
881  8 57   *
882  8 58   *     DECLARATIVE INSTRUCTIONS.
883  8 59   *
884  8 60   A      DA    1X77                                                    4360   4436              110
885  8 61   ASWON  DA    1X3                                                     4437   4439              110
886  8 62   SWNN1        1                                                       4437          SBFLD
887  8 63   SWNN2        2                                                       4438          SBFLD
888  8 64   SWFC         3                                                       4439          SBFLD
889  8 65   ASWOFF DA    1X5                                                     4440   4444              110
890  8 66   SWSUST       1                                                       4440          SBFLD
891  8 67   SWCH10       2                                                       4441          SBFLD
892  8 68   SWD          3                                                       4442          SBFLD
893  8 69   SWAJ         4                                                       4443          SBFLD
894  8 70   SWNOPS       5                                                       4444          SBFLD
895  8 71   ASWPT  DA    1X2                                                     4445   4446              110
896  8 72   SWPASS       1                                                       4445          SBFLD
897  8 73   SWTAB        2                                                       4446          SBFLD
898  8 74   TABLE  DA    1X30,|                                                  4447   4477              110
                   DC    @|@                                                  1  4477          RMARK  111
899  8 75   SWF1X2 DCW   #1                                                   1  4478                     111
900  8 76   TX2    DCW   #3                                                   3  4481                     111
901  8 77   ZET    DCW   @Z@                                                  1  4482                     111
902  8 78   INT    DCW   @?@                                                  1  4483                     111
903  8 79   ON     DCW   @B@                                                  1  4484                     112
904  8 80   OFF    DCW   @N@                                                  1  4485                     112
905  8 81   BRANCH DCW   #1                                                   1  4486                     112
906  8 82   COUNT  DCW   @00@                                                 2  4488                     112
907  8 83   C00    DCW   #1                                                   1  4489                     112
908  8 84   NUOP   DCW   #1                                                   1  4490                     112
909  8 85   SX2X1  DCW   #3                                                   3  4493                     112
910  8 86   TX1    DCW   #3                                                   3  4496                     113
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SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX CT	LOCN	INSTRUCTION	TYPE	CARD
911	8	87	NUCH	DCW	#2	2	4498			113
912	8	88	COLUM	DCW	#2	2	4500			113
913	8	89	AON	DCW	@YYY@	3	4503			113
914	8	90	AOFF	DCW	@NNNNN@	5	4508			113
915	8	91	DAREC	DA	1X160		4509	4668		113
916	8	92	INSEQ		1,5		4513		FIELD	113
917	8	93	SORT		6,6		4514		FIELD	114
918	8	94	SORTCD		16,16		4524		FIELD	114
919	8	95	RX		17,17		4525		FIELD	114
920	8	96	EXSEQ		18,22		4530		FIELD	114
921	8	97	LABEL		23,23		4531		FIELD	114
922	8	98	ANCODE		39,39		4547		FIELD	114
923	8	99	FLAG		43,43		4551		FIELD	115
924	9	00	NOPRD		44,44		4552		FIELD	115
925	9	01	FIELD1		45,45		4553		FIELD	115
926	9	02	SIGNF		55,55		4563		FIELD	115
927	9	03	NUMF		56,60		4568		FIELD	115
928	9	04	F2		61,61		4569		FIELD	115
929	9	05	F3		71,71		4579		FIELD	116
930	9	06	CARD		81,81		4589		FIELD	116
931	9	07	GRPMRK	DC	@}@	1	4669			117
932	9	08	AN	DCW	#1	1	4670			117
933			SWFILL	DC	#1	1	4671			117
934	9	09	TESTAN	DCW	#1	1	4672			117
935	9	10	FLD	DCW	@L@	1	4673			117
936	9	11		DCW	@T@	1	4674			117
937	9	12		DCW	@I@	1	4675			118
938	9	13		DCW	@S@	1	4676			118
939	9	14		DCW	@K@	1	4677			118
940	9	15		DCW	@N@	1	4678			118
941	9	16	LFTCT	DCW	#3	3	4681			118
942	9	17	MACR	DCW	#1	1	4682			118
943	9	18		LTORG	*&1			4684		
				DCW	@N@	1	4684		LIT	119
					@Y@	1	4685		LIT	119
					@0@	1	4686		LIT	119
					@ @	3	4689		LIT	119
					@00@	2	4691		LIT	119
		233			@ @	10	4701		LIT	119
					@1@	1	4702		LIT	119
					@ @	1	4703		LIT	120
		254			@$CHART@	6	4709		LIT	120
		256			@$VERIFY@	7	4716		LIT	120
		258			@$SYSTEM@	7	4723		LIT	120
		260			@$DAEND@	6	4729		LIT	120
					@2@	1	4730		LIT	120
					@16@	2	4732		LIT	120
					@11@	2	4734		LIT	121
		274			@3ANLC@	5	4739		LIT	121
					&79	2	4741		LIT	121

```
SEQ PG LIN  LABEL  OP     OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

       307  SAVX2         #03                                                          3  4744              AREA   121
                          &1                                                           1  4745              LIT    121
                          @C@                                                          1  4746              LIT    121
                          @L@                                                          1  4747              LIT    121
                          @S@                                                          1  4748              LIT    122
                          @X@                                                          1  4749              LIT    122
                          @R@                                                          1  4750              LIT    122
                          @000@                                                        3  4753              LIT    122
                          @060@                                                        3  4756              LIT    122
                          @I9I@                                                        3  4759              LIT    122
                          @O@                                                          1  4760              LIT    122
                          @9@                                                          1  4761              LIT    123
                          @A@                                                          1  4762              LIT    123
                          @|@                                                          1  4763              LIT    123
                          @001@                                                        3  4766              LIT    123
                          @%@                                                          1  4767              LIT    123
                          @&@                                                          1  4768              LIT    123
                          @)@                                                          1  4769              LIT    123
                          @@@                                                          1  4770              LIT    124
                          @#@                                                          1  4771              LIT    124
       771  FSW           #01                                                          1  4772              AREA   124
                          @,@                                                          1  4773              LIT    124
       821                @FLAGGED LISTING@                                           15  4788              LIT    124
                          @:@                                                          1  4789              LIT    124
                          @D@                                                          1  4790              LIT    124
944  9 19   CH     DCW    #1                                                           1  4791                     125
945  9 20   TEN    DCW    @10@                                                         2  4793                     125
946  9 21   ACC    DCW    #3                                                           3  4796                     125
947  9 22   REC    DCW    @|@                                                          1  4797                     125
948  9 23   FLGTBL DCW    @ @                                                          1  4798                     125
949  9 24          DCW    @M@                                                          1  4799                     125
950  9 25          DCW    @O@                                                          1  4800                     125
951  9 26          DCW    @D@                                                          1  4801                     126
952  9 27          DCW    @B@                                                          1  4802                     126
953  9 28          DCW    @H@                                                          1  4803                     126
954  9 29          DCW    @A@                                                          1  4804                     126
955  9 30          DCW    @ @                                                          1  4805                     126
956  9 31          DCW    @ @                                                          1  4806                     126
957  9 32          DCW    @B@                                                          1  4807                     126
958  9 33   OVFMES DCW    @TAPE 2 TOO SHORT.  MOUNT NEW TAPE AND PRESS START.@        50  4857                     128
959  9 34   HIGH   EQU    *&1                                                             4858
960  9 35          END    S                                                                     / 800 080          129
                          @D@                                                          1  4790              LIT    124               *****
944  9 19   CH     DCW    #1                                                           1  4791                     125
945  9 20   TEN    DCW    @10@                                                         2  4793                     125
```

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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                         1             3ANAU
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?      2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040      3

                          PHASE I PASS 2 OF ANALYSIS    PRINT COUNT REPORT          3ANAU             PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    010  000    JOB   PHASE I PASS 2 OF ANALYSIS    PRINT COUNT REPORT
 102    020         CTL   440  1
 103    030         DC    @$ADD     @                                                 9  0341                      4
 104    040         DC    &SYSOR                                                      3  0344  800                 4
 105    050         DC    &START                                                      3  0347  800                 4
 106    060         DC    &HIGH                                                       3  0350  I79                 4
 107    070         ORG   SYSOR                                                             0800
 108    080  SYSOR  EQU   800                                                            0800
 109    090  X1     EQU   089                                                            0089
 110    100  X2     EQU   094                                                            0094
 111    110  X3     EQU   099                                                            0099
 112    120  POS84  EQU   84      PAGE OVERFLOW POSITION                                 0084
 113    130  MACH   EQU   82      MACHINE                                                0082
 114    140  LENGTH EQU   3999    LENGTH OF A DICTIONARY ENTRY                           3999
 115    150  T1     EQU   4000    1ST POSITION OF OPCODE DICTIONARY                      4000
 116    160  DICOP  EQU   4004    1ST OPCODE DICTIONARY ENTRY                            4004
 117    170  ANACOD EQU   4005    1ST ANALYSIS CODE IN DICTIONARY                        4005
 118    180  EJECT  EQU   704                                                            0704
 119    190  PRINT  EQU   747                                                            0747
 120    200  SYSLNK EQU   400                                                            0400
 121    210  SYSIO  EQU   500                                                            0500
 122    220  IOCON4 EQU   400                                                            0400
 123    230  *
 124    240  *              INITIALZE
 125    250  *
 126    260  START  SW    GRP1                                                        4  0800  , G33               5
 127    270         SW    87,92                                                       7  0804  , 087 092           5
 128    280         SBR   X1,0                                                        7  0811  H 089 000           5
 129    290  *
 130    300  *              READ FROM TAPE UNIT 4 INTO RECORD
 131    310  *
 132    320         B     SYSIO                                                       4  0818  B 500               5
 133    330         DCW   &IOCON4                                                     3  0824  400                 5
 134    340         ORG   *-2                                                               0823
 135    350         DC    &RECORD                                                     3  0825  E73                 6
 136    360         DC    @R@                                                         1  0826                      6
 137    370         BEF   PRNT                                                        5  0827  B 905 K             6
 138    380  *
 139    390  *              TEST FOR BLANK OR ZERO LOCATION
 140    400  *
 141    410         C     LOC,@000@                                                   7  0832  C F14 H91           6
 142    420         BE    START                                                       5  0839  B 800 S             6
 143    430         BCE   START,LOC,                                                  8  0844  B 800 F14           6
 144    440         MA    LOC,X1   MULTIPLY DICOP DISPLACEMENT BY 3                   7  0852  # F14 089           7
 145    450         MA    LOC,X1                                                      7  0859  # F14 089           7
 146    460         MA    LOC,X1                                                      7  0866  # F14 089           7
 147    470  *
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

148    480  *              ADD 1 TO TALLY EACH TIME TABLE LOCATION IS MATCHED
149    490  *
150    500         MLC   TALLY&X1,WORK                                           7  0873  M XS2 G41            7
151    510         A     @1@,WORK                                                7  0880  A H92 G41            7
152    520         A     @1@,TOT    COUNT TOTAL NUMBER OP CODES                  7  0887  A H92 G38            8
153    530         MLC   WORK,TALLY&X1                                           7  0894  M G41 XS2            8
154    540         B     START                                                   4  0901  B 800                8
155    550  *
156    560  *               INITIALIZE FOR PRINTING
157    570  *
158    580  PRNT   B     PRINT                                                   4  0905  B 747                8
159    590         B     HDR    BR TO PRINT HEADINGS                             4  0909  B T30                8
160    600         RWD   4                                                       5  0913  U %U4 R              8
161    610         SBR   X2,0                                                    7  0918  H 094 000            8
162    620         SBR   X3,3                                                    7  0925  H 099 003            9
163    630  *
164    640  *               ADJUST FOR 7090/7040
165    650  *
166    660         C     MACH,@8@  MACH-8 IS 7040 , MACH-9 IS 7090               7  0932  C 082 H93            9
167    670         BH    HERE                                                    5  0939  B 951 U              9
168    680         MA    @001@,ADJUS2&3                                          7  0944  # H96 995            9
169    690  *
170    700  *                   MOVE DATA TO PRINT
171    710  *
172    720  HERE   BCE   ALLD,T1&4&X2,9   TEST FOR END OF OPCODE TABLE           8  0951  B /45 0!U 9          9
173    730         BCE   NONE2,TALLY&X3,    BLANK TALLY - DONT PRINT             8  0959  B /27 XB2           10
174    740         SW    224,237                                                 7  0967  , 224 237           10
175    750         SW    TALLY-2&X3                                              4  0974  , XB0               10
176    760         MCS   TALLY&X3,239                                            7  0978  Z XB2 239           10
177    770         MLC   DICOP&X2,228                                            7  0985  M 0!U 228           10
178    780  ADJUS2 MN    ANACOD&X2,TEST                                          7  0992  D 0!V H84           11
179    790  *
180    800  *                   CACULATE TOTAL BY TYPES
181    810  *
182    820         SBR   X1,0                                                    7  0999  H 089 000           11
183    830         BCE   MOVE,TEST,1   NUMERIC 1 IS MACRO CODE                   8  1006  B /04 H84 1         11
184    840         SBR   X1,19   LABEL WORK IS 19 LONG - BUMP X1 BY 19           7  1014  H 089 019           11
185    850         BCE   MOVE,TEST,2   NUMERIC 2 IS INPUT-OUTPUT CODE            8  1021  B /04 H84 2         11
186    860         SBR   X1,38                                                   7  1029  H 089 038           12
187    870         BCE   MOVE,TEST,3   NUMERIC 3 IS DATA DEFINING CODE           8  1036  B /04 H84 3         12
188    880         SBR   X1,57                                                   7  1044  H 089 057           12
189    890         BCE   MOVE,TEST,4   NUMERIC 4 OR 9 IS BRANCH CODE             8  1051  B /04 H84 4         12
190    900         BCE   MOVE,TEST,9                                             8  1059  B /04 H84 9         12
191    910         SBR   X1,76                                                   7  1067  H 089 076           13
192    920         BCE   MOVE,TEST,5   NUMERIC 5 IS HALT CODE                    8  1074  B /04 H84 5         13
193    930         SBR   X1,95                                                   7  1082  H 089 095           13
194    940         BCE   MOVE,TEST,6   NUMERIC 6 IS ASSEMBLER CODE               8  1089  B /04 H84 6         13
195    950         SBR   X1,114                                                  7  1097  H 089 114           13
196    960  MOVE   MA    TALLY&X3,LABEL&X1   MOVE TALLY BY TYPE INTO LABEL       7  1104  # XB2 GW6           14
197    970         B     PRINT                                                   4  1111  B 747               14
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

198    980         CW    TALLY-2&X3                                            4  1115  ) XB0                14
199    990         BW    HDR,POS84   WORD MARK IN POS84-END OF PAGE            8  1119  V T30 084 1          14
200  1 000  NONE2  MA    @003@,X3   X3 LOCATES TALLY IN TABLE                  7  1127  # H99 099            14
201  1 010         MA    LENGTH,X2   ADJUST BY LENGTH OF DICT ENTRY            7  1134  # I99 094            14
202  1 020         B     HERE                                                  4  1141  B 951                15
203  1 030  ALLD   B     PRINT                                                 4  1145  B 747                15
204  1 040         MLC   @TYPE@,239                                            7  1149  M I03 239            15
205  1 050         MLC   @TOTAL@,250                                           7  1156  M I08 250            15
206  1 060         MLCWA @PERCENT@,260                                         7  1163  L I15 260            15
207  1 070         B     PRINT                                                 4  1170  B 747                15
208  1 080         B     PRINT                                                 4  1174  B 747                15
209  1 090         SBR   X1,0                                                  7  1178  H 089 000            16
210  1 100  PRTYPE BCE   SKPDIV,LABEL&X1,   SKIP DIVIDE IF BLANK LABEL         8  1185  B S72 GW6            16
211  1 110         MLC   LABEL&X1,250                                          7  1193  M GW6 250            16
212  1 120         MLC   LABEL&X1,DIVEN-3   DIVIDE TYPE BY TOTAL               7  1200  M GW6 G44            16
213  1 130         MLC   X1,STOX1     SAVE X1                                  7  1207  M 089 H83            16
214  1 140         B     DIVIDE                                                4  1214  B T75                17
215  1 150         DSA   TOT                                                   3  1220  G38                  17
216  1 160         DSA   DIVEN                                                 3  1223  G47                  17
217  1 170         DCW   03                                                    2  1225                       17
218  1 180         A     &5,QUOT                                               7  1226  A I16 X11            17
219  1 190         MLC   QUOT-1,PERCNT                                         7  1233  M X10 H87            17
220  1 200         SW    256,257                                               7  1240  , 256 257            17
221  1 210         MLC   PERCNT,258                                            7  1247  M H87 258            18
222  1 220         MLC   @.@,256                                               7  1254  M I17 256            18
223  1 230         B     PRINT                                                 4  1261  B 747                18
224  1 240         MLC   STOX1,X1   RESTORE X1                                 7  1265  M H83 089            18
225  1 250  SKPDIV A     @19@,X1                                               7  1272  A I19 089            18
226  1 260         C     @133@,X1                                              7  1279  C I22 089            18
227  1 270         BU    PRTYPE                                                5  1286  B /85 /              19
228  1 280         B     PRINT                                                 4  1291  B 747                19
229  1 290         B     PRINT                                                 4  1295  B 747                19
230  1 300         MCS   TOT,240                                               7  1299  Z G38 240            19
231  1 310         MLC   @TOTAL  @,234                                         7  1306  M I29 234            19
232  1 320         B     PRINT                                                 4  1313  B 747                19
233  1 330         CW    GRP1                                                  4  1317  ) G33                19
234  1 340         B     SYSLNK    CALL IN PHASE I PASS 3 OF ANALYSIS          4  1321  B 400                20
235  1 350         DCW   @3ANAV@                                               5  1329                       20
236  1 360  HDR    SBR   EXIT4&3     PRINT HEADINGS                            4  1330  H T74                20
237  1 370         MLCWA @OPERATION CODE FREQUENCY REPORT@,251                 7  1334  L I60 251            20
238  1 380         B     PRINT                                                 4  1341  B 747                20
239  1 390         B     PRINT                                                 4  1345  B 747                20
240  1 400         MLCWA @MNEMONICS@,230                                       7  1349  L I69 230            20
241  1 410         MLCWA @TALLY@,240                                           7  1356  L I74 240            21
242  1 420         B     PRINT                                                 4  1363  B 747                21
243  1 430         B     PRINT                                                 4  1367  B 747                21
244  1 440  EXIT4  B     0                                                     4  1371  B 000                21
245  1 450  DIVIDE SBR   89                                                    4  1375  H 089                21
246  1 460         MLC   2&X1,DIVID1&3                                         7  1379  M 0|2 U70            21
247  1 470         MLC   5&X1,DIVID2&3                                         7  1386  M 0|5 U77            21
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  1 480         MLC   7&X1,DIVIDG                                           7  1393  M 0|7 X16            22
249  1 490         S     DIVIDA                                                4  1400  S W69                22
250  1 500         MLC   @003@,DIVIDA-19                                       7  1404  M H99 W50            22
251  1 510         S     DIVIDG,DIVIDA-18                                      7  1411  S X16 W51            22
252  1 520         MLZS  @010@,DIVIDA-18                                       7  1418  Y I77 W51            22
253  1 530         A     DIVIDH,DIVIDA-18                                      7  1425  A X19 W51            22
254  1 540         MLC   DIVIDA-18,DIVID8&6                                    7  1432  M W51 W39            23
255  1 550         A     @001@,DIVIDA-18                                       7  1439  A H96 W51            23
256  1 560         MLC   DIVIDA-18,DIVID4&6                                    7  1446  M W51 V43            23
257  1 570         MLC   DIVIDA-18,DIVID5&6                                    7  1453  M W51 V50            23
258  1 580         MLC   DIVIDA-18,DIVID7&6                                    7  1460  M W51 V94            23
259  1 590  DIVID1 MLCWA 0,DIVIDR                                              7  1467  L 000 W90            24
260  1 600  DIVID2 ZA    0,DIVIDD                                              7  1474  ? 000 X11            24
261  1 610         MLZS  DIVIDD,DIVIDF                                         7  1481  Y X11 X14            24
262  1 620         MLC   @003@,DIVIDC                                          7  1488  M H99 X13            24
263  1 630         MLZS  DIVIDD,DIVIDC                                         7  1495  Y X11 X13            24
264  1 640         BWZ   *&5,DIVIDR,K                                          8  1502  V V14 W90 K          25
265  1 650         B     DIVID3                                                4  1510  B V30                25
266  1 660         S     @9@,DIVIDC                                            7  1514  S I78 X13            25
267  1 670         A     @003@,DIVIDC                                          7  1521  A H99 X13            25
268  1 680         MLZS                                                        1  1528  Y                    25
269  1 690         MLZS                                                        1  1529  Y                    25
270  1 700  DIVID3 MLZS  @001@,DIVIDR                                          7  1530  Y H96 W90            25
271  1 710  DIVID4 S     DIVIDR,0                                              7  1537  S W90 000            26
272  1 720  DIVID5 BWZ   DIVID7,0,K                                            8  1544  V V88 000 K          26
273  1 730         BAV   *&1                                                   5  1552  B V57 Z              26
274  1 740         A     @001@,DIVIDB                                          7  1557  A H96 X12            26
275  1 750         BAV   DIVID6                                                5  1564  B V73 Z              26
276  1 760         B     DIVID4                                                4  1569  B V37                26
277  1 770  DIVID6 MLC   @9@,DIVIDC                                            7  1573  M I78 X13            27
278  1 780         A     DIVIDC                                                4  1580  A X13                27
279  1 790         B     DIVID9                                                4  1584  B W45                27
280  1 800  DIVID7 A     DIVIDR,0                                              7  1588  A W90 000            27
281  1 810         MLC   DIVIDB,DIVIDA                                         7  1595  M X12 W69            27
282  1 820         ZA                                                          1  1602  ?                    27
283  1 830         MLC   DIVIDA&1,DIVIDB                                       7  1603  M W70 X12            27
284  1 840         ZA                                                          1  1610  ?                    28
285  1 850         S     @001@,DIVIDG                                          7  1611  S H96 X16            28
286  1 860         BWZ   DIVID4,DIVIDG,B                                       8  1618  V V37 X16 B          28
287  1 870         MLZS  DIVIDC,DIVIDD                                         7  1626  Y X13 X11            28
288  1 880  DIVID8 MLZS  DIVIDF,0                                              7  1633  Y X14 000            28
289  1 890         BAV   *&1                                                   5  1640  B W45 Z              28
290  1 900  DIVID9 B     8&X1                                                  4  1645  B 0|8                28
291  1 910  DIVIDA DCW   #21                                                  21  1669                       29
292  1 920         DCW   @0@                                                   1  1670                       29
293  1 930  DIVIDR DCW   #20                                                  20  1690                       30
294  1 940  DIVIDD DCW   #21                                                  21  1711                       31
295  1 950  DIVIDB DCW   @ @                                                   1  1712                       31
296  1 960  DIVIDC DCW   @ @                                                   1  1713                       31
297  1 970  DIVIDF DCW   @1@                                                   1  1714                       31
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SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	
298	1	980	DIVIDG	DCW	@00@		2	1716			31	
299	1	990	DIVIDH	DSA	&DIVIDD-31		3	1719	W80		31	
300	2	000	QUOT	EQU	DIVIDD			1711				
301	2	010	TALLY	DCW	#3		3	1722			31	
302	2	020		DA	1X1850			1723	3572		32	
303	2	030	RECORD	DA	1X160			3573	3732		32	
304	2	040	LOC		40,42			3614		FIELD	32	
305	2	050	GRP1	DC	@}@		1	3733			33	
306	2	060	TOT	DCW	#5		5	3738			33	
307	2	070	WORK	DCW	#3		3	3741			33	
308	2	080	DIVEN	DCW	@000000@		6	3747			33	
309	2	090	LABEL	DCW	@MACRO @		19	3766			33	
310	2	100		DCW	@INPUT-OUTPUT @		19	3785			34	
311	2	110		DCW	@DATA DEFINING @		19	3804			34	
312	2	120		DCW	@BRANCH @		19	3823			35	
313	2	130		DCW	@HALT @		19	3842			35	
314	2	140		DCW	@ASSEMBLER @		19	3861			36	
315	2	150		DCW	@OTHER @		19	3880			36	
316	2	160	STOX1	DCW	#3		3	3883			37	
317	2	170	TEST	DCW	#1		1	3884			37	
318	2	180	PERCNT	DCW	#3		3	3887			37	
319	2	190		LTORG	*&1				3889			
				DCW	@000@		3	3891		LIT	38	
					@1@		1	3892		LIT	38	
					@8@		1	3893		LIT	38	
					@001@		3	3896		LIT	38	
					@003@		3	3899		LIT	38	
					@TYPE@		4	3903		LIT	38	
		205			@TOTAL@		5	3908		LIT	38	
		206			@PERCENT@		7	3915		LIT	39	
					&5		1	3916		LIT	39	
					@.@		1	3917		LIT	39	
					@19@		2	3919		LIT	39	
					@133@		3	3922		LIT	39	
		231			@TOTAL @		7	3929		LIT	39	
		237			@OPERATION CODE FREQUENCY REPORT@		31	3960		LIT	40	
		240			@MNEMONICS@		9	3969		LIT	41	
		241			@TALLY@		5	3974		LIT	41	
					@010@		3	3977		LIT	41	
					@9@		1	3978		LIT	41	
320	2	200	HIGH	EQU	*&1			3979				
321	2	210		END	START				/ 800 080		42	
					@8@		1	3893		LIT	38	*****
					@001@		3	3896		LIT	38	
					@003@		3	3899		LIT	38	
					@TYPE@		4	3903		LIT	38	
		205			@TOTAL@		5	3908		LIT	38	
		206			@PERCENT@		7	3915		LIT	39	
					&5		1	3916		LIT	39	
					@.@		1	3917		LIT	39	
					@19@		2	3919		LIT	39	
					@133@		3	3922		LIT	39	
		231			@TOTAL @		7	3929		LIT	39	
		237			@OPERATION CODE FREQUENCY REPORT@		31	3960		LIT	40	
		240			@MNEMONICS@		9	3969		LIT	41	

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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                         1             3ANAV
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?      2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040       3

                          PHASE I,  PASS 3 OF ANALYSIS                              3ANAV            PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    010  000    JOB   PHASE I,  PASS 3 OF ANALYSIS
 102    020         CTL   440  1
 103    025  *              VERSION 2  LEVEL 0   JULY 25,1965
 104    030  *
 105    040  *                GENERATE $ADD CARD
 106    050  *
 107    060         DCW   @$ADD     @                                              9  0341                     4
 108    070         DCW   &S                                                     3  0344  800                4
 109    080         DCW   &S                                                     3  0347  800                4
 110    090         DCW   &HIGH                                                  3  0350  I9Y                4
 111    100         ORG   800                                                             0800
 112    110  MACH   EQU   82                      CONTAINS SYSTEM                    0082
 113    120  LANG   EQU   83                      CONTAINS LANGUAGE                  0083
 114    130  COLUM1 EQU   DAREC&7                                                    7430
 115    140  TBLSW  EQU   86                      CONTAINS Y IF CROSS OPTIONS        0086
 116    150  X1     EQU   89                                                         0089
 117    160  X2     EQU   94                                                         0094
 118    170  X3     EQU   99                                                         0099
 119    180  IOCON2 EQU   200                     TAPE UNIT TWO                      0200
 120    190  IOCON4 EQU   400                     TAPE UNIT FOUR                     0400
 121    200  SYSLNK EQU   400                     SYSTEM READ ENTRY                  0400
 122    210  SYSIO  EQU   500                     CONTROLLER TAPE I-O ENTRY          0500
 123    220  MESSG  EQU   660                     MESSAGE WRITER ENTRY               0660
 124    230  EJECT  EQU   704                     CONTROLLER CARRIAGE EJCECT         0704
 125    240  PRINT  EQU   747                     CONTROLLER PRINT ENTRY             0747
 126    250  INST   EQU   SORT                    CONTAINS I IF 1620 IMMEDIATE       7428
 127    260  FLAGSA EQU   EXSEQ-4                                                    7440
 128    270  ANFLAG EQU   FLAGSA                  CONTAINS ANALYSIS FLAGS            7440
 129    280  RELT   EQU   ANFLAG                  RELATIVE ADDRESSING FLAG           7440
 130    290  INDX   EQU   ANFLAG&1                INDEXING FLAG                      7441
 131    300  COPL   EQU   ANFLAG&2                COMPLEX OPERAND FLAG               7442
 132    310  IND    EQU   ANFLAG&3                INDIRECT ADDRESSING FLAG           7443
 133    320  DM     EQU   CARD&38                 1401 SPS DEMODIFIER                7541
 134    330  F1     EQU   FIELD1                                                     7467
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

135    340         JOB   PHASE I, PASS 3 OF ANALYSIS       MAIN PROGRAM
136    350  *
137    360  *                   INITIALYZE
138    370  *
139    380  S      SW    GRPMRK                                                     4  0800  , E8X                5
140    390         BCE   ST,2,A                  AN   Y - $ANALYZE                  8  0804  B 823 002 A          5
141    400         MLC   @N@,AN                       N - $CHART                    7  0812  M H7U F9Z            5
142    410         B     RTAPE                                                      4  0819  B 830                5
143    420  ST     MLC   @Y@,AN                                                     7  0823  M H7V F9Z            5
144    430  *
145    440  *                   BEGIN PROCESSING OF RECORD
146    450  *
147    460  RTAPE  B     SYSIO                   READ UNIT 4 INTO DAREC             4  0830  B 500                5
148    470         DCW   &IOCON4                                                    3  0836  400                  5
149    480         ORG   *-2                                                                  0835
150    490         DC    &DAREC                                                     3  0837  D2T                  6
151    500         DC    @R@                                                        1  0838                       6
152    510  *
153    520  *
154    530         BEF   CK                                                         5  0839  B S70 K              6
155    540         BCE   CKOPT,ANCODE,T                                             8  0844  B 989 D6/ T          6
156    550         BWZ   SETMAC,ANCODE,K         TEST WHETHER TO SCAN OPERAND       8  0852  V 872 D6/ K          6
157    560         BWZ   SETMAC,ANCODE,B                                            8  0860  V 872 D6/ B          6
158    570         B     QUAL                                                       4  0868  B 961                7
159    580  *
160    590  *                   INITIALYZE FOR SCAN
161    600  *
162    610  SETMAC MN    ANCODE,TESTAN                                              7  0872  D D6/ F9W            7
163    620         BCE   YF1X2,TESTAN,9                                             8  0879  B 898 F9W 9          7
164    630         MLC   @N@,SWF1X2                                                 7  0887  M H7U F0Y            7
165    640         B     TMACR                                                      4  0894  B 905                7
166    650  YF1X2  MLC   @Y@,SWF1X2                                                 7  0898  M H7V F0Y            7
167    660  TMACR  BCE   YMACR,TESTAN,1                                             8  0905  B 924 F9W 1          8
168    670         MLC   @N@,MACR                                                   7  0913  M H7U F9Y            8
169    680         B     TBRAN                                                      4  0920  B 931                8
170    690  YMACR  MLC   @Y@,MACR                                                   7  0924  M H7V F9Y            8
171    700  TBRAN  BWZ   YBRAN,ANCODE,B                                             8  0931  V 950 D6/ B          8
172    710         MLC   @N@,BRANCH                                                 7  0939  M H7U G9S            9
173    720         B     GOSCAN                                                     4  0946  B 957                9
174    730  YBRAN  MLC   @Y@,BRANCH                                                 7  0950  M H7V G9S            9
175    740  *
176    750  *
177    760  GOSCAN B     SCAN                    SCAN OPERAND                       4  0957  B T11                9
178    770  *
179    780  *                   QUALIFICATION OF LABELS
180    790  *
181    800  QUAL   BCE   INITQL,ANCODE,$         TEST IF BEGIN QUALIFICATION        8  0961  B 00U D6/ $          9
182    810         BCE   NOSFX,ANCODE,*          TEST IF END QUALIFICATION          8  0969  B 11T D6/ *          9
183    820         BWZ   QUALFY,QUALSW,1         TEST IF IN QUALIFIED SECTION       8  0977  V 12Y E8Y 1         10
184    830         B     CKOPT                                                      4  0985  B 989               10
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

185    840  *
186    850  *              EXAMINE CONTROL CARD INFORMATION
187    860  *
188    870  CKOPT  BCE   NOPT,2,C               TEST FOR $CHART                     8  0989  B |09 002 C         10
189    880         BCE   CODE,TBLSW,Y           TEST FOR REFERENCE OPTIONS          8  0997  B /38 086 Y         10
190    890  *
191    900  *              CONTROL CARD IS $ANALYZE WITH NO
192    910  *              FURTHUR OPTIONS.  PRINT FLAGGED LIST LINE
193    920  *
194    930         B     PLIST                                                      4  1005  B 25S               10
195    940  *
196    950  *              MOVE SEQUENCE NUMBER FROM CARD
197    960  *              TO EXSEQ
198    970  *
199    980  NOPT   BCE   WT,ANCODE,T            DONT MOVE IF TRANSPARENT            8  1009  B /16 D6/ T         11
200    990         MLC   F1&9,SORT&9                                                7  1017  M D7W D3X           11
201  1 000         B     SFILL                                                      4  1024  B 75X               11
202  1 010         MLC   SORT&9,F1&9                                                7  1028  M D3X D7W           11
203  1 020         BCE   M76T80,SET,D                                               8  1035  B /09 D3Z D         11
204  1 030         MLC   CARD&4,EXSEQ           MOVE 1 TO 5                         7  1043  M E0X D4U           12
205  1 040         BCE   FILL,SET,B                                                 8  1050  B |62 D3Z B         12
206  1 050         B     WT                                                         4  1058  B /16               12
207  1 060  FILL   MLC   LABEL&9,SORT&9                                             7  1062  M D5U D3X           12
208  1 070         B     SFILL                                                      4  1069  B 75X               12
209  1 080         MLC   SORT&9,LABEL&9                                             7  1073  M D3X D5U           12
210  1 090         MLC   @          @,SORT&9                                        7  1080  M H8V D3X           13
211  1 100         MLC   EXSEQ,SORT&4                                               7  1087  M D4U D3S           13
212  1 110         B     SFILL                                                      4  1094  B 75X               13
213  1 120         MLC   SORT&4,EXSEQ                                               7  1098  M D3S D4U           13
214  1 130         B     WT                                                         4  1105  B /16               13
215  1 140  M76T80 MLC   CARD&79,EXSEQ                                              7  1109  M E8S D4U           13
216  1 150  *
217  1 160  *              WRITE INPUT TAPE TO FLOWCHART
218  1 170  *
219  1 180  WT     MLC   GRPMRK,CARD                                                7  1116  M E8X E0T           14
220  1 190         B     WTAPE                                                      4  1123  B 64V               14
221  1 200         MLC   1,CARD                 DESTROY GROUP MARK                  7  1127  M 001 E0T           14
222  1 210  *
223  1 220  *              RETURN TO GET NEXT RECORD
224  1 230  *
225  1 240         B     RTAPE                                                      4  1134  B 830               14
226  1 250  *
227  1 260  *              CONTROL CARD IS $ANALYZE WITH
228  1 270  *              CROSS AND/OR OPERAND OPTION.  WRITE
229  1 280  *              INPUT TAPE TO PHASE II, PASS 1 OF ANALYSIS
230  1 290  *
231  1 300  *
232  1 310  CODE   MLC   @0@,SORTCD             CODE LABEL RECORD ZERO              7  1138  M H8W D3Y           14
233  1 320         MLC   @   @,SORT&2                                               7  1145  M H8Z D3|           14
234  1 330         BCE   W,ANCODE,T             TEST IF TRANSPARENT                 8  1152  B /67 D6/ T         15
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

235  1 340         MLC   LABEL&9,SORT&9          NO. MOVE LABEL TO SORT FIELD     7  1160  M D5U D3X            15
236  1 350  W      B     WTAPE                   WRITE RECORD                     4  1167  B 64V                15
237  1 360  *
238  1 370  *                   WRITE A RECORD FOR EACH SYMBOL IN THE
239  1 380  *                   OPERAND FIELD.
240  1 390  *
241  1 400         SBR   X2,0                                                     7  1171  H 094 000            15
242  1 410  C      C     COUNT,@00@              TEST IF SYMBOL COUNT IS ZERO     7  1178  C F0T H9/            15
243  1 420         BE    INTSET                                                   5  1185  B S52 S              15
244  1 430         MLC   @          @,SORT&9                                      7  1190  M I0/ D3X            16
245  1 440  F      B     FETCH                   NO. FETCH SYMBOL FROM TABLE.     4  1197  B 48Y                16
246  1 450  SYM    BWZ   SYMQLF,QUALSW,1         HANDLE QUALIFICATION             8  1201  V 60V E8Y 1          16
247  1 460         MLC   @ @,TEST&X2                                              7  1209  M I0S F!Z            16
248  1 470         A     @1@,X2                                                   7  1216  A I0T 094            16
249  1 480         MLC   X2,SORTCD               CODE REFERENCE RECORD            7  1223  M 094 D3Y            17
250  1 490         B     WTAPE                   WRITE RECORD                     4  1230  B 64V                17
251  1 500         S     @1@,COUNT                                                7  1234  S I0T F0T            17
252  1 510         MZ    @ @,COUNT                                                7  1241  Y I0S F0T            17
253  1 520         B     C                                                        4  1248  B /78                17
254  1 530  INTSET SBR   MSFX&3,TABLE                                             7  1252  H 54V F2Z            17
255  1 540         SBR   M&3,TABLE                                                7  1259  H 55W F2Z            18
256  1 550         B     RTAPE                                                    4  1266  B 830                18
257  1 560  *
258  1 570  *                   END OF FILE
259  1 580  *
260  1 590  CK     B     SYSLNK                  CALL EOF OVERLAY                 4  1270  B 400                18
261  1 600         DCW   @3ANA9@                                                  5  1278                       18
262  1 610  OVFLW  MLCWA OVFMES,251                                               7  1279  L H7S 251            18
263  1 620         B     MESSG                                                    4  1286  B 660                18
264  1 630         H     6,6                                                      7  1290  . 006 006            18
265  1 640         RWD   2                       OUTPUT ERROR RE-ENTRY POINT      5  1297  U %U2 R              19
266  1 650         RWD   4                                                        5  1302  U %U4 R              19
267  1 660         B     S                  RESTART                               4  1307  B 800                19
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

268  1 670         JOB   PHASE I, PASS 3 OF ANALYSIS       SCAN   ROUTINE
269  1 680  *
270  1 690  *
271  1 700  *                 -SCAN-    THIS ROUTINE ANALYZES THE OPERAND
272  1 710  *                           FIELD OF THE ASSEMBLER LANGUAGE
273  1 720  *                           SOURCE STATEMENT.
274  1 730  *
275  1 740  *
276  1 750  *
277  1 760  *
278  1 770  SCAN   MLC   @00@,NUOP           ZERO THE NO. OF OPERANDS            7  1311  M H9/ G0|           20
279  1 780         SBR   X1,0                ZERO INDEX REGISTERS                7  1318  H 089 000           20
280  1 790         SBR   X2                                                      4  1325  H 094               20
281  1 800         SBR   X3                                                      4  1329  H 099               20
282  1 810         MLC   COLUM1,COLUM        MOVE IN START OF OPERAND FIELD      7  1333  M D3| G8/           20
283  1 820         MLC   @0@,COLUM-2                                             7  1340  M H8W G7Z           20
284  1 830         MLC   COLUM,X1            PUT START OF OP FIELD IN X1         7  1347  M G8/ 089           21
285  1 840         ZA    &79,ACC#3           SET UP X2 FOR MOVE                  7  1354  ? I0V I0Y           21
286  1 850         S     COLUM,ACC                                               7  1361  S G8/ I0Y           21
287  1 860         A     ACC,X2                                                  7  1368  A I0Y 094           21
288  1 870         MLC   @ @,DOLL            INITIALIZE                          7  1375  M I0S H2/           21
289  1 880         MLC   @,@,COMMA#1                                             7  1382  M I0Z I1|           22
290  1 890         MLC   @ @,A&69                                                7  1389  M I0S G7W           22
291  1 900         MLC   A&69,A&68                                               7  1396  M G7W G7V           22
292  1 910         MLC   @N@,SWLOZ                                               7  1403  M H7U H2S           22
293  1 920         MLC   AOFF,ASWNO&5        RESET SWITCHES                      7  1410  M H1V H0X           22
294  1 930         MLC   AON,ASWYO&1                                             7  1417  M H1Z H0Z           23
295  1 940         BCE   MACRO,MACR,Y        TEST IF MACRO.                      8  1424  B V68 F9Y Y         23
296  1 950         BCE   CPR,SET,C           NO. TEST IF SET C.                  8  1432  B W73 D3Z C         23
297  1 960         BCE   SPS,SET,E           NO. TEST IF SET E.                  8  1440  B E75 D3Z E         23
298  1 970         SW    CARD-1&X1           NO. MOVE OPERANDS TO TEST AREA      4  1448  , E|S               23
299  1 980         MLC   CARD&79,A&1&X2                                          7  1452  M E8S G!Y           24
300  1 990         CW    CARD-1&X1                                               4  1459  ) E|S               24
301  2 000         SBR   X2,0                ZERO INDEX REGISTERS                7  1463  H 094 000           24
302  2 010         SBR   X1                                                      4  1470  H 089               24
303  2 020         BCE   CHANGE,SET,B        TEST IF SET B.                      8  1474  B V42 D3Z B         24
304  2 030         BCE   DISA,SET,A          NO. TEST IF SET A.                  8  1482  B U94 D3Z A         24
305  2 040         B     INIT                NO. GO TO INITIALIZE.               4  1490  B W77               25
306  2 050  DISA   BCE   F1XF2,SWF1X2,Y      TEST IF SPLIT OPERAND 2.            8  1494  B V31 F0Y Y         25
307  2 060         B     SDTA                NO. GO CHECK FOR $ IN POS. 2        4  1502  B ?0V               25
308  2 070         MLC   @@@,ADD             INITIALIZE FOR LITERAL SCAN         7  1506  M I1/ I6T           25
309  2 080         MLC   @Y@,SWNLAB          ON TO KEEP THIRD OP. FROM TABEL     7  1513  M H7V H0V           25
310  2 090         MLC   @Y@,SWYADD          ON TO TEST FOR LITERALS             7  1520  M H7V H0T           25
311  2 100         B     INIT                GO TO INITIALIZE.                   4  1527  B W77               26
312  2 110  F1XF2  MLC   @Y@,PASS2           ON TO PREVENT FLAGGING OP 1         7  1531  M H7V H0X           26
313  2 120         B     DISA&12             GO BACK TO SET UP LITERALS          4  1538  B V06               26
314  2 130  CHANGE MLC   @#@,ADD             INITIALIZE FOR LITERAL SCAN         7  1542  M I1S I6T           26
315  2 140         MLC   @Y@,SWYADD          ON TO TEST FOR LITERALS             7  1549  M H7V H0T           26
316  2 150         BCE   RM,MACR,Y                                               8  1556  B E26 F9Y Y         26
317  2 160         B     INIT                GO TO INITIALIZE.                   4  1564  B W77               27
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

318  2 170  MACRO  SW    CARD-1&X1          MOVE OPERANDS TO TEST AREA.            4  1568  , E|S                27
319  2 180         MLC   CARD&79,A&1&X2                                            7  1572  M E8S G!Y            27
320  2 190         CW    CARD-1&X1                                                 4  1579  ) E|S                27
321  2 200         SBR   X2,0               ZERO INDEX REGISTERS.                  7  1583  H 094 000            27
322  2 210         SBR   X1                                                        4  1590  H 089                27
323  2 220         MLC   OFF,SWTC           OFF TO PREVENT CHECK FOR INDIRECT      7  1594  M G7Y /3V            27
324  2 230         MLC   OFF,SWM                                                   7  1601  M G7Y /8V            28
325  2 240         MLC   @0@,NUOP           ZERO THE NUMBER OF OPERANDS            7  1608  M H8W G0|            28
326  2 250         MLC   @00@,NUCH          ZERO THE NUMBER OF CHARACTERS          7  1615  M H9/ I7W            28
327  2 260         MLC   OFF,SWAP           OFF TO PREVENT SPLITTING OP 1          7  1622  M G7Y |6|            28
328  2 270         MLC   @Y@,PASS2          ON TO PREVENT FLAGGING.                7  1629  M H7V H0X            28
329  2 280         BCE   *&5,SET,B          TEST IS SET B                          8  1636  B W48 D3Z B          29
330  2 290         B     RM                 NO. GO TO MOVEMENTS.                   4  1644  B E26                29
331  2 300         MLC   @Y@,SWLOZ                                                 7  1648  M H7V H2S            29
332  2 310         MLC   @)@,COMMA          SET TERMINATOR                         7  1655  M I1T I1|            29
333  2 320         MLC   @) @,A&68                                                 7  1662  M I1V G7V            29
334  2 330         B     CHANGE                                                    4  1669  B V42                29
335  2 340  CPR    B     SCOMP              COMPRESS OPERANDS                      4  1673  B Q1U                30
336  2 350  INIT   B     SKEEP              TO INITIAL CONDITIONS                  4  1677  B R2X                30
337  2 360         B     SCLAS              CLASSIFY CHARACTER                     4  1681  B J5X                30
338  2 370         BCE   BLANKB,CH,B        TEST IF BLANK                          8  1685  B X17 F9V B          30
339  2 380         BCE   ALPHA,CH,A         NO. TEST IF ALPHABETIC                 8  1693  B X25 F9V A          30
340  2 390         BCE   NUMER,CH,N         NO. TEST IF NUMERIC                    8  1701  B Y12 F9V N          30
341  2 400         BCE   SPECL,CH,S         THEN IT IS SPECIAL                     8  1709  B Z31 F9V S          31
342  2 410  BLANKB B     SBLANK             SCAN FOR NONBLANK                      4  1717  B M0W                31
343  2 420         B     INIT&16            RETURN TO TEST CHARACTER               4  1721  B W93                31
344  2 430  ALPHA  BCE   A1,SWFC,N          TEST IF FIRST CHARACTER                8  1725  B X48 H0| N          31
345  2 440         MLC   @N@,SWFC           YES. FIRST CHAR. SW. OFF.              7  1733  M H7U H0|            31
346  2 450         BCE   ASKB,SWD,Y         TEST IF FIRST CHAR. OF FIELD           8  1740  B X93 H0Z Y          31
347  2 460  A1     MLC   @N@,SWNN1          NO. SET SWITCH NOT NUMERIC             7  1748  M H7U G9Y            32
348  2 470         MLC   @N@,SWD            OFF. PAST FIRST CHAR.                  7  1755  M H7U H0Z            32
349  2 480         B     SCH10              MOVE TO NEXT CHARACTER.                4  1762  B O1U                32
350  2 490         BCE   *&9,SWTAB,Y        TEST IF BUILDING TABEL.                8  1766  B X82 H0W Y          32
351  2 500         BCE   INIT&4,SWCH10,Y    NO. TEST IF 10 CHARACTERS              8  1774  B W81 G9T Y          32
352  2 510         A     &1,X2              NO. INCREMENT X2 FOR MOVES             7  1782  A I1W 094            33
353  2 520         B     INIT&4             GO TO CLASSIFY CHARACTER               4  1789  B W81                33
354  2 530  ASKB   MLC   @N@,SWD            OFF. PAST FIRST CHAR.                  7  1793  M H7U H0Z            33
355  2 540         BCE   DISB,SET,B         TEST IF SET B.                         8  1800  B Y73 D3Z B          33
356  2 550         B     A1                 NO. GO TO ALPHABETIC                   4  1808  B X48                33
357  2 560  NUMER  BCE   *&12,SWFC,Y        TEST FIRST CHAR. OF OPERAND            8  1812  B Y31 H0| Y          33
358  2 570         A     &1,NUMB            INCREMENT COUNT OF NUMERICS.           7  1820  A I1W G9/            34
359  2 580         B     A1&7               GO TO TURN OFF FIRST CHAR. SW.         4  1827  B X55                34
360  2 590         MLC   @N@,SWFC           OFF. PAST FIRST. CHAR.                 7  1831  M H7U H0|            34
361  2 600         A     &1,NUMB            INCREMENT COUNT OF NUMERICS            7  1838  A I1W G9/            34
362  2 610         BCE   A1&7,SWTAB,Y       TEST IF BUILDING TABLE.                8  1845  B X55 H0W Y          34
363  2 620         BCE   FLF1,SET,A         NO. TEST IF SET A                      8  1853  B Z15 D3Z A          35
364  2 630         BCE   FLF1,SET,E         NO. TEST IF SET E                      8  1861  B Z15 D3Z E          35
365  2 640         B     A1&7               NO. GO TURN OFF FIRST CHAR. SW.        4  1869  B X55                35
366  2 650  DISB   B     SDTB               SCAN FOR PREFIX.                       4  1873  B L0U                35
367  2 660         BCE   INIT&4,SWAD,N      TEST IF PREFIX FOUND.                  8  1877  B W81 H0U N          35
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

368  2 670         MLC   @N@,SWAD           YES. PREFIX SWITCH OFF.                 7  1885  M H7U H0U             35
369  2 680         BCE   INIT,SWTAB,Y       TEST IF BUILDING TABLE.                 8  1892  B W77 H0W Y           36
370  2 690         B     SFLAG                                                      4  1900  B P8U                 36
371  2 700         MLC   @C@,COPL           YES. SET COMPLEX FLAG.                  7  1904  M I1X D4S             36
372  2 710         B     RM                 GO TO MOVEMENTS.                        4  1911  B E26                 36
373  2 720  FLF1   B     SFLAG              FLAG OTHERS IF OP 1                     4  1915  B P8U                 36
374  2 730         BCE   A1&7,AN,Y          TEST IF SCANNING FOR ANALYSIS           8  1919  B X55 F9Z Y           36
375  2 740         B     RM                 NO. GO TO MOVEMENTS.                    4  1927  B E26                 36
376  2 750  SPECL  BCE   TEST1,SWFC,N       TEST IF FIRST CHAR. OF OPERAND.         8  1931  B J33 H0| N           37
377  2 760         MLC   @N@,SWFC           YES. TURN OFF SW.                       7  1939  M H7U H0|             37
378  2 770         BCE   A111,A&1&X1,$      TEST IF $                               8  1946  B Z66 G|Y $           37
379  2 780         BCE   AST,A&X1,*         TEST IF ASTERISK.                       8  1954  B Z78 G|X *           37
380  2 790         B     TEST2              NO. GO TO FURTHER TESTING               4  1962  B P00                 37
381  2 800  A111   BCE   TEST2,A&X1,@                                               8  1966  B P00 G|X @           38
382  2 810         B     A1                                                         4  1974  B X48                 38
383  2 820  AST    BCE   SYMTAB,SWTAB,Y     TEST IF BUILDING TABLE                  8  1978  B A2U H0W Y           38
384  2 830         BCE   *&8,PASS2,Y        TEST IF OP 1                            8  1986  B !01 H0X Y           38
385  2 840         A     &1,X2              NO. INCREMENT X2 FOR MOVES              7  1994  A I1W 094             38
386  2 850         B     SCH10              MOVE TO NEXT CHARACTER                  4  2001  B O1U                 38
387  2 860         MLC   ON,SWR             ON TO INDICATE RELATIVE                 7  2005  M G7X B10             39
388  2 870         BCE   RELA,A&X1,&        NO. TEST IF ADJUSTMENT.                 8  2012  B !32 G|X &           39
389  2 880         BCE   RELA,A&X1,-        NO. TEST IF ADJUSTMENT.                 8  2020  B !32 G|X -           39
390  2 890         B     TEST3              NO. TO FURTHER.                         4  2028  B ?60                 39
391  2 900  RELA   B     SCH10              MOVE TO NEXT CHARACTER.                 4  2032  B O1U                 39
392  2 910         B     SCLAS              CLASSIFY CHARACTER.                     4  2036  B J5X                 39
393  2 920         BCE   NUM2,CH,N          TEST IF CHARACTER NUMERIC.              8  2040  B !60 F9V N           40
394  2 930         BCE   NN2,SWNN2,Y        NO. TEST IF ADJ FIRST CHAR IS ALP       8  2048  B !71 G9Z Y           40
395  2 940         B     TEST4              NO. TO FURTHER TESTING.                 4  2056  B A68                 40
396  2 950  NUM2   MLC   @N@,SWNN2          OFF. FIRST CHAR OF ADJ IS NUMER.        7  2060  M H7U G9Z             40
397  2 960         B     RELA               CONTINUE SCAN OF NUMERICS               4  2067  B !32                 40
398  2 970  NN2    MLC   OFF,SWAP           OFF TO PREVENT SPLITTING OF OP 1        7  2071  M G7Y |6|             40
399  2 980         B     SFLAG              FLAG OTHERS IF OP 1                     4  2078  B P8U                 41
400  2 990         BCE   RM,AN,N            TEST IF ANALYSIS                        8  2082  B E26 F9Z N           41
401  3 000         BCE   FLF11,SET,A        YES. TEST IS SET A.                     8  2090  B J10 D3Z A           41
402  3 010         BCE   RM,SET,E           NO. TEST IF SET E.                      8  2098  B E26 D3Z E           41
403  3 020         B     FLXC                                                       4  2106  B C67                 41
404  3 030  FLF11  BCE   FINDX,CH,A         TEST IF CHAR ALPHABETIC                 8  2110  B J22 F9V A           42
405  3 040         B     RM                 NO. GO TO MOVEMENTS.                    4  2118  B E26                 42
406  3 050  FINDX  MLC   @X@,INDX           SET INDEX FLAG.                         7  2122  M I1Y D4/             42
407  3 060         B     RM                 GO TO MOVEMENTS                         4  2129  B E26                 42
408  3 070  TEST1  BCE   SIGN,A&X1,&        TEST IF ADJUSTMENT.                     8  2133  B K05 G|X &           42
409  3 080         BCE   SIGN,A&X1,-        TEST IF ADJUSTMENT.                     8  2141  B K05 G|X -           42
410  3 090         C     A&X1,COMMA         NO. TEST IF DELIMITER                   7  2149  C G|X I1|             43
411  3 100         BE    ENDF               YES. GO TO CLEAN UP OPERAND             5  2156  B K58 S               43
412  3 110         BCE   ENDF,A&X1,         TEST IF BLANK.                          8  2161  B K58 G|X             43
413  3 120         BCE   DOLL1,A&X1,$       NO. TEST IF $                           8  2169  B M35 G|X $           43
414  3 130         BCE   IBMD1,SET,D        NO. TEST IF SET D.                      8  2177  B O72 D3Z D           43
415  3 140         BCE   IBMC1,SET,C        NO. TEST IF SET C.                      8  2185  B N92 D3Z C           44
416  3 150         BCE   IBMB1,SET,B        NO. TEST IF SET B.                      8  2193  B N76 D3Z B           44
417  3 160         B     IBMA1              NO. ASSUME SET A.                       4  2201  B M70                 44
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

418  3 170  SIGN   BCE   NN1,SWNN1,Y        TEST IF PRECEEDED BY SYMBOL.            8  2205  B K47 G9Y Y          44
419  3 180         BCE   SYMTAB,SWTAB,Y     YES. TEST IF BUILDING TABLE.            8  2213  B A2U H0W Y          44
420  3 190         B     *&8,PASS2,Y        NO. TEST IF OP 1                        8  2221  B K36 H0X Y          45
421  3 200         MLC   X2,TX2             NO. SAVE X2.                            7  2229  M 094 F0X            45
422  3 210         MLC   OFF,SWR            OFF. IS NOT RELATIVE.                   7  2236  M G7Y B10            45
423  3 220         B     RELA               GO CONTINUE SCAN OF NUMERICS.           4  2243  B !32                45
424  3 230  NN1    MLC   @Y@,SWT            ON. ALL NUMERIC WITH ADJUSTMENT.        7  2247  M H7V H0/            45
425  3 240         B     NN3                GO TEST FURTHER.                        4  2254  B L30                45
426  3 250  ENDF   BCE   *&16,SWTAB,N       TEST IF BUILDING TABLE.                 8  2258  B K81 H0W N          46
427  3 260         BCE   *&8,SWNLAB,N       YES. TEST IF WANT OP 3.                 8  2266  B K81 H0V N          46
428  3 270         A     &1,NUOP            INCREMENT NUMBER OF OPERANDS            7  2274  A I1W G0|            46
429  3 280         MLC   @N@,SWT            OFF. NOT NUMERIC WITH ADJUSTMENT.       7  2281  M H7U H0/            46
430  3 290  NNT    BCE   NN3,SWNN1,Y        TEST IF ADJ PRECEEDED BY SYMBOL.        8  2288  B L30 G9Y Y          46
431  3 300         BCE   SYMTAB,SWTAB,Y     YES. TEST IF BUILDING TABLE.            8  2296  B A2U H0W Y          47
432  3 310  FLAGS  BCE   *&8,PASS2,Y        NO. TEST IF OP 1.                       8  2304  B L19 H0X Y          47
433  3 320         MLC   @S@,FLAG           NO. FLAG OP 1 SIMPLE                    7  2312  M I1Z D6V            47
434  3 330         MLC   @Y@,PASS2          ON. PAST OP 1.                          7  2319  M H7V H0X            47
435  3 340         B     RM                 GO TO MOVEMENTS.                        4  2326  B E26                47
436  3 350  NN3    BCE   CH5,SET,B          TEST IF SET B.                          8  2330  B L80 D3Z B          48
437  3 360         BCE   SUSTCH,SWTAB,Y     NO. TEST IF BUILDING TABLE.             8  2338  B L62 H0W Y          48
438  3 370         B     SFLAG              FLAG OTHERS IF OP 1                     4  2346  B P8U                48
439  3 380         BCE   SWT1,AN,Y          TEST IF ANALYSIS                        8  2350  B M11 F9Z Y          48
440  3 390         B     RM                 NO. GO TO MOVEMENTS.                    4  2358  B E26                48
441  3 400  SUSTCH S     NUCH,X2            DECREMENT X2 BY NUMBER OF CHAR.         7  2362  S I7W 094            48
442  3 410         MZ    NUCH,X2                                                    7  2369  Y I7W 094            49
443  3 420         B     SYMTAB             GO TO SYMBOL MOVEMENTS                  4  2376  B A2U                49
444  3 430  CH5    C     @05@,NUMB          TEST IF FIVE CHARACTERS                 7  2380  C I2/ G9/            49
445  3 440         BL    NN3&8              NO. GO BACK.                            5  2387  B L38 T              49
446  3 450         MLC   @N@,SWNN1          ON. IT IS A SYMBOL.                     7  2392  M H7U G9Y            49
447  3 460         BCE   SYMTAB,SWTAB,Y     TEST IF BUILDING TABLE.                 8  2399  B A2U H0W Y          49
448  3 470         B     SWT2               NO. GO TO TEST IF ADJ.                  4  2407  B M23                50
449  3 480  SWT1   BCE   RELA,SWT,Y         TEST IF ADJUSTMENT.                     8  2411  B !32 H0/ Y          50
450  3 490         B     RM                 NO. GO TO MOVEMENTS                     4  2419  B E26                50
451  3 500  SWT2   B     RELA,SWT,Y         TEST IF ADJUSTMENT.                     8  2423  B !32 H0/ Y          50
452  3 510         B     FLAGS              NO. GO TO FLAG SIMPLE.                  4  2431  B L04                50
453  3 520  DOLL1  BCE   *&12,PASS2,Y       TEST IF OP 1.                           8  2435  B M54 H0X Y          50
454  3 530         MLC   @$@,DOLL           YES. SET OP 1 $ FLAG                    7  2443  M I2S H2/            51
455  3 540         B     A1                 GO TO ALPHABETIC.                       4  2450  B X48                51
456  3 550         BCE   A1,SWTAB,N         TEST IF BUILDING SYMBOL TABLE.          8  2454  B X48 H0W N          51
457  3 560         B     SMDOLL             YES. EXAMINE QUALIFIER                  4  2462  B C1T                51
458  3 570         B     A1                 GO TO ALPHABETIC.                       4  2466  B X48                51
459  3 580  IBMA1  BCE   NNT,SWTAB,Y        TEST IF BUILDING SYMBOL TABLE.          8  2470  B K88 H0W Y          51
460  3 590         B     SFLAG              FLAG OTHERS IF OP 1                     4  2478  B P8U                51
461  3 600         BCE   RM,AN,N            NO. TEST IF ANALYSIS.                   8  2482  B E26 F9Z N          52
462  3 610         BCE   *&5,A&X1,#         YES. TEST FOR #                         8  2490  B N02 G|X #          52
463  3 620         B     PTHE               GO TEST FOR PARENTHESIS                 4  2498  B O36                52
464  3 630  FLRX   B     SCH10              MOVE TO NEXT CHARACTER.                 4  2502  B O1U                52
465  3 640         B     SCLAS              CLASSIFY CHARACTER.                     4  2506  B J5X                52
466  3 650         B     FLRX,CH,N          TEST IF CHARACTER IS NUMERIC.           8  2510  B N02 F9V N          52
467  3 660         BCE   SIGM,A&X1,&        NO. TEST IF OPERATOR.                   8  2518  B N38 G|X &          53
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SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

468  3 670         BCE   SIGM,A&X1,-         NO. TEST IF OPERATOR.                   8  2526  B N38 G|X -          53
469  3 680         B     RM                  NO. GO TO MOVEMENTS.                    4  2534  B E26                53
470  3 690  SIGM   B     SCH10               MOVE TO NEXT CHARACTER.                 4  2538  B O1U                53
471  3 700         B     SCLAS               CLASSIFY CHARACTER.                     4  2542  B J5X                53
472  3 710         BCE   ALP,CH,A            TEST IF CHAR ALPHABETIC.                8  2546  B N65 F9V A          53
473  3 720         MLC   @R@,RELT            NO. SET RELATIVE FLAG.                  7  2554  M I2T D4|            54
474  3 730         B     RM                  GO TO MOVEMENTS.                        4  2561  B E26                54
475  3 740  ALP    MLC   @X@,INDX            SET INDEX FLAG.                         7  2565  M I1Y D4/            54
476  3 750         B     RM                  GO TO MOVEMENTS.                        4  2572  B E26                54
477  3 760  IBMB1  BCE   NNT,SWTAB,Y         TEST IF BUILDING SYMBOL TABLE           8  2576  B K88 H0W Y          54
478  3 770         B     SFLAG               FLAG OTHERS IF OP 1                     4  2584  B P8U                54
479  3 780         B     FLCX                NO. GO TO TEST COMPLEX.                 4  2588  B O16                54
480  3 790  IBMC1  B     SDTC                DETERMINE IF CHAR PART OF SYMBOL        4  2592  B M4V                55
481  3 800         BCE   A1,SWD,Y            TEST IF CHAR PART OF SYMBOL.            8  2596  B X48 H0Z Y          55
482  3 810         BCE   NNT,SWTAB,Y         NO. TEST IF BUILDING TABLE.             8  2604  B K88 H0W Y          55
483  3 820         B     SFLAG               FLAG OTHERS IF OP 1                     4  2612  B P8U                55
484  3 830  FLCX   BCE   FLXC,A&X1,*         YES. TEST IF OPERATOR.                  8  2616  B C67 G|X *          55
485  3 840         BCE   FLXC,A&X1,/         NO. TEST IF OPERATOR.                   8  2624  B C67 G|X /          56
486  3 850         B     RM                  NO. GO TO MOVEMENTS.                    4  2632  B E26                56
487  3 860  PTHE   BCE   *&5,A&X1,%          TEST IF LEFT PAREN.                     8  2636  B O48 G|X %          56
488  3 870         B     RM                  NO. GO TO MOVEMENTS.                    4  2644  B E26                56
489  3 880         B     SPATH               YES. SCAN TO RIGHT PAREN.               4  2648  B 83|                56
490  3 890         BCE   RELA,A&X1,&         TEST IF OPERATOR.                       8  2652  B !32 G|X &          56
491  3 900         BCE   RELA,A&X1,-         NO. TEST IF OPERATOR.                   8  2660  B !32 G|X -          57
492  3 910         B     RM                  GO TO MOVEMENTS.                        4  2668  B E26                57
493  3 920  IBMD1  B     SDTD                DETERMINE IF CHAR PART OF SYMBOL        4  2672  B N4V                57
494  3 930         BCE   A1,SWD,Y            TEST IF CHAR PART OF SYMBOL.            8  2676  B X48 H0Z Y          57
495  3 940         BCE   NNT,SWTAB,Y         NO. TEST IF BUILDING TABLE.             8  2684  B K88 H0W Y          57
496  3 950         B     SFLAG               FLAG OTHERS IF OP 1                     4  2692  B P8U                57
497  3 960         B     FLCX                NO. GO TO TEST COMPLEX.                 4  2696  B O16                58
498  3 970  TEST2  C     A&X1,COMMA          TEST IF CHARACTER IS DELIMITER          7  2700  C G|X I1|            58
499  3 980         BE    NOPCOM              YES. THERE WAS BLANK OPERAND            5  2707  B P79 S              58
500  3 990         BCE   NOP,A&X1,           TEST IF TERMINATOR                      8  2712  B P64 G|X            58
501  4 000         BCE   DOLL2,A&X1,$        NO. TEST IF $                           8  2720  B Q02 G|X $          58
502  4 010         BCE   IBMA2,SET,A         NO. TEST IF SET A.                      8  2728  B Q96 D3Z A          59
503  4 020         BCE   IBMB2,SET,B         NO. TEST IF SET B.                      8  2736  B R72 D3Z B          59
504  4 030         BCE   IBMC2,SET,C         NO. TEST IF SET C.                      8  2744  B ?08 D3Z C          59
505  4 040         BCE   IBMD2,SET,D         NO. TEST IF SET D.                      8  2752  B ?36 D3Z D          59
506  4 050         B     IBME2               NO. ASSUME SET E.                       4  2760  B ?44                59
507  4 060  NOP    BCE   *&8,PASS2,Y         TEST IF OP 1                            8  2764  B P79 H0X Y          60
508  4 070         MLC   @Y@,SWNOPS          YES. DO NOT INCREMENT OP COUNT          7  2772  M H7V H0S            60
509  4 080  NOPCOM MLC   OFF,SWM             OFF. DO NOT MOVE OPERAND.               7  2779  M G7Y /8V            60
510  4 090         B     SFLAG               FLAG OTHERS IF OP 1                     4  2786  B P8U                60
511  4 100         B     SYMTAB,SWTAB,Y      TEST IF BUILDING TABLE.                 8  2790  B A2U H0W Y          60
512  4 110         B     RM                  NO. GO TO MOVEMENTS.                    4  2798  B E26                60
513  4 120  DOLL2  BCE   *&17,PASS2,N        TEST IF OP 1                            8  2802  B Q26 H0X N          61
514  4 130         BCE   A1,SWTAB,N          NO. TEST IF BUILDING TABLE.             8  2810  B X48 H0W N          61
515  4 140         B     SMDOLL              YES. EXAMINE QUALIFIER.                 4  2818  B C1T                61
516  4 150         B     A1                  GO TO ALPHABETIC.                       4  2822  B X48                61
517  4 160         A     &1,X1               MOVE TO NEXT CHARACTER.                 7  2826  A I1W 089            61
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SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD

518  4 170         B     SCLAS              CLASSIFY CHARACTER.                    4  2833  B J5X                61
519  4 180         BCE   FLAGO,CH,S         TEST IF CHAR SPECIAL                   8  2837  B Q88 F9V S          62
520  4 190         A     &1,X2              NO. INCREMENT X2 FOR MOVEMENTS         7  2845  A I1W 094            62
521  4 200         SW    A&X1               DROP THE $ IN MOVEMENTS                4  2852  , G|X                62
522  4 210         SBR   CLITA&3,A&X1       MODIFY CLEAR W-M                       7  2856  H J4Y G|X            62
523  4 220         SBR   CLEAR&3,A&X1       MODIFY CLEAR W-M                       7  2863  H U8S G|X            62
524  4 230         MLC   @Y@,SWAD1          ON. A $ WAS FOUND IN SYMBOL            7  2870  M H7V H2|            63
525  4 235         MLC   @$@,DOLL                                                  7  2877  M I2S H2/            63
526  4 240         B     A1                 GO TO ALPHABETIC.                      4  2884  B X48                63
527  4 250  FLAGO  B     SFLAG              FLAG OP 1 OTHERS.                      4  2888  B P8U                63
528  4 260         B     RM                 GO TO MOVEMENTS.                       4  2892  B E26                63
529  4 270  IBMA2  C     A&X1,ADD           TEST IF LITERAL.                       7  2896  C G|X I6T            63
530  4 280         BE    SRADD              YES. FIND END OF LITERAL.              5  2903  B 89S S              63
531  4 290         BCE   SYMTAB,SWTAB,Y     TEST IF BUILDING TABLE.                8  2908  B A2U H0W Y          64
532  4 300         B     SFLAG              FLAG OTHERS IF OP 1                    4  2916  B P8U                64
533  4 310         BCE   RM,AN,N            NO. TEST IF ANALYSIS.                  8  2920  B E26 F9Z N          64
534  4 320         BCE   *&13,A&X1,&        YES. TEST IF OPERATOR.                 8  2928  B R48 G|X &          64
535  4 330         BCE   *&5,A&X1,-         NO. TEST IF OPERATOR.                  8  2936  B R48 G|X -          64
536  4 340         B     RM                 NO. GO TO MOVEMENTS.                   4  2944  B E26                65
537  4 350         B     SCH10              MOVE TO NEXT CHARACTER.                4  2948  B O1U                65
538  4 360         B     SCLAS              CLASSIFY CHARACTER                     4  2952  B J5X                65
539  4 370         BCE   *&5,CH,A           TEST IF CHAR ALPHABETIC.               8  2956  B R68 F9V A          65
540  4 380         B     RM                 NO. GO TO MOVEMENTS.                   4  2964  B E26                65
541  4 390         B     A1                 YES. GO TO ALPHABETIC.                 4  2968  B X48                65
542  4 400  IBMB2  BCE   SLOOP,A&X1,@       SKIP OVER ADDRESS CONSTANT             8  2972  B B6Z G|X @          65
543  4 410         C     A&X1,ADD           TEST IF LITERAL.                       7  2980  C G|X I6T            66
544  4 420         BE    SRADD              YES. FIND END OF LITERAL.              5  2987  B 89S S              66
545  4 430         BCE   SYMTAB,SWTAB,Y     TEST IF BUILDING SYMBOL TABLE.         8  2992  B A2U H0W Y          66
546  4 440         B     SFLAG              FLAG OTHERS IF OP 1                    4  3000  B P8U                66
547  4 450         B     RM                 GO TO MOVEMENTS.                       4  3004  B E26                66
548  4 460  IBMC2  B     SDTC               DETERMINE IF CHAR. PART OF SYMBOL      4  3008  B M4V                66
549  4 470         BCE   A1,SWD,Y           TEST IF CHAR PART OF SYMBOL            8  3012  B X48 H0Z Y          67
550  4 480         BCE   SYMTAB,SWTAB,Y     NO. TEST IF BUILDING SYMBOL TABLE      8  3020  B A2U H0W Y          67
551  4 490         B     SFLAG              FLAG OTHERS IF OP 1                    4  3028  B P8U                67
552  4 500         B     FLXC                                                      4  3032  B C67                67
553  4 510  IBMD2  B     SDTD               DETERMINE IF CHAR PART OF SYMBOL       4  3036  B N4V                67
554  4 520         B     IBMC2&4            GO TO TEST IF SYMBOL                   4  3040  B ?12                67
555  4 530  IBME2  BCE   SYMTAB,SWTAB,Y     TEST IF BUILDING TABLE                 8  3044  B A2U H0W Y          68
556  4 540         B     SFLAG              FLAG OTHERS IF OP 1                    4  3052  B P8U                68
557  4 550         B     RM                 GO TO MOVEMENTS                        4  3056  B E26                68
558  4 560  TEST3  BCE   RM0,A&X1,,         TEST IF DELIMITER                      8  3060  B A08 G|X ,          68
559  4 570         BCE   RM0,A&X1,          NO. TEST IF TERMINATOR.                8  3068  B A08 G|X            68
560  4 580         B     SFLAG              FLAG OTHERS IF OP 1                    4  3076  B P8U                68
561  4 590         BCE   RM,AN,N            TEST IF ANALYSIS.                      8  3080  B E26 F9Z N          69
562  4 600         BCE   AST2,A&X1,*        YES. TEST IF OPERATOR.                 8  3088  B A24 G|X *          69
563  4 610         BCE   PTHE,SET,A         NO. TEST IF SET A.                     8  3096  B O36 D3Z A          69
564  4 620         B     RM                 GO TO MOVEMENTS                        4  3104  B E26                69
565  4 630  RM0    BCE   *&5,PASS2,Y        TEST IF OP 1                           8  3108  B A20 H0X Y          69
566  4 640         B     FLAST              YES. SET LOCATION CNTR FLAG            4  3116  B B50                70
567  4 650         B     RM                 GO TO MOVEMENTS                        4  3120  B E26                70
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SEQ PG LIN  LABEL  OP    OPERANDS                                                 SFX CT  LOCN  INSTRUCTION TYPE  CARD

568  4 660  AST2   BCE   CPX,SET,C          TEST IF SET C                              8  3124  B A44 D3Z C         70
569  4 670         BCE   CPX,SET,D          NO. TEST IF SET D.                         8  3132  B A44 D3Z D         70
570  4 680         B     RM                 NO. GO TO MOVEMENTS.                       4  3140  B E26               70
571  4 690  CPX    B     SCH10              MOVE TO NEXT CHARACTER.                    4  3144  B O1U               70
572  4 700         BCE   RM,A&X1,,          TEST IF DELIMITER.                         8  3148  B E26 G|X ,         71
573  4 710         BCE   RM,A&X1,           NO. TEST IF TERMINATOR.                    8  3156  B E26 G|X           71
574  4 720         B     FLXC                                                          4  3164  B C67               71
575  4 730  TEST4  BCE   COMR,A&X1,,        TEST IF DELIMITER.                         8  3168  B A88 G|X ,         71
576  4 740         BCE   BLAR,A&X1,         NO. TEST IF TERMINATOR.                    8  3176  B B39 G|X           71
577  4 750         B     TEST5              NO. GO TO TEST FURTHER.                    4  3184  B B75               72
578  4 760  COMR   MLC   ON,SWOP            ON. THERE ARE MORE OPERANDS.               7  3188  M G7X X8W           72
579  4 770         B     RAN,PASS2,Y        TEST IF FIRST OPERAND.                     8  3195  B B28 H0X Y         72
580  4 780         MLC   ON,SWAP            YES. ON. SPLIT FIRST FIELD.                7  3203  M G7X |6|           72
581  4 790  SWR    B     FLAST              GO TO FLAG LOCATION CNTR                   4  3210  B B50               72
582  4 800         MLC   @R@,FLAG           SET RELATIVE FLAG.                         7  3214  M I2T D6V           72
583  4 810         MLC   @Y@,PASS2          ON. PAST OP 1.                             7  3221  M H7V H0X           73
584  4 820  RAN    MLC   @R@,RELT           YES. SET RELATIVE FLAG.                    7  3228  M I2T D4|           73
585  4 830         B     RM                 GO TO MOVEMENTS.                           4  3235  B E26               73
586  4 840  BLAR   MLC   OFF,SWOP           OFF. NO MORE OPERANDS.                     7  3239  M G7Y X8W           73
587  4 850         B     COMR&7             GO TO TEST IF OP 1                         4  3246  B A95               73
588  4 860  FLAST  MLC   @L@,FLAG           SET LOCATION CNTR FLAG                     7  3250  M I2U D6V           73
589  4 870         MLC   @Y@,PASS2          ON. PAST OP 1.                             7  3257  M H7V H0X           74
590  4 880         MLC   OFF,SWR            OFF. NOT SIMPLE RELATIVE.                  7  3264  M G7Y B10           74
591  4 890         B     RAN                GO TO TEST IF ANALYSIS                     4  3271  B B28               74
592  4 900  TEST5  B     SFLAG              FLAG OTHERS IF OP 1                        4  3275  B P8U               74
593  4 910         BCE   RM,AN,N            TEST IF ANALYSIS                           8  3279  B E26 F9Z N         74
594  4 920         BCE   TEST6,SET,A        YES. TEST IF SET A.                        8  3287  B C78 D3Z A         74
595  4 930         BCE   FLXC,A&X1,&        NO. TEST IF OPERATOR.                      8  3295  B C67 G|X &         75
596  4 940         BCE   FLXC,A&X1,-        NO. TEST IF OPERATOR.                      8  3303  B C67 G|X -         75
597  4 950         BCE   FLXC,A&X1,*        NO. TEST IF OPERATOR.                      8  3311  B C67 G|X *         75
598  4 960         BCE   FLXC,A&X1,/        NO. TEST IF OPERATOR.                      8  3319  B C67 G|X /         75
599  4 970         BCE   FLXC,A&X1,#        NO. TEST IF OPERATOR.                      8  3327  B C67 G|X #         76
600  4 980         BCE   FLXC,CH,A          NO. TEST IF ALPHABETIC.                    8  3335  B C67 F9V A         76
601  4 990         BCE   *&5,SET,C          NO. TEST IF SET C.                         8  3343  B C55 D3Z C         76
602  5 000         B     RM                 NO. GO TO MOVEMENTS.                       4  3351  B E26               76
603  5 010         BCE   XR,A&X1,%          YES. TEST IF INDEXING                      8  3355  B D26 G|X %         76
604  5 020         B     RM                 NO. GO TO MOVEMENTS                        4  3363  B E26               77
605  5 030  FLXC   MLC   @C@,COPL           SET COMPLEX FLAG.                          7  3367  M I1X D4S           77
606  5 040         B     RM                 GO TO MOVEMENTS.                           4  3374  B E26               77
607  5 050  TEST6  BCE   FLXR,A&X1,&        TEST IF OPERATOR.                          8  3378  B D06 G|X &         77
608  5 060         BCE   FLXR,A&X1,-        NO. TEST IF OPERATOR.                      8  3386  B D06 G|X -         77
609  5 070         BCE   XFL,A&X1,#         NO. TEST IF LITERAL                        8  3394  B D58 G|X #         77
610  5 080         B     RM                 NO. GO TO MOVEMENTS.                       4  3402  B E26               78
611  5 090  FLXR   B     SCH10              GO TO NEXT CHARACTER.                      4  3406  B O1U               78
612  5 100         B     SCLAS              CLASSIFY CHARACTER.                        4  3410  B J5X               78
613  5 110         BCE   XR,CH,A            TEST IF CHAR ALPHABETIC.                   8  3414  B D26 F9V A         78
614  5 120         B     RM                 NO. GO TO MOVEMENTS.                       4  3422  B E26               78
615  5 130  XR     MLC   @R@,RELT           SET RELATIVE FLAG.                         7  3426  M I2T D4|           78
616  5 140         MLC   @X@,INDX           SET INDEX FLAG                             7  3433  M I1Y D4/           78
617  5 150         MLC   @Y@,SWRAX          ON. RELATIVE AND INDEXED.                  7  3440  M H7V G9V           79
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

618  5 160         B     RM                 GO TO MOVEMENTS.                              4  3447  B E26                 79
619  5 170         MLC   @Y@,SWI            ON. # SIGN FOLLOWED BY NUMERIC.               7  3451  M H7V G9W             79
620  5 180  XFL    B     SCH10              MOVE TO NEXT CHARACTER.                       4  3458  B O1U                 79
621  5 190         B     SCLAS              CLASSIFY CHARACTER.                           4  3462  B J5X                 79
622  5 200         B     XFL-7,CH,N         TEST IF CHARACTER NUMERIC.                    8  3466  B D51 F9V N           79
623  5 210         BCE   RM,SWI,N           NO. TEST IF NUMERIC AFTER #                   8  3474  B E26 G9W N           80
624  5 220         BCE   FX,A&X1,&          NO. TEST IF OPERATOR.                         8  3482  B E02 G|X &           80
625  5 230         BCE   FX,A&X1,-          NO. TEST IF OPERATOR.                         8  3490  B E02 G|X -           80
626  5 240         B     RM                 NO. GO TO MOVEMENTS.                          4  3498  B E26                 80
627  5 250  FX     B     SCH10              MOVE TO NEXT CHARACTER.                       4  3502  B O1U                 80
628  5 260         B     SCLAS              CLASSIFY CHARACTER.                           4  3506  B J5X                 80
629  5 270         B     *&5,CH,A           TEST IF CHAR ALPHABETIC.                      8  3510  B E22 F9V A           81
630  5 280         B     RM                 NO. GO TO MOVEMENTS.                          4  3518  B E26                 81
631  5 290         B     XR                 YES. GO FLAG R AND X                          4  3522  B D26                 81
632  5 300  RM     B     SMOV               GO TO MOVEMENT SUBROUTINE                     4  3526  B |5W                 81
633  5 310         SBR   X1,0               ZERO INDEX REGISTERS                          7  3530  H 089 000             81
634  5 320         SBR   X2                                                               4  3537  H 094                 81
635  5 330         SBR   X3                                                               4  3541  H 099                 81
636  5 340         BCE   OUTS,TBLSW,N       TEST IF $ANALIZE CONTROL CARD                 8  3545  B E71 086 N           82
637  5 350         MLC   @Y@,SWTAB          YES. ON. BUILD TABLE.                         7  3553  M H7V H0W             82
638  5 360         MLC   @Y@,SWD            ON. PAST FIRST CHARACTER.                     7  3560  M H7V H0Z             82
639  5 370         B     INIT               GO TO RESCAN FOR SYMBOLS.                     4  3567  B W77                 82
640  5 380  OUTS   B     QUAL               EXIT                                          4  3571  B 961                 82
641  5 390  SPS    SBR   X2,0               ZERO INDEX REGISTERS.                         7  3575  H 094 000             82
642  5 400  RESET  MLC   ON,SWSP1           ON. FIRST OPERAND.                            7  3582  M G7X G42             83
643  5 410         SBR   SSP1,CARD&8&X1     STORE FIRST OPERATOR LOCATION                 7  3589  H G8W E//             83
644  5 420         BCE   SWSP1,CARD-1&X1,   TEST IF CHARACTER BLANK                       8  3596  B G42 E|S             83
645  5 430  SWSP2  NOP   ONSW2              NO. BRANCH IF SECOND OPERAND.                 4  3604  N G50                 83
646  5 440         MLC   OFF,SWSP1          NO. OFF. FIRST OPERAND.                       7  3608  M G7Y G42             83
647  5 450         SW    CARD-1&X1          SET W-M IN FIRST OPERAND                      4  3615  , E|S                 83
648  5 460         MLC   CARD-1&X1,A&X2     MOVE CHARACTER TO TEST AREA                   7  3619  M E|S G!X             84
649  5 470         CW    CARD-1&X1          CLEAR                                         4  3626  ) E|S                 84
650  5 480         A     &1,X2              INCREMENT TO NEXT POSITION                    7  3630  A I1W 094             84
651  5 490  STSP2  SBR   SSP2,CARD-1&X1     STORE CURRENT LOCATION IN CARD                7  3637  H G8Z E|S             84
652  5 500         C     SSP1,SSP2          TEST IF HAVE REACHED OPERATOR                 7  3644  C G8W G8Z             84
653  5 510         BE    *&12               YES.                                          5  3651  B F67 S               84
654  5 520         A     &1,X1              NO. TO NEXT POSITION IN CARD.                 7  3656  A I1W 089             85
655  5 530         B     SWSP2-8            GO TO TEST BLANK.                             4  3663  B E96                 85
656  5 540         A     &1,X1              TO NEXT POSITION IN CARD.                     7  3667  A I1W 089             85
657  5 550         BCE   ADDN,CARD-1&X1,    TEST IF CHARACTER IS BLANK.                   8  3674  B G09 E|S             85
658  5 560         BCE   *&5,NUOP,0         NO. TEST IF FIRST OPERAND.                    8  3682  B F94 G0| 0           85
659  5 570         B     *&9                NO.                                           4  3690  B G02                 85
660  5 580         BCE   SFLAG,PASS2,N      YES. FLAG OTHERS IF OP 1                      8  3694  B P8U H0X N           86
661  5 590         MLC   @X@,INDX           YES. SET INDEX FLAG.                          7  3702  M I1Y D4/             86
662  5 600  ADDN   A     &1,NUOP            INCREMENT OPERAND COUNT                       7  3709  A I1W G0|             86
663  5 610         BCE   SPSDM,NUOP,2       TEST IF COUNT IS TWO                          8  3716  B G75 G0| 2           86
664  5 620         A     &1,X1              NO.                                           7  3724  A I1W 089             86
665  5 630         MLC   ON,SWSP2           ON. SECOND OPERAND.                           7  3731  M G7X F04             87
666  5 640         B     RESET                                                            4  3738  B E82                 87
667  5 650  SWSP1  B     SPSDM              IF ON TEST DEMODIFIER.                        4  3742  B G75                 87
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

668  5 660         B     STSP2              OTHERWISE SCAN SECOND OPERAND.        4  3746  B F37                87
669  5 670  ONSW2  MLC   @,@,A&X2           GENERATE COMMA BETWEEN OPERANDS       7  3750  M I0Z G!X            87
670  5 680         A     &1,X2              TO NEXT POSITION OF TEST AREA         7  3757  A I1W 094            87
671  5 690         MLC   OFF,SWSP2          OPERAND TWO COMPLETED                 7  3764  M G7Y F04            88
672  5 700         B     SWSP2&4                                                  4  3771  B F08                88
673  5 710  SPSDM  BCE   NOTDM,DM,          TEST IF DEMODIFIER                    8  3775  B H28 E4/            88
674  5 720         SW    DM                 YES. SET W-M IN DEMODIFIER            4  3783  , E4/                88
675  5 730         BCE   DMF1,NUOP,0        TEST IF NO OPERANDS.                  8  3787  B H83 G0| 0          88
676  5 740         BCE   DMF2,NUOP,1        NO. TEST IF ONE OPERAND.              8  3795  B I31 G0| 1          88
677  5 750         MLC   @,@,A&X2           NO. GENERATE COMMA AFTER OP 2         7  3803  M I0Z G!X            89
678  5 760         A     &1,X2              TO NEXT POSITION OF TEST AREA         7  3810  A I1W 094            89
679  5 770         MLC   DM,A&X2            MOVE DEMODIFIER TO TEST AREA          7  3817  M E4/ G!X            89
680  5 780         B     OUT                GO OUT                                4  3824  B I64                89
681  5 790  NOTDM  BCE   SNOPRD,NUOP,0      TEST IF NO OPERANDS                   8  3828  B H68 G0| 0          89
682  5 800         BCE   *&5,NUOP,2         NO. TEST IF TWO OPERANDS              8  3836  B H48 G0| 2          90
683  5 810         B     OUT                NO. GO OUT.                           4  3844  B I64                90
684  5 820         BCE   OUT-7,CARD&13,B    YES. TEST IF BRANCH INSTRUC.          8  3848  B I57 E1W B          90
685  5 830         BCE   OUT-7,CARD&15,B    NO. TEST IF ACTUAL BRANCH INST.       8  3856  B I57 E1Y B          90
686  5 840         B     OUT                NO. GO OUT.                           4  3864  B I64                90
687  5 850  SNOPRD MLC   NUOP,NOPRD         MOVE OPERAND COUNT TO COUNT FLD       7  3868  M G0| D6W            90
688  5 860         B     SFLAG              FLAG OTHERS.                          4  3875  B P8U                91
689  5 870         B     QUAL               RETURN                                4  3879  B 961                91
690  5 880  DMF1   MLC   DM,F1              MOVE DEMODIFIER TO FIELD ONE          7  3883  M E4/ D6X            91
691  5 890         C     F1,GRPMRK          TEST IF GROUP MARK                    7  3890  C D6X E8X            91
692  5 900         BU    *&8                NO.                                   5  3897  B I09 /              91
693  5 910         MLC   @G-M@,F1&2         YES. REPLACE WITH FLAG.               7  3902  M I2X D6Z            91
694  5 920         MLC   @1@,NOPRD          NUMBER OF OPERANDS IS ONE             7  3909  M I0T D6W            92
695  5 930         CW    DM                 REMOVE W-M FROM CARD IMAGE            4  3916  ) E4/                92
696  5 940         MLC   @D@,FLAG           FLAG OP 1 DEMODIFIER.                 7  3920  M I2Y D6V            92
697  5 950         B     QUAL               RETURN.                               4  3927  B 961                92
698  5 960  DMF2   MLC   DM,F2              MOVE DEMODIFIER TO FIELD TWO          7  3931  M E4/ D8T            92
699  5 970         C     F2,GRPMRK          TEST IF GROUP MARK.                   7  3938  C D8T E8X            92
700  5 980         BU    *&8                NO.                                   5  3945  B I57 /              93
701  5 990         MLC   @G-M@,F2&2         YES. REPLACE WITH FLAG.               7  3950  M I2X D8V            93
702  6 000         MLC   @,@,A&X2           GENERATE COMMA FOR CORRECT CNT        7  3957  M I0Z G!X            93
703  6 010  OUT    MLC   @0@,NUOP           ZERO NUMBER OF OPERANDS               7  3964  M H8W G0|            93
704  6 020         CW    DM                 REMOVE W-M FROM CARD IMAGE            4  3971  ) E4/                93
705  6 030         SBR   X1,0               ZERO INDEX REGISTERS.                 7  3975  H 089 000            93
706  6 040         SBR   X2                                                       4  3982  H 094                94
707  6 050         MLC   @Y@,SWNLAB         ON.                                   7  3986  M H7V H0V            94
708  6 060         MLC   OFF,SWSP2          OFF. RESET OP 2 SWITCH                7  3993  M G7Y F04            94
709  6 070         B     INIT               GO INITIALIZE FOR SCAN                4  4000  B W77                94
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

710  6 080         JOB   PHASE I, PASS 3 OF ANALYSIS  INITQL ROUTINE
711  6 090  *
712  6 100  *     INITQL                    -THIS ROUTINE ANALYZES ASSEMBLER
713  6 110  *                               INSTRUCTIONS WHICH INITIALIZE OR
714  6 120  *                               TERMINATE SYMBOL QUALIFICATION
715  6 130  *
716  6 140  *
717  6 150  INITQL BCE   NOSFX,FIELD1,      TEST IF QUALIFIER BLANK                 8  4004  B 11T D6X           95
718  6 160         SW    QUALSW             NO. BEGIN QUALIFICATION.                4  4012  , E8Y               95
719  6 170         BCE   MAP,LANG,4         TEST IF MAP LANGUAGE.                   8  4016  B 06/ 083 4         95
720  6 180  M1     MLCWA FIELD1,SUFFIX      NO. SUFFIX IS ONE CHARACTER.            7  4024  L D6X E9/           95
721  6 190  *
722  6 200  *                             -INITIALYZE THE SUFFIXING SUBROUTINE
723  6 210  *
724  6 220         BCE   MNINE,MACH,3              TEST FOR 1410                    8  4031  B 05| 082 3         95
725  6 230         SBR   SETX3&3,NFIVE                                             7  4039  H 73| F9/           96
726  6 240         B     EXIT                                                      4  4046  B 11X               96
727  6 250  MNINE  SBR   SETX3&3,NNINE                                             7  4050  H 73| F9U           96
728  6 260         B     EXIT                                                      4  4057  B 11X               96
729  6 270  *
730  6 280  *                             -WILL ACCEPT UP TO A THREE
731  6 290  *                             CHARACTER QUALIFIER IN MAP
732  6 300  *
733  6 310  MAP    BCE   CK2,FIELD1&2,             TEST IF THREE CHARACTERS         8  4061  B 08X D6Z           96
734  6 320         MLCWA FIELD1&2,SUFFIX           YES.                             7  4069  L D6Z E9/           96
735  6 330         MLC   @3@,NUMBR                                                 7  4076  M I2Z G0T           97
736  6 340         B     EXIT                                                      4  4083  B 11X               97
737  6 350  CK2    BCE   M1,FIELD1&1,              TEST IF TWO CHARACTERS           8  4087  B 02U D6Y           97
738  6 360         MLCWA FIELD1&1,SUFFIX           YES.                             7  4095  L D6Y E9/           97
739  6 370         MLC   @2@,NUMBR                                                 7  4102  M I3| G0T           97
740  6 380         B     EXIT                                                      4  4109  B 11X               97
741  6 390  NOSFX  CW    QUALSW                                                    4  4113  ) E8Y               98
742  6 400  EXIT   MLC   @00@,COUNT                TO PREVENT QUALIFIER FROM        7  4117  M H9/ F0T           98
743  6 410  *                                        BEING ENTERED IN REFERENCE
744  6 420         B     CKOPT                                                     4  4124  B 989               98
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

745  6 430         JOB   PHASE I, PASS 3 OF ANALYSIS       QUALFY ROUTINE
746  6 440  *
747  6 450  *
748  6 460  *                  -QUALFY-  THIS ROUTINE HANDLES THE
749  6 470  *                            QUALIFICATION OF LABELS AND
750  6 480  *                            FIELD1.
751  6 490  *
752  6 500  *
753  6 510  QUALFY BCE   LABL,BRANCH,N           TEST IF BRANCH.                 8  4128  B 20W G9S N          99
754  6 520         BCE   LABL,FIELD1,            YES. TEST IF FIELD1 BLANK.      8  4136  B 20W D6X            99
755  6 530         BCE   LABL,DOLL,$             NO. TEST IF $ IN FIELD1.        8  4144  B 20W H2/ $          99
756  6 540         BCE   *&13,FLAG,S                                             8  4152  B 17S D6V S          99
757  6 550         BCE   *&5,FLAG,R                                              8  4160  B 17S D6V R         100
758  6 560         B     CKOPT                   RETURN                          4  4168  B 989               100
759  6 570  *
760  6 580  *                            FIELD1
761  6 590  *
762  6 600         MLC   FIELD1&9,SORT&9         SET UP FOR SUBROUTINE           7  4172  M D7W D3X           100
763  6 610         BCE   BSFX,SET,A                                              8  4179  B 19V D3Z A         100
764  6 620         B     SBRPFX                  GO TO PREFIX SUBROUTINE         4  4187  B 66X               100
765  6 630         B     RESTOR                                                  4  4191  B 19Z               100
766  6 640  BSFX   B     SBRSFX                  GO TO SUFFIX SUBROUTINE         4  4195  B 72T               100
767  6 650  RESTOR MLC   SORT&9,FIELD1&9                                         7  4199  M D3X D7W           101
768  6 660  *
769  6 670  *                            LABEL
770  6 680  *
771  6 690  LABL   BCE   CKOPT,LABEL,            RETURN IF LABEL BLANK           8  4206  B 989 D4V           101
772  6 700         MLC   LABEL&9,SORT&9                                          7  4214  M D5U D3X           101
773  6 710         BCE   BRSFX,SET,A                                             8  4221  B 23X D3Z A         101
774  6 720         B     SBRPFX                  GO TO PREFIX SUBROUTINE         4  4229  B 66X               101
775  6 730         B     RESTR                                                   4  4233  B 24/               101
776  6 740  BRSFX  B     SBRSFX                                                  4  4237  B 72T               102
777  6 750  RESTR  MLC   SORT&9,LABEL&9                                          7  4241  M D3X D5U           102
778  6 760         B     CKOPT                   RETURN                          4  4248  B 989               102
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

779  6 770         JOB   PHASE I, PASS 3 OF ANALYSIS       PLIST  ROUTINE
780  6 780  *
781  6 790  *
782  6 800  *                 -PLIST-   THIS ROUTINE PRINTS THE
783  6 810  *                           FLAGGED LISTING.
784  6 820  *
785  6 830  *
786  6 840  PLIST  BWZ   FIRST,FSW#1,1           BRANCH FIRST TIME TO INIT.       8  4252  V 45T I3/ 1         103
787  6 850  HEADR  BWZ   HEAD,84,1               BRANCH IF NEW PAGE               8  4260  V 46V 084 1         103
788  6 860         BCE   MCARD,SET,D                                              8  4268  B 28X D3Z D         103
789  6 870         SW    CARD&5                                                   4  4276  , E0Y               103
790  6 880         MLCWA CARD&4,320                                               7  4280  L E0X 320           103
791  6 890  MCARD  MLCWA CARD&79,301                                              7  4287  L E8S 301           104
792  6 900         MLCWA INSEQ,215                                                7  4294  L D2X 215           104
793  6 910         CW    CARD&5                                                   4  4301  ) E0Y               104
794  6 920         BCE   WRITE,ANCODE,T          BRANCH IF TANSPARENT             8  4305  B 43Y D6/ T         104
795  6 930  *
796  6 940  *                           PRINT FROM SCAN AND PASS 1
797  6 950  *
798  6 960         SW    FLAGSA&4                IN ORDER TO LOAD                 4  4313  , D4U               104
799  6 970         SW                                                             1  4317  ,                   104
800  6 980         SW                                                             1  4318  ,                   104
801  6 990         SW                                                             1  4319  ,                   105
802  7 000         SBR   X1,0                                                     7  4320  H 089 000           105
803  7 010         SBR   X2                                                       4  4327  H 094               105
804  7 020  TSTLIM BCE   ONWARD,X1,5             TEST IF HAVE CHECKED FOR         8  4331  B 39U 089 5         105
805  7 030  *                                      ALL FLAGS
806  7 040         BCE   A1TOX1,FLAGSA&X1,       TEST IF THERE IS FLAG            8  4339  B 38T DU|           105
807  7 050         BCE   MFLAG,X2,0              IF X2 IS ZERO PRINT NO COMMA     8  4347  B 36Z 094 0         105
808  7 060         MLCWA @,@,203&X2                                               7  4355  L I0Z 2!3           106
809  7 070         A     @1@,X2                  X2 POINTS WHERE NEXT TO LOAD     7  4362  A I0T 094           106
810  7 080  MFLAG  MLCWA FLAGSA&X1,203&X2                                         7  4369  L DU| 2!3           106
811  7 090         A     @1@,X2                                                   7  4376  A I0T 094           106
812  7 100  A1TOX1 A     @1@,X1                                                   7  4383  A I0T 089           106
813  7 110         B     TSTLIM                                                   4  4390  B 33/               106
814  7 120  *
815  7 130  *                           PRINT FLAG FROM ANCODE
816  7 140  *
817  7 150  ONWARD MN    ANCODE,X1                                                7  4394  D D6/ 089           107
818  7 160         BCE   WRITE,FLGTBL&X1,                                         8  4401  B 43Y EZS           107
819  7 170         BCE   MOVFLG,X2,0             TEST IF PRINT COMMA              8  4409  B 43/ 094 0         107
820  7 180         MLCWA @,@,203&X2                                               7  4417  L I0Z 2!3           107
821  7 190         A     @1@,X2                                                   7  4424  A I0T 094           107
822  7 200  MOVFLG MLCWA FLGTBL&X1,203&X2                                         7  4431  L EZS 2!3           108
823  7 210  WRITE  B     PRINT                                                    4  4438  B 747               108
824  7 220         CW    FLAGSA&4                                                 4  4442  ) D4U               108
825  7 230         CW                                                             1  4446  )                   108
826  7 240         CW                                                             1  4447  )                   108
827  7 250         CW                                                             1  4448  )                   108
828  7 260         B     NOPT                    RETURN                           4  4449  B |09               108
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

829  7 270  *
830  7 280  *                             INITIALYZE PUNCH AREA
831  7 290  *
832  7 300  FIRST  CW    FSW                                                    4  4453  ) I3/              109
833  7 310         B     EJECT                                                  4  4457  B 704              109
834  7 320         B     PLIST&8                                                4  4461  B 26|              109
835  7 330  *
836  7 340  *                             WRITE HEADER
837  7 350  *
838  7 360  HEAD   B     PRINT                   TO SPACE                       4  4465  B 747              109
839  7 370         MLCWA @FLAGGED LISTING@,272                                  7  4469  L I4W 272          109
840  7 380         B     PRINT                                                  4  4476  B 747              109
841  7 390         B     PRINT                   TO SPACE                       4  4480  B 747              109
842  7 400         B     HEADR&8                                                4  4484  B 26Y              110
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SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

843  7 410         JOB   PHASE I, PASS 3 OF ANALYSIS       FETCH  ROUTINE
844  7 420  *
845  7 430  *
846  7 440  *                  -FETCH-   THIS ROUTINE MOVES A SYMBOL FROM
847  7 450  *                            THE SYMBOL TABLE TO SORT.  THE
848  7 460  *                            SYMBOLS ARE SEPERATED BY RECORD
849  7 470  *                            MARKS.
850  7 480  *
851  7 490  *
852  7 500  FETCH  BCE   DRPDLR,TEST&X2,0         TEST IF FIRST CHAR $            8  4488  B 50Y F!Z 0         111
853  7 510         BCE   SETA,SET,A              NO. TEST IF SET A               8  4496  B 51Z D3Z A         111
854  7 520         B     M                       NO. GO MOVE SYMBOL              4  4504  B 55T               111
855  7 530  DRPDLR MA    @001@,M&3               PASS OVER $                     7  4508  # I4Z 55W           111
856  7 540         B     M                       GO MOVE SYMBOL                  4  4515  B 55T               111
857  7 550  SETA   BCE   DSFX,TEST&X2,1          TEST IF SUFFIX                  8  4519  B 53/ F!Z 1         111
858  7 560         B     M                       NO. GO MOVE SYMBOL              4  4527  B 55T               112
859  7 570  *
860  7 580  *                            FORMAT THE SYMBOL SO THAT THE
861  7 590  *                            QUALIFYING CHARACTER IS IN THE
862  7 600  *                            TENTH POSITION AND THE $ IS DROPPED
863  7 610  *
864  7 620  DSFX   MA    @002@,M&3               PASS OVER $ AND QUALIFIER       7  4531  # I5S 55W           112
865  7 630         SW    SORT&9                                                  4  4538  , D3X               112
866  7 640  MSFX   MLC   TABLE,SORT&9            THE A OPERAN IS MODIFIED.       7  4542  M F2Z D3X           112
867  7 650         CW    SORT&9                                                  4  4549  ) D3X               112
868  7 660  M      MRCM  TABLE,SORT              THE A OPERAND IS MODIFIED       7  4553  P F2Z D2Y           112
869  7 670         SAR   M&3                     TO PICK UP THE NEXT SYMBOL.     4  4560  Q 55W               112
870  7 680         SBR   MSFX&3                                                  4  4564  H 54V               113
871  7 690  *
872  7 700  *                            REMOVE THE RECORD MARK IN SORT
873  7 710  *
874  7 720         SBR   X1,0                                                    7  4568  H 089 000           113
875  7 730  SCH    A     @1@,X1                                                  7  4575  A I0T 089           113
876  7 740         BCE   CLR,SORT&X1,|                                           8  4582  B 59U DSY |         113
877  7 750         B     SCH                                                     4  4590  B 57V               113
878  7 760  CLR    MLC   @ @,SORT&X1                                             7  4594  M I0S DSY           113
879  7 770         B     F&4                                                     4  4601  B S01               114
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

880  7 780         JOB   PHASE I, PASS 3 OF ANALYSIS       SYMQLF ROUTINE
881  7 790  *
882  7 800  *
883  7 810  *                  -SYMQLF-  THIS ROUTINE QUALIFIES THE SYMBOL
884  7 820  *                            IN SORT.  THE WORD MARK IF ANY FOR
885  7 830  *                            THIS SYMBOL IN TEST IS CLEARED.
886  7 840  *
887  7 850  *
888  7 860  SYMQLF BCE   *&5,TEST&X2,            TEST IF $ IN THE SYMBOL.         8  4605  B 61X F!Z          115
889  7 870         B     SYM&8                                                    4  4613  B S09              115
890  7 880         BCE   DOSFX,SET,A             NO.  TEST IF SET A               8  4617  B 63T D3Z A        115
891  7 890         B     SBRPFX                  NO.  BRANCH TO PREFIX.9          4  4625  B 66X              115
892  7 900         B     SYM&8                   RETURN                           4  4629  B S09              115
893  7 910  DOSFX  B     SBRSFX                  BRANCH TO SUFFIX                 4  4633  B 72T              115
894  7 920         B     SYM&8                   RETURN                           4  4637  B S09              115
895  7 930         B     SYM&8                   RETURN                           4  4641  B S09              116
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

896  7 940         JOB   PHASE I, PASS 3 OF ANALYSIS       -SUBROUTINES-
897  7 950  *
898  7 960  *
899  7 970  *                 -WTAPE-   THIS SUBROUTINE WRITES A RECORD
900  7 980  *                           FROM DAREC ONTO UNIT 2
901  7 990  *
902  8 000  *
903  8 010  WTAPE  SBR   R&3                                                    4  4645  H 66W              117
904  8 020         B     SYSIO                                                  4  4649  B 500              117
905  8 030         DCW   &IOCON2                                                3  4655  200                117
906  8 040         ORG   *-2                                                          4654
907  8 050         DC    &DAREC                                                 3  4656  D2T                118
908  8 060         DC    @W@                                                    1  4657                     118
909  8 070         BEF   OVFLW                BRANCH IF EXCEED REEL             5  4658  B S79 K            118
910  8 080  R      B     0                                                      4  4663  B 000              118
911  8 090  *
912  8 100  *
913  8 110  *
914  8 120  *
915  8 130  *
916  8 140  *
917  8 150  *                 -SBRPFX-  THIS SUBROUTINE PREFIXEDS THE SYMBOL
918  8 160  *                           IN SORT WITH THE SYMBOL IN SUFFIX
919  8 170  *                           AND A DOLLAR SIGN.  X3 IS
920  8 180  *                           NOT SAVED
921  8 190  *
922  8 200  SBRPFX SBR   OUTPFX&3                                               4  4667  H 72S              118
923  8 210         MLC   NUMBR,X3             A-OPERAND SET BY QUALIFI-         7  4671  M G0T 099          118
924  8 220  *                                   CATION ROUTINE - CONTAINS
925  8 230  *                                   COUNT OF CHARACTERS IN PFX
926  8 240         BCE   FWD,LANG,4           NO 5 CHARACTER LIMIT FOR MAP      8  4678  B 69Y 083 4        119
927  8 250         BCE   FWD,SORT&5,                                            8  4686  B 69Y D3T          119
928  8 260         B     OUTPFX                                                 4  4694  B 71Z              119
929  8 270  FWD    MLC   SORT&5,SORT&6&X3                                       7  4698  M D3T DCU          119
930  8 280         MLC   @$@,SORT&X3                                            7  4705  M I2S DBY          119
931  8 290         MLC   SUFFIX,SORT-1&X3                                       7  4712  M E9/ DBX          120
932  8 300  OUTPFX B     0                                                      4  4719  B 000              120
933  8 310  *
934  8 320  *
935  8 330  *                 -SBRSFX-  THIS SUBROUTINE SUFFIXES THE SYMBOL
936  8 340  *                           IN SORT WITH THE CHARACTER IN SUFFIX.
937  8 350  *
938  8 360  SBRSFX SBR   OUTSFX&3                                               4  4723  H 75W              120
939  8 370  SETX3  MLC   0,X3                 A-OPERAND IS SET BY               7  4727  M 000 099          120
940  8 380  *                                   QUALIFICATION ROUTINE.
941  8 390         BCE   CNT,SORT&X3,                                           8  4734  B 74W DBY          120
942  8 400         B     OUTSFX                                                 4  4742  B 75T              120
943  8 410  CNT    MLC   SUFFIX,SORT&X3                                         7  4746  M E9/ DBY          121
944  8 430  OUTSFX B     0                                                      4  4753  B 000              121
945  8 440  *
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SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD

946  8 450  *                   -SFILL-   THIS SUBROUTINE REPLACES EMBEDDED
947  8 460  *                             BLANKS IN THE SORT FIELD WITH THE
948  8 470  *                             SPECIAL CHARACTER COLON
949  8 480  *
950  8 490  *
951  8 500  SFILL  SBR   OFILL&3                                                   4  4757  H 82Z               121
952  8 510         SBR   X3,10                                                     7  4761  H 099 010           121
953  8 520  TBLNK  BCE   TSWPAD,SORT-1&X3,                                         8  4768  B 78U DBX           121
954  8 530         SW    SWFILL                                                    4  4776  , F9X               121
955  8 540         B     DECRX3                                                    4  4780  B 80T               121
956  8 550  TSWPAD BWZ   *&5,SWFILL,1                                              8  4784  V 79W F9X 1         122
957  8 560         B     *&8                                                       4  4792  B 80T               122
958  8 570         MLC   @:@,SORT-1&X3                                             7  4796  M I5T DBX           122
959  8 580  DECRX3 MA    @I9I@,X3                                                  7  4803  # I5W 099           122
960  8 590         BCE   CSWFIL,X3,0                                               8  4810  B 82S 099 0         122
961  8 600         B     TBLNK                                                     4  4818  B 76Y               122
962  8 610  CSWFIL CW    SWFILL                                                    4  4822  ) F9X               123
963  8 620  OFILL  B     0                                                         4  4826  B 000               123
964  8 630  *
965  8 640  *
966  8 650  *
967  8 660  SPATH  SBR   OPATH&3                                                   4  4830  H 89/               123
968  8 670         C     NUCH,@00@           TEST IF NO CHARACTERS                 7  4834  C I7W H9/           123
969  8 680         BE    OPATH-4                  YES. GO OUT                      5  4841  B 88U S             123
970  8 690         MLC   @0@,LIMIT           ZERO LIMIT                            7  4846  M H8W D2S           123
971  8 700  BSCH10 B     SCH10               MOVE TO NEXT CHARACTER                4  4853  B O1U               123
972  8 710         A     &1,LIMIT            INCREMENT LIMIT                       7  4857  A I1W D2S           124
973  8 720         BCE   *&13,A&X1,)         TEST FOR RIGHT PARENTHESIS            8  4864  B 88U G|X )         124
974  8 730         BCE   *&5,LIMIT,4         NO. TEST IF ABOVE LIMIT.              8  4872  B 88U D2S 4         124
975  8 740         B     BSCH10              NO. GO LOOK AT NEXT CHARACTER.        4  4880  B 85T               124
976  8 750         B     SCH10               MOVE TO NEXT CHARACTER.               4  4884  B O1U               124
977  8 760  OPATH  B     0                                                         4  4888  B 000               124
978  8 770  *
979  8 780  *     ADD SIGN SUBROUTINE
980  8 790  *
981  8 800  SRADD  SBR   OADD&3                                                    4  4892  H |5V               124
982  8 810         BCE   STORE&19,MACR,Y     TEST IF MACRO.                        8  4896  B 98S F9Y Y         125
983  8 820         BCE   OADD,NUOP,2         NO. TEST IF TWO OPERANDS.             8  4904  B |5S G0| 2         125
984  8 830         SBR   TS1,A&X1            NO. SAVE CURRENT LOCATION.            7  4912  H D1Y G|X           125
985  8 840         MLC   X1,TX1#3            SAVE INDEX ONE                        7  4919  M 089 I5Z           125
986  8 850         SBR   X1,51               START SCANNING FROM RIGHT             7  4926  H 089 051           125
987  8 860         C     A&X1,ADD            TEST IF NEXT CHAR ENDS LITERAL        7  4933  C G|X I6T           126
988  8 870         BE    STORE               YES. HAVE FOUND END OF LITERAL        5  4940  B 96T S             126
989  8 880         S     &1,X1               NO. MOVE TO CHARACTER TO LEFT         7  4945  S I1W 089           126
990  8 890         MZ    @ @,X1                                                    7  4952  Y I0S 089           126
991  8 900         B     *-29                LOOP BACK TO SEARCH                   4  4959  B 93T               126
992  8 910  STORE  SBR   TS2,A&X1            SAVE LOCATION OF LITERAL END          7  4963  H D2/ G|X           126
993  8 920         C     TS1,TS2             TEST IF IT IS SAME AS BEGINNING       7  4970  C D1Y D2/           127
994  8 930         BH    *&9                 NO.                                   5  4977  B 99| U             127
995  8 940         B     SLOOP               YES. THEN IS NOT A LITERAL.           4  4982  B B6Z               127
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

 996  8 950         B     OADD               GO OUT.                                   4  4986  B |5S               127
 997  8 960         BCE   OADD,SWTAB,Y       TEST IF BUILDING SYMBOL TABLE.            8  4990  B |5S H0W Y         127
 998  8 970         MLC   X1,SX2X1#3         NO. COMPUTE NUMBER OF CHARACTERS          7  4998  M 089 I6S           127
 999  8 980         S     TX1,SX2X1                                                    7  5005  S I5Z I6S           128
1000  8 990         MZ    @ @,SX2X1                                                    7  5012  Y I0S I6S           128
1001  9 000         MLC   SX2X1,NUCH                                                   7  5019  M I6S I7W           128
1002  9 010         MLC   @N@,SWYADD         OFF. WILL BE NO MORE LITERALS.            7  5026  M H7U H0T           128
1003  9 020         C     TEN,NUCH           TEST IF MORE THAN 10 CHARACTERS           7  5033  C G8T I7W           128
1004  9 030         BL    *&8                YES.                                      5  5040  B |5S T             129
1005  9 040         MLC   @Y@,SWA10          ON. MORE THAN 10 CHARACTERS.              7  5045  M H7V G9U           129
1006  9 050  OADD   B     0                                                            4  5052  B 000               129
1007  9 060  *     MOVEMENTS SUBROUTINE
1008  9 070  *
1009  9 080  SMOV   SBR   OUTM&3                                                       4  5056  H J5W               129
1010  9 090  SWAP   B     MOVAJ              BRANCH WHEN IS ADJUSTMENT.                4  5060  B Z5V               129
1011  9 100  MOVC   BCE   LOZAN1,SET,B                                                 8  5064  B S0| D3Z B         129
1012  9 110         BCE   ENDF1,A&X1,,       YES. GO TO END OPERAND.                   8  5072  B /7/ G|X ,         130
1013  9 120         BCE   ENDF2,A&X1,        NO. TEST IF CHAR IS TERMINATOR.           8  5080  B W8T G|X           130
1014  9 130         MLC   ON,SWM             NO. THEN WILL MOVE.                       7  5088  M G7X /8V           130
1015  9 140         BCE   *&13,SWYADD,N      TEST IF LITERAL.                          8  5095  B /1V H0T N         130
1016  9 150         C     A&X1,ADD#1         YES. TEST NEXT POSITION                   7  5103  C G|X I6T           130
1017  9 160         BE    SRADD              CONTAINS LITERAL NOTATION.                5  5110  B 89S S             131
1018  9 170         BCE   ENDPTH,A&X1,)      TEST IF TWO OPERANDS.                     8  5115  B /5Z G|X )         131
1019  9 180         BCE   SWTC&8,A&X1,%      NO. TEST NEXT FOR LEFT PAREN.             8  5123  B /4T G|X %         131
1020  9 190         B     SCH10              NO. MOVE TO NEXT CHARACTER.               4  5131  B O1U               131
1021  9 200  SWTC   B     INDTC              IF BRANCH GO TEST INDIRECT                4  5135  B V8S               131
1022  9 210         B     MOVC               GO TEST FOR DELIMITER.                    4  5139  B |6U               131
1023  9 220         BCE   ENDF1,MACR,Y                                                 8  5143  B /7/ F9Y Y         132
1024  9 230         B     SPATH              SCAN TO RIGHT PAREN.                      4  5151  B 83|               132
1025  9 240         B     MOVC               LOOP BACK.                                4  5155  B |6U               132
1026  9 250  ENDPTH BCE   ENDF1,MACR,Y                                                 8  5159  B /7/ F9Y Y         132
1027  9 260         B     SWTC-4                                                       4  5167  B /3/               132
1028  9 270  ENDF1  MLC   ON,SWOP            ON. END OF OPERAND                        7  5171  M G7X X8W           132
1029  9 280         A     &1,NUOP            INCREMENT COUNT OF OPERANDS.              7  5178  A I1W G0|           133
1030  9 290  SWM    B     MCHAR              IF ON GO MOVE CHARACTERS                  4  5185  B S7U               133
1031  9 300         MLC   @N@,SWF1X2         OFF. RESET.                               7  5189  M H7U F0Y           133
1032  9 310         B     FIN                GO END OF FIELD SCAN                      4  5196  B X1W               133
1033  9 320  LOZAN1 BCE   LOZAN,MACR,Y                                                 8  5200  B S3Z F9Y Y         133
1034  9 330         BCE   ENDF2,SWNOPS,Y                                               8  5208  B W8T H0S Y         133
1035  9 340         B     SCH10                                                        4  5216  B O1U               134
1036  9 350         MLC   ON,SWM                                                       7  5220  M G7X /8V           134
1037  9 360         BCE   ENDF2,SWCH10,Y                                               8  5227  B W8T G9T Y         134
1038  9 370         B     LOZAN1&8                                                     4  5235  B S0Y               134
1039  9 380  LOZAN  BCE   *&16,A&X1,)                                                  8  5239  B S6S G|X )         134
1040  9 390         MLC   ON,SWM                                                       7  5247  M G7X /8V           134
1041  9 400         B     SCH10                                                        4  5254  B O1U               135
1042  9 410         B     LOZAN                                                        4  5258  B S3Z               135
1043  9 420         BCE   ENDF2,A&1&X1,                                                8  5262  B W8T G|Y           135
1044  9 430         B     ENDF1                                                        4  5270  B /7/               135
1045  9 440  MCHAR  MLC   OFF,SWM            OFF.                                      7  5274  M G7Y /8V           135
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SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

1046  9 450        BCE   *&8,SWCH10,Y        TEST IF MORE THAN 10 CHAR                8  5281  B S9W G9T Y         135
1047  9 460        MLC   NUCH,X3             NO. SET X3 FOR MOVES                     7  5289  M I7W 099           136
1048  9 470        BCE   MOP1,NUOP,1         YES. TEST IF OP 1                        8  5296  B T2| G0| 1         136
1049  9 480        BCE   MOP2,NUOP,2         NO. TEST IF OP 2                         8  5304  B T7Z G0| 2         136
1050  9 490        BCE   MOP3,NUOP,3         NO. THEN IS OP 3                         8  5312  B V2X G0| 3         136
1051  9 500  MOP1  BCE   *&23,SWF1X2,Y       TEST IF SWITCH OP 1 AND OP 2             8  5320  B T5| F0Y Y         136
1052  9 510        SBR   MVMN10&6,F1-1&X3    NO. MODIFY MOVE OF OP 1 TO FLD 1         7  5328  H P5U DFW           137
1053  9 520        SBR   MVMY10&6,F1-1&X3                                             7  5335  H P6V DFW           137
1054  9 530        B     SMOVF               MOVE OP 1 INTO FIELD 1                   4  5342  B P3W               137
1055  9 540        B     CLEAR               CLEAR W-M USED FOR MOVE                  4  5346  B U7Z               137
1056  9 550        MLC   @N@,PASS2           OFF. PRETEND IS SECOND OP.               7  5350  M H7U H0X           137
1057  9 560        SBR   MVMN10&6,F2-1&X3    MODIFY MOVE OF OP 1 TO FLD 2             7  5357  H P5U DHS           137
1058  9 570        SBR   MVMY10&6,F2-1&X3                                             7  5364  H P6V DHS           138
1059  9 580        B     SMOVF               MOVE OP 1 INTO FIELD 2                   4  5371  B P3W               138
1060  9 590        B     CLEAR               CLEAR W-M USED FOR MOVE                  4  5375  B U7Z               138
1061  9 600  MOP2  BCE   *&31,SWF1X2,Y       TEST IF SWITCH OP 1 AND OP 2             8  5379  B U1X F0Y Y         138
1062  9 610        SBR   MVMN10&6,F2-1&X3    NO. MODIFY MOVE OF OP 2 TO FLD 2         7  5387  H P5U DHS           138
1063  9 620        SBR   MVMY10&6,F2-1&X3                                             7  5394  H P6V DHS           138
1064  9 630        B     SMOVF               MOVE OP 2 TO FIELD 2                     4  5401  B P3W               139
1065  9 640        BCE   ASKD,AN,Y           TEST IF ANALYSIS                         8  5405  B U2Y F9Z Y         139
1066  9 650        B     CLEAR               NO. CLEAR W-M USED IN MOVE               4  5413  B U7Z               139
1067  9 660        MLC   @N@,SWF1X2          OFF. DO NOT SWITCH OP 1 AND 2            7  5417  M H7U F0Y           139
1068  9 670        B     MOP1&8              GO MOVE OP 2 TO FIELD ONE                4  5424  B T2Y               139
1069  9 680  ASKD  BCE   CLEAR,MACR,Y                                                 8  5428  B U7Z F9Y Y         139
1070  9 690        BCE   CFIELD,SET,D        TEST IF SET D.                           8  5436  B U4Y D3Z D         140
1071  9 700        B     CLEAR               NO. CLEAR W-M USED IN MOVE               4  5444  B U7Z               140
1072  9 710  CFIELD C    F2-1&X3,@0@         TEST IF OPERAND 2 IS ZERO                7  5448  C DHS H8W           140
1073  9 720        BE    CLEAR               YES. THEN NOT INDEXED. GO CLEAR.         5  5455  B U7Z S             140
1074  9 730        C     F2-1&X3,@**@        NO. TEST IF OPERAND 2 IS **              7  5460  C DHS I6V           140
1075  9 740        BE    CLEAR               YES. NOT INDEXED. GO TO CLEAR.           5  5467  B U7Z S             140
1076  9 750        MLC   @X@,INDX            NO. SET INDEX FLAG.                      7  5472  M I1Y D4/           141
1077  9 760  CLEAR CW    7999                CLEAR CURRENT WORD MARK                  4  5479  ) I9Z               141
1078  9 770        BCE   SWOP,SWF1X2,N       TEST IF SWITCHING OP 1 AND 2             8  5483  B X8W F0Y N         141
1079  9 780        SW    A&1&X1              YES. SET W-M FOR NEXT OPERAND            4  5491  , G|Y               141
1080  9 790        SBR   CLEAR&3,A&1&X1      MODIFY SO NEXT TIME WILL CLEAR           7  5495  H U8S G|Y           141
1081  9 800        A     &1,X1               MOVE TO NEXT CHARACTER.                  7  5502  A I1W 089           141
1082  9 810        MLC   X1,X2               PRETEND OP 2 IS OP 1                     7  5509  M 089 094           142
1083  9 820        MLC   X1,TX1              SAVE X1                                  7  5516  M 089 I5Z           142
1084  9 830        B     INIT                GO TO INITIALIZE FOR NEW OPERAND         4  5523  B W77               142
1085  9 840  MOP3  SBR   MVMN10&6,F3-1&X3    MODIFY MOVE OF OP 3 TO FIELD 3           7  5527  H P5U DIS           142
1086  9 850        SBR   MVMY10&6,F3-1&X3                                             7  5534  H P6V DIS           142
1087  9 860        B     SMOVF               MOVE OP 3 TO FIELD 3                     4  5541  B P3W               142
1088  9 870        BCE   *&5,F3,}            TEST IF FIELD 3 IS GROUP MARK            8  5545  B V5X D9T }         143
1089  9 880        B     *&8                 NO.                                      4  5553  B V6U               143
1090  9 890        MLC   @G-M@,F3&2          YES. REPLACE WITH FLAG.                  7  5557  M I2X D9V           143
1091  9 900        MLC   OFF,SWOP            OFF. END OF FIELD MOVES.                 7  5564  M G7Y X8W           143
1092  9 910        MLC   @N@,SWCH10          OFF. RESET.                              7  5571  M H7U G9T           143
1093  9 920        B     CLEAR               GO TO CLEAR W-M IN CARD IMAGE.           4  5578  B U7Z               143
1094  9 930  INDTC MLC   OFF,SWTC            OFF. DO NOT COME BACK.                   7  5582  M G7Y /3V           144
1095  9 940        B     SWTC,INST,I         TEST IF INDIRECT.                        8  5589  B /3V D2Y I         144
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

1096  9 950         B     SCLAS                  NO. CLASSIFY CHARACTER.                 4  5597  B J5X                144
1097  9 960         BCE   CHSC,CH,N              TEST IF CHAR NUMERIC.                   8  5601  B W1T F9V N          144
1098  9 970         B     SWTC                   NO. GO TO TEST DELIMITER.               4  5609  B /3V                144
1099  9 980  CHSC   MLC   ON,SWM                 ON. DO MOVEMENTS.                       7  5613  M G7X /8V            144
1100  9 990         BCE   FLGI,A&X1,6            TEST FOR INDIRECT.                      8  5620  B W6Y G|X 6          145
1101 10 000         BCE   *&9,AN,N               TEST IF ANALYSIS                        8  5628  B W4U F9Z N          145
1102 10 010         BCE   OTHE,A&X1,1            TEST FOR INDIRECT.                      8  5636  B W5S G|X 1          145
1103 10 020         B     SCH10                  NO. MOVE TO NEXT CHARACTER.             4  5644  B O1U                145
1104 10 030         B     INDTC&15               LOOP BACK.                              4  5648  B V9X                145
1105 10 040  OTHE   B     SCH10                  MOVE TO NEXT CHARACTER                  4  5652  B O1U                145
1106 10 050         BCE   FLGI&4,A&X1,1          GO TO FLAG INDIRECT                     8  5656  B W7S G|X 1          146
1107 10 060         B     INDTC&15               NO. LOOP BACK.                          4  5664  B V9X                146
1108 10 070  FLGI   B     SFLAG                  SET FLAG TO OTHERS                      4  5668  B P8U                146
1109 10 080         MLC   @I@,IND                SET INDIRECT FLAG                       7  5672  M I6W D4T            146
1110 10 090         B     SWTC                   GO TEST FOR DELIMITER                   4  5679  B /3V                146
1111 10 100  ENDF2  MLC   OFF,SWOP               END OPERAND                             7  5683  M G7Y X8W            146
1112 10 110         BCE   *&8,SWNOPS,Y           TEST IF NO OPERANDS.                    8  5690  B X0V H0S Y          147
1113 10 120         A     &1,NUOP                NO. INCREMENT NUMBER OF OPERANDS        7  5698  A I1W G0|            147
1114 10 130         MLC   @N@,SWNOPS             OFF. THERE ARE OPERANDS.                7  5705  M H7U H0S            147
1115 10 140         B     SWM                    GO TO MOVE.                             4  5712  B /8V                147
1116 10 150  FIN    BCE   LASTF,NUOP,3           TEST IF THIRD OPERAND.                  8  5716  B X2Y G0| 3          147
1117 10 160         B     CLEAR                  NO. GO CLEAR W-M IN CARD IMAGE.         4  5724  B U7Z                147
1118 10 170  LASTF  MLC   OFF,SWOP               OFF. END OF OPERAND.                    7  5728  M G7Y X8W            148
1119 10 180         BCE   CLEAR,MACR,Y           TEST IF IS MACRO                        8  5735  B U7Z F9Y Y          148
1120 10 190         BCE   PUTO,SET,A             NO. TEST IF SET A                       8  5743  B X6T D3Z A          148
1121 10 200         BCE   PUTO,SET,E             NO. TEST IF SET E                       8  5751  B X6T D3Z E          148
1122 10 210         B     CLEAR                  NO. GO CLEAR W-M IN CARD IMAGE          4  5759  B U7Z                148
1123 10 220  PUTO   BCE   MC,A&X1,,              TEST IF DEMODIFIER IS COMMA             8  5763  B X7V G|X ,          149
1124 10 230         B     CLEAR                  GO CLEAR W-M IN CARD IMAGE              4  5771  B U7Z                149
1125 10 240  MC     MLC   @,@,F3                 MOVE COMMA TO FIELD 3                   7  5775  M I0Z D9T            149
1126 10 250         B     CLEAR                  GO CLEAR W-M IN CARD IMAGE              4  5782  B U7Z                149
1127 10 260  SWOP   B     RINI                   IF BRANCH THERE ARE MORE OPERANDS       4  5786  B Y0Y                149
1128 10 270         MLC   NUOP,NOPRD             MOVE NUMBER OF OPERANDS TO COUNT        7  5790  M G0| D6W            149
1129 10 280         MLC   @00@,NUOP              ZERO NUMBER OF OPERANDS                 7  5797  M H9/ G0|            150
1130 10 290         B     OUTM                   RETURN FROM SUBROUTINE                  4  5804  B J5T                150
1131 10 300  RINI   SW    A&1&X1                 SET W-M FOR NEXT OPERAND                4  5808  , G|Y                150
1132 10 310         SBR   CLEAR&3,A&1&X1         MODIFY TO CLEAR NEXT TIME               7  5812  H U8S G|Y            150
1133 10 320         MLC   @00@,NUCH              ZERO NUMBER OF CHARACTERS               7  5819  M H9/ I7W            150
1134 10 330         A     &1,X1                  MOVE TO NEXT CHARACTER                  7  5826  A I1W 089            150
1135 10 340         BCE   SWTC,MACR,Y            TEST IF MACRO                           8  5833  B /3V F9Y Y          151
1136 10 350         BCE   ONSWTC,SET,C           TEST IF SET C                           8  5841  B Z0/ D3Z C          151
1137 10 360  CONT   BCE   SWTC,AN,N              TEST IF ANALYSIS                        8  5849  B /3V F9Z N          151
1138 10 370         BCE   INIT,SET,B             YES. TEST IF SET B                      8  5857  B W77 D3Z B          151
1139 10 380         BCE   RTRC,SET,C             NO. TEST IF SET C                       8  5865  B Z2U D3Z C          152
1140 10 390         BCE   RTRD,SET,D             NO. TEST IF SET D                       8  5873  B Z4T D3Z D          152
1141 10 400         BCE   SWTC,SWRAX,Y           TEST IF RELATIVE AND INDEXED            8  5881  B /3V G9V Y          152
1142 10 410         BCE   INIT,NUOP,1            NO. TEST IF OP 1                        8  5889  B W77 G0| 1          152
1143 10 420         B     SWTC                   NO. GO TEST IF DELIMITER.               4  5897  B /3V                152
1144 10 430  ONSWTC BCE   *&5,NUOP,2             TEST IF OP 2                            8  5901  B Z1T G0| 2          153
1145 10 440         B     CONT                   GO TO TEST IF ANALYSIS                  4  5909  B Y4Z                153
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

1146 10 450         MLC   ON,SWTC             ON. SCAN FOR INDIRECT                     7  5913  M G7X /3V           153
1147 10 460         B     SWTC                GO TO SCAN INDIRECT                       4  5920  B /3V               153
1148 10 470  RTRC   BCE   INIT,NUOP,1         TEST IF OP 1                              8  5924  B W77 G0| 1         153
1149 10 480         MLC   ON,SWTC             NO. ON. TEST INDIRECT.                    7  5932  M G7X /3V           153
1150 10 490         B     SWTC                GO TEST.                                  4  5939  B /3V               154
1151 10 500  RTRD   BCE   SWTC,NUOP,1         TEST IF OP 1                              8  5943  B /3V G0| 1         154
1152 10 510         B     INIT                GO TO INITIALIZE FOR NEXT OPERAND         4  5951  B W77               154
1153 10 520  MOVAJ  MLC   OFF,SWAP            OFF. DO NOT COME BACK                     7  5955  M G7Y |6|           154
1154 10 530         MLC   OFF,SWM             OFF. DO NOT MOVE.                         7  5962  M G7Y /8V           154
1155 10 540         A     &1,NUOP             INCREMENT NUMBER OF OPERANDS              7  5969  A I1W G0|           154
1156 10 550         BCE   MCHAR,BRANCH,N      TEST IF SPLIT OP 1                        8  5976  B S7U G9S N         155
1157 10 560  TX2CH  BCE   TX2X2,SWCH10,Y      YES. TEST IF MORE THAN 10 CHAR            8  5984  B !4Z G9T Y         155
1158 10 570         BCE   STX2X1,SWF1X2,Y     NO. TEST IF SWITCHING OP 1 AND 2          8  5992  B !6X F0Y Y         155
1159 10 580         BCE   MOPA,SWAD,Y         NO. TEST IF 2ND POS IS $                  8  6000  B J1T H0U Y         155
1160 10 590         BCE   MOPA1,SWAD1,Y       NO. TEST IF FIRST POS IS $                8  6008  B J2U H2| Y         156
1161 10 600         MLC   A-1&X2,F1-1&X2      NO. MOVE SYMBOL TO FIELD ONE              7  6016  M G!W D0W           156
1162 10 610  MSN    MLC   A&X2,SIGNF          MOVE OPERATOR TO OPERATOR FIELD           7  6023  M G!X D7X           156
1163 10 620         SW    A&1&X2              SET WORD MARK AT ADJUSTMENT               4  6030  , G!Y               156
1164 10 630         MLC   A-1&X1,NUMF         MOVE ADJUSTMENT TO ITS FIELD              7  6034  M G|W D8S           156
1165 10 640         CW    A&1&X2              CLEAR WORD MARK IN CARD IMAGE             4  6041  ) G!Y               156
1166 10 650         B     CLEAR               GO CLEAR W-M                              4  6045  B U7Z               157
1167 10 660  TX2X2  MLC   TX2,X2              RESTORE X2                                7  6049  M F0X 094           157
1168 10 670         MLC   @N@,SWCH10          OFF. RESET.                               7  6056  M H7U G9T           157
1169 10 680         B     TX2CH&8             GO BACK.                                  4  6063  B Z9S               157
1170 10 690  STX2X1 MLC   X2,SX2X1            SAVE X2                                   7  6067  M 094 I6S           157
1171 10 700         S     TX1,SX2X1           COMPUTE THE MOVE ADDRESS                  7  6074  S I5Z I6S           157
1172 10 710         MZ    @ @,SX2X1                                                     7  6081  Y I0S I6S           158
1173 10 720         MLC   SX2X1,X3                                                      7  6088  M I6S 099           158
1174 10 730         MLC   A-1&X2,F1-1&X3                                                7  6095  M G!W DFW           158
1175 10 740         MLC   @N@,SWF1X2          OFF. RESET                                7  6102  M H7U F0Y           158
1176 10 750         B     MSN                 GO TO MOVE OPERATOR                       4  6109  B !2T               158
1177 10 760  MOPA   MLC   A-1&X2,F1-3&X2      MOVE TO FIELD 1 WITHOUT PREFIX            7  6113  M G!W D0U           158
1178 10 770         B     *&8                                                           4  6120  B J3/               159
1179 10 780  MOPA1  MLC   A-1&X2,F1-2&X2      MOVE TO FIELD 1 WITHOUT $                 7  6124  M G!W D0V           159
1180 10 790         MLC   @N@,SWAD1           OFF. RESET                                7  6131  M H7U H2|           159
1181 10 800         MLC   @N@,SWAD            OFF. RESET                                7  6138  M H7U H0U           159
1182 10 810  CLITA  CW    0                   CLEAR CURRENT W-M                         4  6145  ) 000               159
1183 10 820         B     MSN                 GO TO MOVE OPERATOR.                      4  6149  B !2T               159
1184 10 830  OUTM   B     0                                                             4  6153  B 000               159
1185 10 840  *
1186 10 850  *     CLASS.   SUBROUTINE
1187 10 860  *
1188 10 870  SCLAS  SBR   OUTCL&3                                                       4  6157  H L0T               160
1189 10 880         C     A&X1,INT            TEST FOR SPECIAL                          7  6161  C G|X G0V           160
1190 10 890         BL    CZET                NO. TEST FURTHER                          5  6168  B K4W T             160
1191 10 900         BCE   *&9,SWFSP,Y         TEST IF FIRST CHAR SPECIAL                8  6173  B J8Z G9X Y         160
1192 10 910         BCE   *&19,SET,B          NO. TEST IF SET B                         8  6181  B K0X D3Z B         160
1193 10 920  SP     MLC   @S@,CH              NO. FLAG SPECIAL                          7  6189  M I1Z F9V           160
1194 10 930         MLC   @Y@,SWFSP           ON. FIRST CHAR SPECIAL                    7  6196  M H7V G9X           161
1195 10 940         B     OUTCL               RETURN                                    4  6203  B L0|               161
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

1196 10 950         BCE   SP,SWCH10,Y        TEST IF 10 CHAR                           8  6207  B J8Z G9T Y         161
1197 10 960         BCE   SP,SWFC,Y          NO. TEST IF FIRST CHAR OF FIELD           8  6215  B J8Z H0| Y         161
1198 10 970         BCE   *&5,A&X1,          NO. TEST IF BLANK                         8  6223  B K3V G|X           161
1199 10 980         B     SP                 NO. GO TO FLAG SPECIAL                    4  6231  B J8Z               161
1200 10 990         MLC   @B@,CH             YES. FLAG BLANK                           7  6235  M I6X F9V           162
1201 11 000         B     OUTCL              RETURN                                    4  6242  B L0|               162
1202 11 010  CZET   C     A&X1,ZET           TEST FOR ALPHA                            7  6246  C G|X G0U           162
1203 11 020         BL    NUM                NO. GO TEST FURTHER.                      5  6253  B K9T T             162
1204 11 030         C     A&X1,REC           TEST IF RECORD MARK                       7  6258  C G|X F0U           162
1205 11 040         BE    SP                 YES. GO FLAG SPECIAL.                     5  6265  B J8Z S             162
1206 11 050         C     A&X1,MZ            TEST IF MINUS ZERO                        7  6270  C G|X G0W           163
1207 11 060         BE    SP                 YES. GO FLAG SPECIAL.                     5  6277  B J8Z S             163
1208 11 070         MLC   @A@,CH             FLAG ALPHABETIC                           7  6282  M I6Y F9V           163
1209 11 080         B     OUTCL              RETURN                                    4  6289  B L0|               163
1210 11 090  NUM    MLC   @N@,CH             FLAG NUMERIC                              7  6293  M H7U F9V           163
1211 11 100  OUTCL  B     0                                                            4  6300  B 000               163
1212 11 110  *
1213 11 120  *     DISCR.   SUBROUTINES
1214 11 130  *
1215 11 140  SDTB   SBR   OUTDB&3                                                      4  6304  H M0V               163
1216 11 150         BCE   INDTB,A&X1,I       TEST FOR INDIRECT                         8  6308  B L4T G|X I         164
1217 11 160         BCE   STRIP,A&1&X1,,                                               8  6316  B L6S G|Y ,         164
1218 11 170         BCE   STRIP,A&1&X1,@     NO. TEST IF COMPLEX                       8  6324  B L6S G|Y @         164
1219 11 180  NSTB   MLC   @N@,SWAD                                                     7  6332  M H7U H0U           164
1220 11 190         B     OUTDB              RETURN                                    4  6339  B M0S               164
1221 11 200  INDTB  BCE   *&5,A&1&X1,,                                                 8  6343  B L5V G|Y ,         165
1222 11 210         B     NSTB               NO. GO TO SCAN AFTER PREFIX               4  6351  B L3S               165
1223 11 220         MLC   @I@,IND            NO. FLAG INDIRECT                         7  6355  M I6W D4T           165
1224 11 230  STRIP  BCE   STRIPB,SWTAB,N                                               8  6362  B L9V H0W N         165
1225 11 240         SW    A&2&X1             SET W-M AFTER PREFIX                      4  6370  , G|Z               165
1226 11 250         SBR   CLEAR&3,A&2&X1     MODIFY TO CLEAR LATER                     7  6374  H U8S G|Z           165
1227 11 260         SBR   SRCLW&7,A&2&X1     MODIFY TO CLEAR LATER                     7  6381  H B4V G|Z           166
1228 11 270         A     &2,X1                                                        7  6388  A I6Z 089           166
1229 11 280  STRIPB MLC   @Y@,SWAD           ON. TO MAKE COMPLEX                       7  6395  M H7V H0U           166
1230 11 290  OUTDB  B     0                                                            4  6402  B 000               166
1231 11 300  *
1232 11 310  *     BLANK SUBROUTINE - 7080 -
1233 11 320  *
1234 11 330  SBLANK SBR   OBLANK&3                                                     4  6406  H M4U               166
1235 11 340         BCE   *&5,CH,B           TEST IF CHAR BLANK                        8  6410  B M2S F9V B         166
1236 11 350         B     OBLANK             NO. RETURN.                               4  6418  B M4/               167
1237 11 360         A     &1,X2              MOVE TO NEXT CHAR IN SYMBOL               7  6422  A I1W 094           167
1238 11 370         B     SCH10              MOVE TO NEXT CHAR IN OPERAND              4  6429  B O1U               167
1239 11 380         B     SCLAS              CLASSIFY CHARACTER                        4  6433  B J5X               167
1240 11 390         B     SBLANK&4           GO TO TEST BLANK                          4  6437  B M1|               167
1241 11 400  OBLANK B     0                                                            4  6441  B 000               167
1242 11 410  *
1243 11 420  *     DISCR.  IBM  TYPE-C-
1244 11 430  *
1245 11 440  SDTC   SBR   OUTTC&3                                                      4  6445  H N4U               167
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

1246 11 450         BCE   STRIPC,A&X1,@      TEST IF O K SYMBOL CHAR                   8  6449  B N3U G|X @         168
1247 11 460         BCE   STRIPC,A&X1,#      TEST IF O K SYMBOL CHAR                   8  6457  B N3U G|X #         168
1248 11 470         BCE   STRIPC,A&X1,.      TEST IF O K SYMBOL CHAR                   8  6465  B N3U G|X .         168
1249 11 480         BCE   *&9,SWTAB,Y        TEST IF BUILDING TABLE                    8  6473  B M8Z H0W Y         168
1250 11 490  ASKPTH BCE   PTHTC,A&X1,%       TEST IF INDEXED                           8  6481  B N0| G|X %         169
1251 11 500         MLC   @N@,SWD            NO. CHARACTER NOT PART OF SYMBOL          7  6489  M H7U H0Z           169
1252 11 510         B     OUTTC              RETURN                                    4  6496  B N4/               169
1253 11 520  PTHTC  B     SPATH              SCAN TILL RIGHT PAREN                     4  6500  B 83|               169
1254 11 530         BCE   FIDXC,AN,Y         TEST IF ANALYSIS                          8  6504  B N2T F9Z Y         169
1255 11 540         MLC   @N@,SWD            NO. CHAR. NOT PART OF SYMBOL              7  6512  M H7U H0Z           169
1256 11 550         B     OUTTC              RETURN                                    4  6519  B N4/               170
1257 11 560  FIDXC  MLC   @X@,INDX           FLAG INDEX                                7  6523  M I1Y D4/           170
1258 11 570         B     ASKPTH&8           LOOP BACK                                 4  6530  B M8Z               170
1259 11 580  STRIPC MLC   @Y@,SWD            CHAR IS PART OF SYMBOL                    7  6534  M H7V H0Z           170
1260 11 590  OUTTC  B     0                                                            4  6541  B 000               170
1261 11 600  *
1262 11 610  *     DISCR.   IBM TYPE-D-
1263 11 620  *
1264 11 630  SDTD   SBR   OUTTD&3                                                      4  6545  H O1T               170
1265 11 640         BCE   *&17,MACR,Y        TEST IF MACROS                            8  6549  B N7T F9Y Y         170
1266 11 650         BCE   STRIPD,A&X1,%      TEST IF O K SYMBOL CHAR                   8  6557  B N9S G|X %         171
1267 11 660         BCE   STRIPD,A&X1,)      TEST IF O K SYMBOL CHAR                   8  6565  B N9S G|X )         171
1268 11 670         BCE   STRIPD,A&X1,.      TEST IF O K SYMBOL CHAR                   8  6573  B N9S G|X .         171
1269 11 680         MLC   @N@,SWD            CHAR IS NOT PART OF SYMBOL                7  6581  M H7U H0Z           171
1270 11 690         B     OUTTD              RETURN                                    4  6588  B O1|               171
1271 11 700  STRIPD MLC   @Y@,SWD            CHAR IS PART OF SYMBOL                    7  6592  M H7V H0Z           172
1272 11 710         B     OUTTD              RETURN                                    4  6599  B O1|               172
1273 11 720         MLC   @Y@,SWD            CHAR IS PART OF SYMBOL                    7  6603  M H7V H0Z           172
1274 11 730  OUTTD  B     0                                                            4  6610  B 000               172
1275 11 740  *
1276 11 750  *     LIMIT-10-CHARACTER SUBROUTINE
1277 11 760  *
1278 11 770  SCH10  SBR   OUTCH&3                                                      4  6614  H P3V               172
1279 11 780         A     &1,NUCH            INCREMENT NO OF CHAR                      7  6618  A I1W I7W           172
1280 11 790         A     &1,X1              MOVE TO NEXT CHAR                         7  6625  A I1W 089           173
1281 11 800         BCE   A10X23,SWA10,Y     TEST IF CHECK LIMIT                       8  6632  B O9| G9U Y         173
1282 11 810         C     TEN,NUCH           NO. TEST IF 10 CHARACTERS                 7  6640  C G8T I7W           173
1283 11 820         BE    *&6                YES.                                      5  6647  B O5X S             173
1284 11 830         BU    OUTCH              NO. RETURN                                5  6652  B P3S /             173
1285 11 840         MLC   @Y@,SWCH10         ON. THERE ARE 10 CHAR.                    7  6657  M H7V G9T           173
1286 11 850         BCE   OUTCH,SWTAB,Y      TEST IF BUILDING TABLE                    8  6664  B P3S H0W Y         174
1287 11 860         MLC   X1,X2              NO. STORE TENTH POS IN X2                 7  6672  M 089 094           174
1288 11 870         MLC   TEN,X3             SET TO MOVE 10 CHAR.                      7  6679  M G8T 099           174
1289 11 880         B     OUTCH              RETURN                                    4  6686  B P3S               174
1290 11 890  A10X23 MLC   @N@,SWA10          OFF. NO LIMIT WANTED                      7  6690  M H7U G9U           174
1291 11 900         MLC   TX1,X2             RESTORE X2                                7  6697  M I5Z 094           175
1292 11 910         A     TEN,X2                                                       7  6704  A G8T 094           175
1293 11 920         MLC   TEN,X3                                                       7  6711  M G8T 099           175
1294 11 930         MLC   @Y@,SWCH10         ON.                                       7  6718  M H7V G9T           175
1295 11 940         MLC   @N@,SWA10                                                    7  6725  M H7U G9U           175
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 SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

1296 11 950  OUTCH  B     0                                                         4  6732  B 000                175
1297 11 960  *
1298 11 970  *      MOVEMENT-FIELDS SUBROUTINE
1299 11 980  *
1300 11 990  SMOVF  SBR   OUTMOV&3                                                  4  6736  H P8T                176
1301 12 000         BCE   *&12,SWCH10,Y       TEST IF MORE THAN 10 CHAR             8  6740  B P5Z G9T Y          176
1302 12 010  MVMN10 MLC   A-1&X1,F1-1&X3      NO. MOVE OPERAND TO FIELD             7  6748  M G|W DFW            176
1303 12 020         B     OUTMOV              RETURN                                4  6755  B P8|                176
1304 12 030  MVMY10 MLC   A-1&X2,F1-1&X3      MOVE OPERAND TO FIELD                 7  6759  M G!W DFW            176
1305 12 040         MLC   @N@,SWCH10          OFF. RESET.                           7  6766  M H7U G9T            176
1306 12 050         MLC   @00@,NUCH           ZERO NO OF CHAR                       7  6773  M H9/ I7W            177
1307 12 060  OUTMOV B     0                                                         4  6780  B 000                177
1308 12 070  *
1309 12 080  *      FLAG-OTHERS SUBROUTINE
1310 12 090  *
1311 12 100  SFLAG  SBR   OUTFL&3                                                   4  6784  H Q1T                177
1312 12 110         BCE   OUTFL,PASS2,Y                                             8  6788  B Q1| H0X Y          177
1313 12 120         MLC   @Y@,PASS2           ON. PAST OP 1                         7  6796  M H7V H0X            177
1314 12 130         MLC   @O@,FLAG            FLAG OTHERS                           7  6803  M I7| D6V            177
1315 12 140  OUTFL  B     0                                                         4  6810  B 000                178
1316 12 150  *
1317 12 160  *      COMPRESSION  SUBROUTINE
1318 12 170  SCOMP  SBR   OUTCOM&3                                                  4  6814  H R2W                178
1319 12 180         SBR   X2,0                                                      7  6818  H 094 000            178
1320 12 190         MLC   @0@,NCM                                                   7  6825  M H8W I7U            178
1321 12 200  SCOMPC C     X1,@075@                                                  7  6832  C 089 I7T            178
1322 12 210         BE    OUTCF                                                     5  6839  B R1S S              178
1323 12 220         BCE   ADDX1,CARD-1&X1,                                          8  6844  B Q8S E|S            179
1324 12 230         SW    CARD-1&X1                                                 4  6852  , E|S                179
1325 12 240         MLC   CARD-1&X1,A&X2                                            7  6856  M E|S G!X            179
1326 12 250         CW    CARD-1&X1                                                 4  6863  ) E|S                179
1327 12 260         BCE   COM,CARD-1&X1,,                                           8  6867  B Q9T E|S ,          179
1328 12 270         A     &1,X2                                                     7  6875  A I1W 094            179
1329 12 280  ADDX1  A     &1,X1                                                     7  6882  A I1W 089            180
1330 12 290         B     SCOMPC                                                    4  6889  B Q3S                180
1331 12 300  COM    A     &1,NCM#1                                                  7  6893  A I1W I7U            180
1332 12 310         BCE   OUTCF,NCM,3                                               8  6900  B R1S I7U 3          180
1333 12 320         B     ADDX1-7                                                   4  6908  B Q7V                180
1334 12 330  OUTCF  SBR   X1,0                                                      7  6912  H 089 000            180
1335 12 340         SBR   X2                                                        4  6919  H 094                181
1336 12 350  OUTCOM B     0                                                         4  6923  B 000                181
1337 12 360  *
1338 12 370  *
1339 12 380  *      HOUSE-KEEP  SUBROUTINE
1340 12 390  *
1341 12 400  SKEEP  SBR   OUTK&3                                                    4  6927  H ?0U                181
1342 12 410         MLC   OFF,SWR                                                   7  6931  M G7Y B10            181
1343 12 420         MLC   OFF,SWTC                                                  7  6938  M G7Y /3V            181
1344 12 430         MLC   @00@,NUCH#2                                               7  6945  M H9/ I7W            181
1345 12 440         MLC   @00@,NUMB                                                 7  6952  M H9/ G9/            182
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 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

1346 12 450         MLC   @N@,SWAD1                                              7  6959  M H7U H2|           182
1347 12 460         MLC   ON,SWM                                                 7  6966  M G7X /8V           182
1348 12 470         MLC   OFF,SWAP                                               7  6973  M G7Y |6|           182
1349 12 480         MLC   OFF,SWOP                                               7  6980  M G7Y X8W           182
1350 12 490         MLC   AOFF,ASWN1&4                                           7  6987  M H1V G9X           183
1351 12 500         MLC   AON,ASWY1&3                                            7  6994  M H1Z H0/           183
1352 12 510  OUTK   B     0                                                      4  7001  B 000               183
1353 12 520  *
1354 12 530  *     PLACE QUALIFICATION CHAR TO RIGHT OF LABEL
1355 12 540  *
1356 12 550  SDTA   SBR   OUTDA&3                                                4  7005  H A1V               183
1357 12 560         BCE   OUTDA,A,@                                              8  7009  B A1S G0X @         183
1358 12 570         BCE   *&5,A&1,$                                              8  7017  B ?2Z G0Y $         183
1359 12 580         B     OUTDA                                                  4  7025  B A1S               184
1360 12 590         A     &2,X1                                                  7  7029  A I6Z 089           184
1361 12 600         A     &2,X2                                                  7  7036  A I6Z 094           184
1362 12 610         B     SCLAS                                                  4  7043  B J5X               184
1363 12 620         BCE   *&19,CH,A                                              8  7047  B ?7T F9V A         184
1364 12 630         SBR   X1,0                                                   7  7055  H 089 000           184
1365 12 640         SBR   X2,0                                                   7  7062  H 094 000           185
1366 12 650         B     OUTDA                                                  4  7069  B A1S               185
1367 12 660         SW    A&X1                                                   4  7073  , G|X               185
1368 12 670         SBR   CLITA&3,A&X1                                           7  7077  H J4Y G|X           185
1369 12 680         SBR   CLEAR&3,A&X1                                           7  7084  H U8S G|X           185
1370 12 690         MLC   A,F1&9                                                 7  7091  M G0X D7W           185
1371 12 695         MLC   @$@,DOLL                                               7  7098  M I2S H2/           186
1372 12 700         MLC   @Y@,SWAD                                               7  7105  M H7V H0U           186
1373 12 710  OUTDA  B     0                                                      4  7112  B 000               186
1374 12 720  OUTTAB B     SRCLW                                                  4  7116  B B3Y               186
1375 12 730         B     OUTS                                                   4  7120  B E71               186
1376 12 740  *
1377 12 750  *         OPERANDS SYMBOL TABLE
1378 12 760  *
1379 12 770  SYMTAB BCE   SRMTAB,SWNN1,N     TEST IF SYMBOL IS ALL NUMERIC       8  7124  B A9| G9Y N         186
1380 12 780         B     SRCLW              YES. GO TO CLEAR W-M                4  7132  B B3Y               186
1381 12 790         B     OUTTAB,A&X1,       TEST FOR TERMINATOR                 8  7136  B A1W G|X           187
1382 12 800         A     &1,X1              NO. MOVE TO NEXT CHAR               7  7144  A I1W 089           187
1383 12 810         MLC   @00@,NUCH          ZERO NUMBER OF CHARACTERS           7  7151  M H9/ I7W           187
1384 12 820         BCE   OUTTAB,A&X1,       TEST FOR TERMINATOR                 8  7158  B A1W G|X           187
1385 12 830         BCE   *&9,SWNLAB,N       NO. TEST IF MOVE THIRD OP           8  7166  B A8S H0V N         187
1386 12 840         BCE   OUTTAB,NUOP,2      YES. TEST IF TWO OPERANDS           8  7174  B A1W G0| 2         188
1387 12 850         B     SRSETW             NO. GO TO SET WORD MARK             4  7182  B B5|               188
1388 12 860         B     INIT               GO TO INITIALIZE FOR NEW SYMBOL     4  7186  B W77               188
1389 12 870  *
1390 12 880  *         MOVEMENT TABLE SUBROUTINE
1391 12 890  *
1392 12 900  SRMTAB SBR   OMTAB&3                                                4  7190  H B3X               188
1393 12 910         MLC   A-1&X1,TABLE-1&X2  MOVE SYMBOL TO TABLE                7  7194  M G|W FKY           188
1394 12 920         MLC   @|@,TABLE&X2       MOVE REC MARK BEHIND SYMBOL         7  7201  M I7X FKZ           188
1395 12 930         A     &1,COUNT           INCREMENT SYMBOL COUNT              7  7208  A I1W F0T           189
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 SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD

1396 12 940         A     &1,X2             INCREMENT TABLE POSITION                 7  7215  A I1W 094            189
1397 12 950         BCE   OUTTAB,A&X1,      TEST IF TERMINATOR                       8  7222  B A1W G|X            189
1398 12 960         B     SRCLW             GO CLEAR WORD MARK                       4  7230  B B3Y                189
1399 12 970  OMTAB  B     0                                                          4  7234  B 000                189
1400 12 980  *
1401 12 990  *       CLEAR W-M SUBROUTINE
1402 13 000  *
1403 13 010  SRCLW  SBR   OCLW&3                                                     4  7238  H B4Z                189
1404 13 020         CW    A&42              -OPERAND IS MODIFIED-                    4  7242  ) G4Z                189
1405 13 030  OCLW   B     0                                                          4  7246  B 000                190
1406 13 040  *
1407 13 050  *         SET  W-M SUBROUTINE
1408 13 060  *
1409 13 070  SRSETW SBR   OSETW&3                                                    4  7250  H B6Y                190
1410 13 080         SW    A&X1              -OPERAND IS MODIFIED-                    4  7254  , G|X                190
1411 13 090         SBR   SRCLW&7,A&X1      SET TO CLEAR LATER                       7  7258  H B4V G|X            190
1412 13 100  OSETW  B     0                                                          4  7265  B 000                190
1413 13 110  *
1414 13 120  *     LOOP COMMA OR BLANK
1415 13 130  *
1416 13 140  SLOOP  SBR   OSLOOP&3                                                   4  7269  H C1S                190
1417 13 150         BCE   *&9,SWLOZ,Y                                                8  7273  B B8Z H2S Y          190
1418 13 160         BCE   OSLOOP,A&X1,                                               8  7281  B C0Z G|X            191
1419 13 170         C     A&X1,COMMA                                                 7  7289  C G|X I1|            191
1420 13 180         BE    OSLOOP                                                     5  7296  B C0Z S              191
1421 13 190         B     SCH10                                                      4  7301  B O1U                191
1422 13 200         B     SLOOP&4                                                    4  7305  B B7T                191
1423 13 210  OSLOOP B     0                                                          4  7309  B 000                191
1424 13 220  *
1425 13 230  *     SUBR. MOVEMENTS TO TABLE IN PREFIX LABEL
1426 13 240  *
1427 13 250  SMDOLL SBR   ODOLL&3                                                    4  7313  H D1V                191
1428 13 260         MLC   COUNT,X3                                                   7  7317  M F0T 099            192
1429 13 270         SW    TEST&X3                                                    4  7324  , F?Z                192
1430 13 280         MLC   NUCH,TEST&X3                                               7  7328  M I7W F?Z            192
1431 13 290         CW    TEST&X3                                                    4  7335  ) F?Z                192
1432 13 300         C     @03@,NUCH                                                  7  7339  C I7Z I7W            192
1433 13 310         BH    *&5                                                        5  7346  B C5V U              192
1434 13 320         B     ODOLL                                                      4  7351  B D1S                192
1435 13 330         B     SRMTAB                                                     4  7355  B A9|                193
1436 13 340         S     &1,COUNT                                                   7  7359  S I1W F0T            193
1437 13 350         MLC   NUCH,TX2                                                   7  7366  M I7W F0X            193
1438 13 360         S     @03@,TX2                                                   7  7373  S I7Z F0X            193
1439 13 370         A     &1,TX2                                                     7  7380  A I1W F0X            193
1440 13 380         S     TX2,X2                                                     7  7387  S F0X 094            193
1441 13 390         MZ    @ @,X2                                                     7  7394  Y I0S 094            194
1442 13 400         MZ    @ @,COUNT                                                  7  7401  Y I0S F0T            194
1443 13 410         B     SRSETW                                                     4  7408  B B5|                194
1444 13 420  ODOLL  B     0                                                          4  7412  B 000                194
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 SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

1445 13 430         JOB   PHASE I, PASS 3 OF ANALYSIS
1446 13 440  *
1447 13 450  *     DECLARATIVE INSTRUCTIONS.
1448 13 460  *
1449 13 470  TS1    DCW   @000@                                                 3  7418                    195
1450 13 480  TS2    DCW   @000@                                                 3  7421                    195
1451 13 490  LIMIT  DCW   @0@                                                   1  7422                    195
1452 13 500  DAREC  DA    1X160                                                    7423   7582             195
1453 13 510  INSEQ        1,5                                                      7427             FIELD  195
1454 13 520  SORT         6,6                                                      7428             FIELD  195
1455 13 530  SORTCD       16,16                                                    7438             FIELD  195
1456 13 540  SET          17,17                                                    7439             FIELD  196
1457 13 550  EXSEQ        18,22                                                    7444             FIELD  196
1458 13 560  LABEL        23,23                                                    7445             FIELD  196
1459 13 570  ANCODE       39,39                                                    7461             FIELD  196
1460 13 580  FLAG         43,43                                                    7465             FIELD  196
1461 13 590  NOPRD        44,44                                                    7466             FIELD  196
1462 13 600  FIELD1       45,45                                                    7467             FIELD  197
1463 13 610  SIGNF        55,55                                                    7477             FIELD  197
1464 13 620  NUMF         56,60                                                    7482             FIELD  197
1465 13 630  F2           61,61                                                    7483             FIELD  197
1466 13 640  F3           71,71                                                    7493             FIELD  197
1467 13 650  CARD         81,81                                                    7503             FIELD  197
1468                DC    #4                                                    4  7586                    198
1469                *   THE ADDRESS OF GRPMRK MUST BE THAT EQUATED TO GRPMRK IN 3ANA9
1470 13 660  GRPMRK DC    @}@                                                   1  7587                    198
1471 13 670  QUALSW DC    #1                                                    1  7588                    198
1472 13 680  SUFFIX DCW   #3                                                    3  7591                    198
1473 13 690  FLGTBL DCW   @ @                                                   1  7592                    198
1474 13 700         DCW   @M@                                                   1  7593                    198
1475 13 710         DCW   @O@                                                   1  7594                    198
1476 13 720         DCW   @D@                                                   1  7595                    199
1477 13 730         DCW   @B@                                                   1  7596                    199
1478 13 740         DCW   @H@                                                   1  7597                    199
1479 13 750         DCW   @A@                                                   1  7598                    199
1480 13 760         DCW   @ @                                                   1  7599                    199
1481 13 770         DCW   @ @                                                   1  7600                    199
1482 13 780         DCW   @B@                                                   1  7601                    199
1483 13 790  COUNT  DCW   @00@                                                  2  7603                    200
1484 13 800  REC    DCW   @|@                                                   1  7604                    200
1485 13 810  TX2    DCW   #3                                                    3  7607                    200
1486 13 820  SWF1X2 DCW   #1                                                    1  7608                    200
1487 13 830  TEST   DC    #1                                                    1  7609                    200
1488 13 840         DC    #19                                                  19  7628                    200
1489 13 850  TABLE  DA    1X60                                                     7629   7688             200
1490 13 860  NFIVE  DCW   @005@                                                 3  7691                    201
1491 13 870  NNINE  DCW   @009@                                                 3  7694                    201
1492 13 880  CH     DCW   #1                                                    1  7695                    201
1493 13 890  TESTAN DCW   #1                                                    1  7696                    201
1494 13 900  SWFILL DC    #1                                                    1  7697                    201
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

1495 13 910  MACR   DCW   #1                                                              1  7698                    201
1496 13 920  AN     DCW   #1                                                              1  7699                    201
1497 13 930  NUOP   DCW   #1                                                              1  7700                    201
1498 13 940  NUMBR  DCW   @001@                                                           3  7703                    202
1499 13 950  ZET    DCW   @Z@                                                             1  7704                    202
1500 13 960  INT    DCW   @?@                                                             1  7705                    202
1501 13 970  MZ     DCW   @!@                                                             1  7706                    202
1502 13 980  A      DA    1X70                                                               7707   7776             202
1503 13 990  ON     DCW   @B@                                                             1  7777                    203
1504 14 000  OFF    DCW   @N@                                                             1  7778                    203
1505 14 010  COLUM  DCW   @000@                                                           3  7781                    203
1506 14 020  TEN    DCW   @10@                                                            2  7783                    203
1507 14 030  SSP1   DCW   #3                                                              3  7786                    203
1508 14 040  SSP2   DCW   #3                                                              3  7789                    203
1509 14 050  NUMB   DCW   #2                                                              2  7791                    203
1510 14 060  BRANCH DCW   #1                                                              1  7792                    204
1511 14 070  ASWN1  DA    1X5                                                                7793   7797             204
1512 14 080  SWCH10       1              IF ON OP. HAS 10 OR MORE CHAR                       7793          SBFLD
1513 14 090  SWA10        2             IF ON LITERAL HAS 10 OR MORE CHAR                    7794          SBFLD
1514 14 100  SWRAX        3             IF ON RELATIVE AND INDEXED                           7795          SBFLD
1515 14 110  SWI          4             IF ON NUMERIC AFTER #                                7796          SBFLD
1516 14 120  SWFSP        5             IF OFF BLANK IN 7080 IS SPECIAL                      7797          SBFLD
1517 14 130  ASWY1  DA    1X4                                                                7798   7801             204
1518 14 140  SWNN1        1             IF ON NOT ALPHABETIC CHAR.                           7798          SBFLD
1519 14 150  SWNN2        2             IF ON NOT NUMERIC CHAR.                              7799          SBFLD
1520 14 160  SWFC         3             ON FIRST CHAR. IS SPECIAL                            7800          SBFLD
1521 14 170  SWT          4             OFF ACTUAL ADDRESS WITH ADJUSTMENT                   7801          SBFLD
1522 14 180  ASWNO  DA    1X6                                                                7802   7807             204
1523 14 190  SWNOPS       1             ON DONT ADVANCE OPERAND COUNT                        7802          SBFLD
1524 14 200  SWYADD       2             ON SCAN LITERAL                                      7803          SBFLD
1525 14 210  SWAD         3             ON PREFIX IN 7080                                    7804          SBFLD
1526 14 220  SWNLAB       4             ON NO TABLE ENTRY                                    7805          SBFLD
1527 14 230  SWTAB        5             ON BUILD TABLE                                       7806          SBFLD
1528 14 240  PASS2        6             OFF FLAG OPERAND                                     7807          SBFLD
1529 14 250  ASWYO  DA    1X2                                                                7808   7809             204
1530 14 260  SWSFX        1             ON PUT FIRST CHAR. IN 10TH POSITION                  7808          SBFLD
1531 14 270  SWD          2             ON CHAR. IS SPECIAL BELONGS TO SYMBOL                7809          SBFLD
1532 14 280  AOFF   DCW   @NNNNNN@                                                        6  7815                    205
1533 14 290  AON    DCW   @YYYY@                                                          4  7819                    205
1534 14 300  SWAD1  DCW   #1                                                              1  7820                    205
1535 14 310  DOLL   DCW   #1                                                              1  7821                    205
1536 14 320  SWLOZ  DCW   #1                                                              1  7822                    205
1537 14 330  OVFMES DCW   @TAPE 2 TOO SHORT.  MOUNT NEW TAPE AND PRESS START.@           50  7872                    207
1538 14 340         LTORG *&1                                                                       7874
                    DCW   @N@                                                             1  7874          LIT    208
                          @Y@                                                             1  7875          LIT    208
        210               @          @                                                   10  7885          LIT    208
                          @0@                                                             1  7886          LIT    208
                          @   @                                                           3  7889          LIT    208
                          @00@                                                            2  7891          LIT    208
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SEQ PG LIN  LABEL  OP    OPERANDS                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD

       244               @          @                                    10  7901              LIT    208
                         @ @                                              1  7902              LIT    209
                         @1@                                              1  7903              LIT    209
                         &79                                              2  7905              LIT    209
       285  ACC          #03                                              3  7908              AREA   209
                         @,@                                              1  7909              LIT    209
       289  COMMA        #01                                              1  7910              AREA   209
                         @@@                                              1  7911              LIT    209
                         @#@                                              1  7912              LIT    210
                         @)@                                              1  7913              LIT    210
                         @) @                                             2  7915              LIT    210
                         &1                                               1  7916              LIT    210
                         @C@                                              1  7917              LIT    210
                         @X@                                              1  7918              LIT    210
                         @S@                                              1  7919              LIT    210
                         @05@                                             2  7921              LIT    211
                         @$@                                              1  7922              LIT    211
                         @R@                                              1  7923              LIT    211
                         @L@                                              1  7924              LIT    211
                         @G-M@                                            3  7927              LIT    211
                         @D@                                              1  7928              LIT    211
                         @3@                                              1  7929              LIT    211
                         @2@                                              1  7930              LIT    212
       786  FSW          #01                                              1  7931              AREA   212
       839               @FLAGGED LISTING@                               15  7946              LIT    212
                         @001@                                            3  7949              LIT    212
                         @002@                                            3  7952              LIT    212
                         @:@                                              1  7953              LIT    212
                         @I9I@                                            3  7956              LIT    212
       985  TX1          #03                                              3  7959              AREA   213
       998  SX2X1        #03                                              3  7962              AREA   213
      1016  ADD          #01                                              1  7963              AREA   213
                         @**@                                             2  7965              LIT    213
                         @I@                                              1  7966              LIT    213
                         @B@                                              1  7967              LIT    213
                         @A@                                              1  7968              LIT    213
                         &2                                               1  7969              LIT    214
                         @O@                                              1  7970              LIT    214
                         @075@                                            3  7973              LIT    214
      1331  NCM          #01                                              1  7974              AREA   214
      1344  NUCH         #02                                              2  7976              AREA   214
                         @|@                                              1  7977              LIT    214
                         @03@                                             2  7979              LIT    214
1539 14 350  HIGH   EQU  7998                                                7998
1540 14 360         END  S                                                         / 800 080          215
                         @:@                                              1  7953              LIT    212               *****
                         @I9I@                                            3  7956              LIT    212
       985  TX1          #03                                              3  7959              AREA   213
       998  SX2X1        #03                                              3  7962              AREA   213
      1016  ADD          #01                                              1  7963              AREA   213
                         @**@                                             2  7965              LIT    213
                         @I@                                              1  7966              LIT    213
                         @B@                                              1  7967              LIT    213
                         @A@                                              1  7968              LIT    213
                         &2                                               1  7969              LIT    214
                         @O@                                              1  7970              LIT    214
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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                          1             3ANA9
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?       2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040        3

                          EOF ACTIVITY FOR 3ANAV                                       3ANA9            PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    010  000    JOB   EOF ACTIVITY FOR 3ANAV
 102    020         CTL   440  1
 103    030         DCW   @$ADD     @                                               9  0341                       4
 104    040         DCW   &ORG                                                      3  0344  800                  4
 105    050         DCW   &START                                                    3  0347  800                  4
 106    060         DCW   &HIGH                                                     3  0350  |73                  4
 107    070  ORG    EQU   800                                                          0800
 108    080         ORG   ORG                                                               0800
 109    090  START  WTM   2                                                         5  0800  U %U2 M              5
 110    100         RWD   2                                                         5  0805  U %U2 R              5
 111    110         RWD   4                                                         5  0810  U %U4 R              5
 112    120         MLC   1,GRPMRK                DESTROY GROUP MARK                7  0815  M 001 E8X            5
 113    130         BCE   CHART,2,C               TEST IF $CHART                    8  0822  B 919 002 C          5
 114    140         BCE   OPTION,TBLSW,Y          TEST FOR REFERENCE OPTIONS        8  0830  B 928 086 Y          5
 115    150         B     READ                    NO. READ NEW CONTROL CARD.        4  0838  B 781                6
 116    160         C     @$CHART@,6              TEST IF IT IS $CHART              7  0842  C |42 006            6
 117    170         BE    CHART                   YES.                              5  0849  B 919 S              6
 118    180         C     @$VERIFY@,7             NO. TEST IF IT IS $VERIFY.        7  0854  C |49 007            6
 119    190         BE    VERIFY                  YES.                              5  0861  B 972 S              6
 120    200         C     @$SYSTEM@,7             NO. TEST IF IT IS $SYSTEM         7  0866  C |56 007            6
 121    210         BE    SYSTEM                  YES.                              5  0873  B 981 S              7
 122    220         C     @$DAEND@,6              NO. TEST IF IT IS $DAEND.         7  0878  C |62 006            7
 123    230         BE    DAEND                   YES.                              5  0885  B 905 S              7
 124    240         B     EJECT                   NO.  ILLEGAL CONTROL CARD.        4  0890  B 704                7
 125    250         MLCWA ERMESG,247              PRINT ERROR MESSAGE               7  0894  L |35 247            7
 126    260         B     PRINT                                                     4  0901  B 747                7
 127    270  DAEND  RWD   1                                                         5  0905  U %U1 R              7
 128    280         B     SYSLNK                  CALL IN CONTROLLER                4  0910  B 400                8
 129    290         DCW   @1CONA@                                                   5  0918                       8
 130    300  CHART  B     SYSLNK                  CALL IN FLOWCHART PROGRAM         4  0919  B 400                8
 131    310         DCW   @4CHRA@                                                   5  0927                       8
 132    320  OPTION MLCWA @2@,675                 SET SORT PARAMETERS               7  0928  L |63 675            8
 133    330         MLCWA @2@,676                                                   7  0935  L |63 676            8
 134    340         MLCWA @16@,679                                                  7  0942  L |65 679            8
 135    350         MLCWA @11@,681                                                  7  0949  L |67 681            9
 136    360         MLCWA @3ANLC@,686                                               7  0956  L |72 686            9
 137    370         B     SYSLNK                  CALL IN PHASE II OF ANALYSIS      4  0963  B 400                9
 138    380         DCW   @3ANLA@                                                   5  0971                       9
 139    390  VERIFY B     SYSLNK                  CALL IN VERIFY PROGRAM.           4  0972  B 400                9
 140    400         DCW   @5VERA@                                                   5  0980                       9
 141    410  SYSTEM B     SYSLNK                  CALL IN SYSTEM MAINTENANCE        4  0981  B 400                9
 142    420         DCW   @6CONA@                                                   5  0989                      10
 143    430  ERMESG DCW   @ERROR - ILLEGAL CONTROL CARD.  RUN TERMINATED.@         46  1035                      12
 144    440         LTORG *&1                                                               1037
        116         DCW   @$CHART@                                                  6  1042            LIT       13
        118               @$VERIFY@                                                 7  1049            LIT       13
        120               @$SYSTEM@                                                 7  1056            LIT       13
```

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	
		122			@$DAEND@		6	1062		LIT	13	
					@2@		1	1063		LIT	13	
					@16@		2	1065		LIT	13	
					@11@		2	1067		LIT	13	
		136			@3ANLC@		5	1072		LIT	14	
145		450	GRPMRK	EQU	7587			7587				
146		460	TBLSW	EQU	86			0086				
147		470	SYSLNK	EQU	400			0400				
148		480	READ	EQU	781			0781				
149		490	PRINT	EQU	747			0747				
150		500	EJECT	EQU	704			0704				
151		510	HIGH	EQU	*&1			1073				
152		520		END	START				/ 800 080		15	
		118			@$VERIFY@		7	1049		LIT	13	*****
		120			@$SYSTEM@		7	1056		LIT	13	

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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                        1            3ANLC
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?     2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040      3

                          PHASE II,  PASS 3 OF ANALYSIS                           3ANLC            PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101  1 01   000    JOB   PHASE II,  PASS 3 OF ANALYSIS
 102  1 02          CTL   440
 103  1 03   *
 104  1 04   *              GENERATE $ADD CARD
 105  1 05   *
 106  1 06          DCW   @$ADD     @                                          9  0341                    4
 107  1 07          DC    &ORG                                                 3  0344  !50               4
 108  1 08          DC    &EXEQ                                                3  0347  Y96               4
 109  1 09          DC    &HIGH                                                3  0350  P97               4
 110  1 10          ORG   ORG                                                         2050
 111  1 11   ENTER  SBR   RETURN&3                                             4  2050  H K18             5
 112  1 12   *
 113  1 13   *              SET UP BUFFER ADDRESS IN BUFFER-TO-INPUT AREA
 114  1 14   *              AND OUTPUT AREA-TO-BUFFER MOVES
 115  1 15   *
 116  1 16   *
 117  1 17          MLC   BUFFER,MBUFF&3         MOVE HIGH-ORDER ADDRESS       7  2054  M 843 !93         5
 118  1 18          MA    @159@,MBUFF&3          MODIFY TO LOW-ORDER ADDRESS   7  2061  # P49 !93         5
 119  1 19          MLC   BUFFER,MREC&6                                        7  2068  M 843 J98         5
 120  1 20          MA    @159@,MREC&6                                         7  2075  # P49 J98         5
 121  1 21          BWZ   EXIT,SWEOF,1           EXIT IF LAST RECORD           8  2082  V L60 674 1       6
 122  1 22   *
 123  1 23   *              FETCH RECORD FROM BUFFER
 124  1 24   *
 125  1 25   MBUFF  MLC   0,REC&159                                            7  2090  M 000 N84         6
 126  1 26          CHAIN 5                                                                     MACRO
 127                MLC                                                        1  2097  M           GEN   6
 128                MLC                                                        1  2098  M           GEN   6
 129                MLC                                                        1  2099  M           GEN   6
 130                MLC                                                        1  2100  M           GEN   6
 131                MLC                                                        1  2101  M           GEN   6
 132  1 27          BCE   SOURCE,CODE,0          TEST IF SOURCE RECORD         8  2102  B J53 M40 0       7
 133  1 28   *
 134  1 29   *              THIS IS A REFERENCE RECORD
 135  1 30   *
 136  1 31          C     SORT,PLABEL            TEST IF LABEL WAS FOUND.      7  2110  C M39 O16         7
 137  1 32          BU    RBUFF                  IF NOT GET NEW RECORD         5  2117  B K08 /           7
 138  1 33          BWZ   PREF,SWCRS,1           PRINT REFERENCE IF CROSS      8  2122  V L07 081 1       7
 139  1 34   OPTEST BWZ   WREF,SWOPND,1          TEST IF OPERAND OPTION        8  2130  V J42 085 1       7
 140  1 35          B     RBUFF                  NO. GET NEW RECORD.           4  2138  B K08             8
 141  1 36   WREF   MLC   CODE,PCODE             CODE OUTPUT RECORD.           7  2142  M M40 O00         8
 142  1 37          B     WBUFF                  GO WRITE RECORD               4  2149  B J85             8
 143  1 38   *
 144  1 39   *              THIS IS A SOURCE RECORD.
 145  1 40   *
 146  1 41   SOURCE MLC   REC&159,PREC&159       MOVE RECORD TO OUTPUT         7  2153  M N84 P44         8
 147  1 42          CHAIN 5                                                                     MACRO
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

148                MLC                                                          1  2160  M           GEN      8
149                MLC                                                          1  2161  M           GEN      8
150                MLC                                                          1  2162  M           GEN      8
151                MLC                                                          1  2163  M           GEN      9
152                MLC                                                          1  2164  M           GEN      9
153  1 43          C     SORT,@          @       TEST IF BLANK LABEL            7  2165  C M39 P59            9
154  1 44          BE    WBUFF                   YES.                           5  2172  B J85 S              9
155  1 45          BWZ   PSORCE,SWCRS,1          PRINT SOURCE IF CROSS          8  2177  V K19 081 1          9
156  1 46   *
157  1 47   *                    STORE RECORD IN BUFFER
158  1 48   *
159  1 49   WBUFF  MLC   CARDNO,PSORT            MOVE CARD NO. TO OUTPUT REC    7  2185  M M29 N99            9
160  1 50   MREC   MLC   PREC&159,0                                             7  2192  M P44 000            9
161  1 51          CHAIN 5                                                                          MACRO
162                MLC                                                          1  2199  M           GEN     10
163                MLC                                                          1  2200  M           GEN     10
164                MLC                                                          1  2201  M           GEN     10
165                MLC                                                          1  2202  M           GEN     10
166                MLC                                                          1  2203  M           GEN     10
167  1 52          B     RETURN                  RETURN                         4  2204  B K15               10
168  1 53   *
169  1 54   *                    RBUFF - THE RETURN POINT TO READ
170  1 55   *                         BUT NOT TO WRITE
171  1 56   *                    RETURN - THE RETURN POINT TO READ AND WRITE
172  1 57   *
173  1 58   RBUFF  MA    @004@,RETURN&3          SKIP THE WRITE                 7  2208  # P62 K18           10
174  1 59   RETURN B     0                                                      4  2215  B 000               11
175  1 60   *
176  1 61   *              PRINT SOURCE RECORD FOR CROSS-REFERENCE
177  1 62   *
178  1 63   PSORCE BWZ   FIRST,SWF,1             FIRST TIME EJECT PAGE          8  2219  V K95 P45 1         11
179  1 64          BWZ   HEAD,SWOVFL,1           IF PAGE OVFLW PRINT HEADER     8  2227  V L94 084 1         11
180  1 65          BCE   SETD,SET,D              TEST IF SET D.                 8  2235  B K47 M41 D         11
181  1 66          B     *&12                                                   4  2243  B K58               11
182  1 67   SETD   MLC   @307@,MCARDN&13         YES. MODIFY FORMAT.            7  2247  M P65 K82           11
183  1 68          B     MCARDN                  GO MOVE CARD NUMBER            4  2254  B K69               12
184  1 69          SW    CARD-74                 NO. MOVE SEQ. FIELD.           4  2258  , N10               12
185  1 70          MLCWA CARD-75,318                                            7  2262  L N09 318           12
186  1 71   MCARDN MLCWA CARDNO,210              MOVE CARD NUMBER.              7  2269  L M29 210           12
187  1 72          MLCWA CARD,297                MOVE CARD IMAGE.               7  2276  L N84 297           12
188  1 73          CW    CARD-74                                                4  2283  ) N10               12
189  1 74          B     PRINT                   PRINT THE LINE.                4  2287  B 747               12
190  1 75          B     WBUFF                   GO WRITE RECORD                4  2291  B J85               13
191  1 76   FIRST  CW    SWF                                                    4  2295  ) P45               13
192  1 77          B     EJECT                   START NEW PAGE                 4  2299  B 704               13
193  1 78          B     PSORCE&8                                               4  2303  B K27               13
194  1 79   *
195  1 80   *                    PRINT REFERENCE RECORD FOR CROSS REFERENCE
196  1 81   *
197  1 82   PREF   BWZ   HEAD,SWOVFL,1           IF PAGE OVFLW PRINT HEADER     8  2307  V L94 084 1         13
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

198  1 83          BCE   MCARD,SET,D           TEST IF SET D.                   8  2315  B L34 M41 D         13
199  1 84          SW    CARD-74               NO. MOVE SEQ FIELD.              4  2323  , N10               13
200  1 85          MLCWA CARD-75,324                                            7  2327  L N09 324           14
201  1 86   MCARD  MLCWA CARD,312              MOVE CARD IMAGE                  7  2334  L N84 312           14
202  1 87          CW    CARD-74                                                4  2341  ) N10               14
203  1 88          MLCWA CARDNO,216                                             7  2345  L M29 216           14
204  1 89          B     PRINT                 PRINT LINE.                      4  2352  B 747               14
205  1 90          B     OPTEST                                                 4  2356  B J30               14
206  1 91   *
207  1 92   *              END OF FILE ACTIVITY
208  1 93   *
209  1 94   EXIT   CW    SWEOF                 RESET END OF FILE SWITCH         4  2360  ) 674               14
210  1 95          MLCWA @16@,679              SET SORT PARAMETERS              7  2364  L P67 679           15
211  1 96          MLCWA @06@,681                                               7  2371  L P69 681           15
212  1 97          MLCWA @3ANLF@,686                                            7  2378  L P74 686           15
213  1 98          B     SYSLNK                CALL IN PHASE II, PASS 4         4  2385  B 400               15
214  1 99          DCW   @3ANLD@                                                5  2393                      15
215  2 00   *
216  2 01   *
217  2 02   *              SUBROUTINE - HEAD
218  2 03   *
219  2 04   *
220  2 05   HEAD   SBR   RET&3                                                  4  2394  H M24               15
221  2 06          B     PRINT                 SPACE                            4  2398  B 747               15
222  2 07          MLCWA @CROSS REFERENCE REPORT@,272                           7  2402  L P96 272           16
223  2 08          B     PRINT                 PRINT HEADER                     4  2409  B 747               16
224  2 09          B     PRINT                 SPACE                            4  2413  B 747               16
225  2 10          B     PRINT                 SPACE                            4  2417  B 747               16
226  2 11   RET    B     0                                                      4  2421  B 000               16
227  2 12   *
228  2 13   *              INPUT RECORD AREA
229  2 14   *
230  2 15   REC    DA    1X160                                                     2425   2584               16
231  2 16   CARDNO       1,5                                                       2429              FIELD   16
232  2 17   SORT         6,15                                                      2439              FIELD   17
233  2 18   CODE         16,16                                                     2440              FIELD   17
234  2 19   SET          17,17                                                     2441              FIELD   17
235  2 20   LABEL        23,32                                                     2456              FIELD   17
236  2 21   CARD         81,160                                                    2584              FIELD   17
237  2 22   *
238  2 23                OUTPUT RECORD AREA                                        2424              SBFLD
239  2 24   *
240  2 25   PREC   DA    1X160                                                     2585   2744               17
241  2 26   PCARDN       1,5                                                       2589              FIELD   18
242  2 27   PSORT        6,15                                                      2599              FIELD   18
243  2 28   PCODE        16,16                                                     2600              FIELD   18
244  2 29   PSET         17,17                                                     2601              FIELD   18
245  2 30   PLABEL       23,32                                                     2616              FIELD   18
246  2 31   PCARD        81,160                                                    2744              FIELD   18
247  2 32   *
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SEQ PG LIN  LABEL  OP    OPERANDS                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  2 33   *
249  2 34   *
250  2 35   BUFFER EQU   843                     ADCON OF BUFFER HI-ADDRESS         0843
251  2 36   EJECT  EQU   704                     SYSTEM EJECT ENTRY                 0704
252  2 37   EXEQ   EQU   1896                    EXECUTION POINT IN SORT            1896
253  2 38   ORG    EQU   2050                    OVERLAY ORG FOR 3ANLC              2050
254  2 39   PRINT  EQU   747                     SYSTEM PRINT ENTRY                 0747
255  2 40   SWCRS  EQU   81                      W-M WHEN CROSS OPTION              0081
256  2 41   SWEOF  EQU   674                     W-M WHEN LAST RECORD               0674
257  2 42   SWF    DCW   #1                      FOR INITIALYZING                 1 2745                    19
258  2 43   SWOPND EQU   85                      W-M WHEN OPERAND OPTION            0085
259  2 44   SWOVFL EQU   84                      W-M AFTER PAGE EJECT               0084
260  2 45   SYSLNK EQU   400                     SYSTEM CALL ENTRY                  0400
261  2 46   *
262  2 47   *             LITERALS
263  2 48   *
264  2 49          LTORG *&1                                                          2747
                   DCW   @159@                                            3  2749           LIT     20
       153               @          @                                    10  2759           LIT     20
                         @004@                                            3  2762           LIT     20
                         @307@                                            3  2765           LIT     20
                         @16@                                             2  2767           LIT     20
                         @06@                                             2  2769           LIT     20
       212               @3ANLF@                                          5  2774           LIT     20
       222               @CROSS REFERENCE REPORT@                        22  2796           LIT     21
265  2 50   HIGH   EQU   *&1                     HIGH ADDRESS OF PROGRAM            2797
266  2 51          END   EXEQ                    DUMMY END CARD                           / Y96 080         22
257  2 42   SWF    DCW   #1                      FOR INITIALYZING                 1 2745                    19               *****
258  2 43   SWOPND EQU   85                      W-M WHEN OPERAND OPTION            0085
259  2 44   SWOVFL EQU   84                      W-M AFTER PAGE EJECT               0084
260  2 45   SYSLNK EQU   400                     SYSTEM CALL ENTRY                  0400
261  2 46   *
262  2 47   *             LITERALS
263  2 48   *
264  2 49          LTORG *&1                                                          2747
                   DCW   @159@                                            3  2749           LIT     20
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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                            1              3ANLF
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?         2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039            ,0010011040           3

                          PHASE II, PASS 6 OF ANALYSIS                          3ANLF             PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    010  000    JOB   PHASE II, PASS 6 OF ANALYSIS
 102    020         CTL   440
 103    030  *
 104    040  *               GENERATE $ADD CARD
 105    050  *
 106    060         DC    @$ADD     @                                            9  0341                      4
 107    070         DC    &ORG                                                 3  0344  !50                 4
 108    080         DC    &EXEQ                                                3  0347  Y96                 4
 109    090         DC    &HIGH                                                3  0350  R35                 4
 110    100         ORG   ORG                                                         2050
 111    110  ENTER  SBR   OUTOUT&3                                             4  2050  H O29               5
 112    120         SW    GRP                     INITIALIZE GROUP MARK        4  2054  , Q03               5
 113    130         MLC   X1,SAVX1#3              SAVE                         7  2058  M 089 Q92           5
 114    140         MLC   X2,SAVX2#3                                           7  2065  M 094 Q95           5
 115    150         MLC   X3,SAVX3#3                                           7  2072  M 099 Q98           5
 116    160         BWZ   DECIDE,EOFIND,1         TEST IF LAST RECORD          8  2079  V O30 674 1         5
 117    170         MLC   843,MBUFF&3             NO. ASSIGN INPUT BUFFER      7  2087  M 843 J32           6
 118    180         MA    @159@,MBUFF&3                                        7  2094  # R01 J32           6
 119    190         MLC   843,BSYS&6                                           7  2101  M 843 K87           6
 120    200         MA    @159@,BSYS&6                                         7  2108  # R01 K87           6
 121    210         MLC   843,MGRP&6                                           7  2115  M 843 L01           6
 122    220         MA    @079@,MGRP&6                                         7  2122  # R04 L01           7
 123    230  MBUFF  MLC   0,REC&159               MOVE BUFFER TO INPUT AREA    7  2129  M 000 Q02           7
 124    240         CHAIN 8                                                                     MACRO
 125                MLC                                                        1  2136  M            GEN    7
 126                MLC                                                        1  2137  M            GEN    7
 127                MLC                                                        1  2138  M            GEN    7
 128                MLC                                                        1  2139  M            GEN    7
 129                MLC                                                        1  2140  M            GEN    7
 130                MLC                                                        1  2141  M            GEN    8
 131                MLC                                                        1  2142  M            GEN    8
 132                MLC                                                        1  2143  M            GEN    8
 133    250         BCE   PENTRY,CODE,0           TEST IF SOURCE RECORD        8  2144  B L06 O58 0         8
 134    260         B     PREF                    NO. REFERENCE RECORD         4  2152  B N49               8
 135    270  WRITET BCE   BSYS,ANCODE,T           TEST IF RECORD TRANSPARENT   8  2156  B K81 O81 T         8
 136    272         MLC   F1&9,SORT&9                                          7  2164  M O96 O57           8
 137    274         B     SFILL                   REPLACE BAANKS WITH COLONS   4  2171  B Q04               9
 138    276         MLC   SORT&9,F1&9                                          7  2175  M O57 O96           9
 139                MLC   F2&9,SORT&9                                          7  2182  M P12 O57           9
 140                B     SFILL                                                4  2189  B Q04               9
 141                MLC   SORT&9,F2&9                                          7  2193  M O57 P12           9
 142    280         BCE   M76T80,SET,D            NO. TEST IF SET D            8  2200  B K74 O59 D         9
 143    290         MLC   CARD&4,EXSEQ            NO. MOVE 1 - 5 TO SEQ FIELD  7  2208  M P27 O64          10
 144    300         BCE   SETB,SET,B              TEST IF SET B                8  2215  B K27 O59 B        10
 145    310         B     BSYS                    NO. GO TO SET UP WRITE BUFFE 4  2223  B K81              10
 146    320  SETB   MLC   LABEL&9,SORT&9          MOVE LABEL TO SORT           7  2227  M O74 O57          10
 147    330         B     SFILL                   REPLACE BLANKS WITH COLONS   4  2234  B Q04              10
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

148    340         MLC   SORT&9,LABEL&9          MOVE BACK LABEL                 7  2238  M O57 O74            10
149    380         MLC   @     @,SORT&9                                          7  2245  M R09 O57            11
150    390         MLC   EXSEQ,SORT&4            REPLACE BLANKS WITH COLONS      7  2252  M O64 O52            11
151    400         B     SFILL                                                   4  2259  B Q04                11
152    410         MLC   SORT&4,EXSEQ                                            7  2263  M O52 O64            11
153    420         B     BSYS                    GO TO WRITE BUFFER              4  2270  B K81                11
154    430  M76T80 MLC   CARD&79,EXSEQ           MOVE 76-80 TO SEQ               7  2274  M Q02 O64            11
155    440  BSYS   MLC   REC&159,0               MOVE RECORD TO OUTPUT           7  2281  M Q02 000            12
156    450         CHAIN 7                                                                         MACRO
157                MLC                                                           1  2288  M            GEN     12
158                MLC                                                           1  2289  M            GEN     12
159                MLC                                                           1  2290  M            GEN     12
160                MLC                                                           1  2291  M            GEN     12
161                MLC                                                           1  2292  M            GEN     12
162                MLC                                                           1  2293  M            GEN     12
163                MLC                                                           1  2294  M            GEN     13
164    460  MGRP   MLCWA GRP,0                   TRUNCATE CARD IMAGE             7  2295  L Q03 000    GEN     13
165    470         B     RETURN                  RETURN                          4  2302  B O05                13
166    480  PENTRY BWZ   FIRST,FSW#1,1           FIRST TIME EJECT                8  2306  V N10 R10 1          13
167    490         BWZ   HEAD,84,1               WRITE HEARER ON OVERFLOW        8  2314  V N22 084 1          13
168    500         BCE   MCARD,SET,D             TEST IF SET D                   8  2322  B L41 O59 D          13
169    510         SW    CARD&5                                                  4  2330  , P28                14
170    520         MLCWA CARD&4,322                                              7  2334  L P27 322            14
171    530  MCARD  MLCWA CARD&79,301                                             7  2341  L Q02 301            14
172    540         MLCWA INSEQ,214                                               7  2348  L O47 214            14
173    550         CW    CARD&5                                                  4  2355  ) P28                14
174    560         BCE   WRITE,ANCODE,T          BRANCH IF TRANSPARENT           8  2359  B M95 O81 T          14
175    570  *
176    580  *         SET UP ANALYSIS FLAGS
177    590  *
178    600         SW    FLAGSA&4                IN ORDER TO LOAD                4  2367  , O64                15
179    610         SW                                                            1  2371  ,                    15
180    620         SW                                                            1  2372  ,                    15
181    630         SW                                                            1  2373  ,                    15
182    640         SBR   X1,0                                                    7  2374  H 089 000            15
183    650         SBR   X2,0                                                    7  2381  H 094 000            15
184    660  TSTLIM BCE   ONWARD,X1,5             TEST IF HAVE CHECKED FOR        8  2388  B M51 089 5          15
185    670  *                                      ALL FLAGS
186    680         BCE   A1TOX1,FLAGSA&X1,       TEST IF THERE IS FLAG           8  2396  B M40 OW0            16
187    690         BCE   MFLAG,X2,0              IF X2 IS ZERO PRINT NO COMMA    8  2404  B M26 094 0          16
188    700         MLCWA @,@,202&X2                                              7  2412  L R11 2!2            16
189    710         A     @1@,X2                  X2 POINTS WHERE NEXT TO LOAD    7  2419  A R12 094            16
190    720  MFLAG  MLCWA FLAGSA&X1,202&X2                                        7  2426  L OW0 2!2            16
191    730         A     @1@,X2                                                  7  2433  A R12 094            17
192    740  A1TOX1 A     @1@,X1                                                  7  2440  A R12 089            17
193    750         B     TSTLIM                                                  4  2447  B L88                17
194    760  *
195    770  *                           PRINT FLAG FROM ANCODE
196    780  *
197    790  ONWARD MN    ANCODE,X1                                               7  2451  D O81 089            17
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

198    800         BCE   WRITE,FLGTBL-1&X1,      BRANCH IF NO FLAG                    8  2458  B M95 QX7            17
199    810         BCE   MOVFLG,X2,0             TEST IF PRINT COMMA                  8  2466  B M88 094 0          18
200    820         MLCWA @,@,202&X2                                                   7  2474  L R11 2!2            18
201    830         A     @1@,X2                                                       7  2481  A R12 094            18
202    840  MOVFLG MLCWA FLGTBL-1&X1,202&X2                                           7  2488  L QX7 2!2            18
203    850  WRITE  B     PRINT                                                        4  2495  B 747                18
204    860         CW    FLAGSA&4                                                     4  2499  ) O64                18
205    870         CW                                                                 1  2503  )                    18
206    880         CW                                                                 1  2504  )                    19
207    890         CW                                                                 1  2505  )                    19
208    900         B     WRITET                                                       4  2506  B J56                19
209    910  FIRST  CW    FSW                                                          4  2510  ) R10                19
210    920         B     EJECT                                                        4  2514  B 704                19
211    930         B     PENTRY&8                                                     4  2518  B L14                19
212    940  *
213    950  *                                WRITE HEADER
214    960  *
215    970  HEAD   SBR   RET&3                                                        4  2522  H N48                19
216    980         MLCWA @FLAGGED LISTING@,272                                        7  2526  L R27 272            20
217    990         B     PRINT                                                        4  2533  B 747                20
218  1 000         B     PRINT                   TO SPACE                             4  2537  B 747                20
219  1 010         B     PRINT                                                        4  2541  B 747                20
220  1 020  RET    B     0                                                            4  2545  B 000                20
221  1 030  PREF   BWZ   HEAD,84,1                                                    8  2549  V N22 084 1          20
222  1 040         BCE   MSEQ,SET,D                                                   8  2557  B N76 O59 D          20
223  1 050         SW    CARD&5                                                       4  2565  , P28                21
224  1 060         MLCWA CARD&4,328                                                   7  2569  L P27 328            21
225  1 070  MSEQ   MLCWA SEQ,220                                                      7  2576  L O47 220            21
226  1 080         MLCWA CARD&79,316                                                  7  2583  L Q02 316            21
227  1 090         CW    CARD&5                                                       4  2590  ) P28                21
228  1 100         B     PRINT                                                        4  2594  B 747                21
229  1 110         MA    @004@,OUTOUT&3                                               7  2598  # R30 O29            22
230  1 120  RETURN MLC   SAVX1,X1                                                     7  2605  M Q92 089            22
231  1 130         MLC   SAVX2,X2                                                     7  2612  M Q95 094            22
232  1 140         MLC   SAVX3,X3                                                     7  2619  M Q98 099            22
233  1 150  OUTOUT B     0                                                            4  2626  B 000                22
234  1 160  DECIDE CW    GRP                                                          4  2630  ) Q03                22
235  1 170         B     SYSLNK                                                       4  2634  B 400                23
236  1 180         DCW   @3ANLG@                                                      5  2642                       23
237  1 190  *
238  1 200  *                      INPUT/OUTPUT RECORD AREA
239  1 210  *
240  1 220  REC    DA    1X160                                                           2643   2802                23
241  1 230  SEQ         1,5                                                             2647             FIELD     23
242  1 240  SORT        6,6                                                             2648             FIELD     23
243  1 250  CODE        16,16                                                           2658             FIELD     23
244  1 260  SET         17,17                                                           2659             FIELD     23
245  1 270  EXSEQ       18,22                                                           2664             FIELD     24
246  1 280  LABEL       23,23                                                           2665             FIELD     24
247  1 290  ANCODE      39                                                              2681             SBFLD
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  1 300  F1           45,45                                                   2687              FIELD   24
249         F2           61,61                                                   2703              FIELD   24
250  1 310  CARD         81,81                                                   2723              FIELD   24
251  1 320  GRP    DC    @}@                                                   1 2803                      25
252  1 330  SFILL  SBR   OFILL&3                                               4 2804  H Q76               25
253  1 340         SBR   X3,10                                                 7 2808  H 099 010           25
254  1 350  TBLNK  BCE   TSWPAD,SORT-1&X3,                                     8 2815  B Q31 OD7           25
255  1 360         SW    SWFILL                                                4 2823  , Q88               25
256  1 370         B     DECRX3                                                4 2827  B Q50               26
257  1 380  TSWPAD BWZ   *&5,SWFILL,1                                          8 2831  V Q43 Q88 1         26
258  1 390         B     *&8                                                   4 2839  B Q50               26
259  1 400         MLC   @:@,SORT-1&X3                                         7 2843  M R31 OD7           26
260  1 410  DECRX3 MA    @I9I@,X3                                              7 2850  # R34 099           26
261  1 420         BCE   CSWFIL,X3,0                                           8 2857  B Q69 099 0         26
262  1 430         B     TBLNK                                                 4 2865  B Q15               27
263  1 440  CSWFIL CW    SWFILL                                                4 2869  ) Q88               27
264  1 450  OFILL  B     0                                                     4 2873  B 000               27
265  1 460  INSEQ  EQU   SEQ                                                     2647
266  1 470  FLAGSA EQU   EXSEQ-4                                                 2660
267  1 480  PRINT  EQU   747                                                     0747
268  1 490  EJECT  EQU   704                                                     0704
269  1 500  X1     EQU   89                                                      0089
270  1 510  X2     EQU   94                                                      0094
271  1 520         DC    @ @                                                   1 2877                      27
272  1 530  FLGTBL DCW   @M@                                                   1 2878                      27
273  1 540         DCW   @O@                                                   1 2879                      27
274  1 550         DCW   @D@                                                   1 2880                      27
275  1 560         DCW   @B@                                                   1 2881                      27
276  1 570         DCW   @H@                                                   1 2882                      28
277  1 580         DCW   @A@                                                   1 2883                      28
278  1 590         DCW   #4                                                    4 2887                      28
279  1 600  ORG    EQU   2050                                                    2050
280  1 610  EXEQ   EQU   1896                                                    1896
281  1 620  EOFIND EQU   674                                                     0674
282  1 630  SYSLNK EQU   400                                                     0400
283  1 640  X3     EQU   99                                                      0099
284  1 650  SWFILL DC    #1                                                    1 2888                      28
285  1 660         LTORG *&1                                                           2890
        113 SAVX1  DCW   #03                                                   3 2892              AREA    29
        114 SAVX2        #03                                                   3 2895              AREA    29
        115 SAVX3        #03                                                   3 2898              AREA    29
                         @159@                                                 3 2901              LIT     29
                         @079@                                                 3 2904              LIT     29
        149              @     @                                               5 2909              LIT     29
        166 FSW          #01                                                   1 2910              AREA    29
                         @,@                                                   1 2911              LIT     30
                         @1@                                                   1 2912              LIT     30
        216              @FLAGGED LISTING@                                    15 2927              LIT     30
                         @004@                                                 3 2930              LIT     30
                         @:@                                                   1 2931              LIT     30
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

                         @I9I@                                                 3  2934              LIT     30
286  1 670  HIGH   EQU   *&1                                                      2935
287  1 680         END   ENTER                  DUMMY END CARD                          / !50 080           31
       113  SAVX1  DCW   #03                                                   3  2892              AREA    29              *****
       114  SAVX2        #03                                                   3  2895              AREA    29
       115  SAVX3        #03                                                   3  2898              AREA    29
                         @159@                                                 3  2901              LIT     29
                         @079@                                                 3  2904              LIT     29
       149               @     @                                               5  2909              LIT     29
       166  FSW          #01                                                   1  2910              AREA    29
                         @,@                                                   1  2911              LIT     30
                         @1@                                                   1  2912              LIT     30
       216               @FLAGGED LISTING@                                    15  2927              LIT     30
                         @004@                                                 3  2930              LIT     30
                         @:@                                                   1  2931              LIT     30
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SEQ PG LIN	LABEL	OP	OPERANDS	SFX CT	LOCN	INSTRUCTION TYPE	CARD
			@I9I@	3	2934	LIT	30

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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                         1              3ANLG
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?      2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040      3

                          EOF ACTIVITY FOR 3ANLF                                  3ANLG           PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    010  000    JOB   EOF ACTIVITY FOR 3ANLF
 102    020         CTL   440  1
 103    030         DC    @$ADD     @                                               9  0341                     4
 104    040         DC    &ORG                                                      3  0344  800                4
 105    050         DC    &START                                                    3  0347  800                4
 106    060         DC    &HIGH                                                     3  0350  /46                4
 107    070         ORG   ORG                                                                 0800
 108    080  START  CW    SWEOF                  CLEAR END OF FILE SWITCH           4  0800  ) 674              5
 109    090         BCE   CHART,2,C              TEST IF $CHART                     8  0804  B 893 002 C        5
 110    100         B     READ                   NO. READ NEW CONTROL CARD.         4  0812  B 781              5
 111    110         C     @$CHART@,6             TEST IF IT IS $CHART               7  0816  C /25 006          5
 112    120         BE    CHART                  YES.                               5  0823  B 893 S            5
 113    130         C     @$VERIFY@,7            NO. TEST IF IT IS $VERIFY          7  0828  C /32 007          5
 114    140         BE    VERIFY                 YES.                               5  0835  B 974 S            6
 115    150         C     @$SYSTEM@,7            NO. TEST IF IT IS $SYSTEM          7  0840  C /39 007          6
 116    160         BE    SYSTEM                 YES.                               5  0847  B 983 S            6
 117    170         C     @$DAEND@,6             NO. TEST IF IT IS $DAEND.          7  0852  C /45 006          6
 118    180         BE    DAEND                  YES.                               5  0859  B 879 S            6
 119    190         B     EJECT                  NO.  ILLEGAL CONTROL CARD.         4  0864  B 704              6
 120    200         MLCWA ERMESG,247             PRINT ERROR MESSAGE                7  0868  L /18 247          7
 121    210         B     PRINT                                                     4  0875  B 747              7
 122    220  DAEND  RWD   1                                                         5  0879  U %U1 R            7
 123    230         B     SYSLNK                 CALL IN CONTROLLER                 4  0884  B 400              7
 124    240         DCW   @1CONA@                                                   5  0892                     7
 125    250  CHART  BCE   CALL,TPUNIT,2          TEST IF FLOWCHART INPUT ON 2       8  0893  B 965 675 2        7
 126    260         SW    GRPMRK                 NO.  INITIALYZE GROUP MARK.        4  0901  , |72              7
 127    270         MLC   TPUNIT,UNITNO          INITIALYZE TAPE READ               7  0905  M 675 923          8
 128    280         MLC   TPUNIT,RWD&3           INITIALYZE TAPE REWIND             7  0912  M 675 949          8
 129    290  COPY   B     SYSIO                  READ A RECORD                      4  0919  B 500              8
 130    300  UNITNO DCW   @ @                    PRE-SET                            1  0923                     8
 131    310         DC    &REC                                                      3  0926  992                8
 132    320         DC    @R@                                                       1  0927                     8
 133    330         BEF   RWD                    GO TO REWIND AT END OF FILE        5  0928  B 946 K            8
 134    340         B     SYSIO                  WRITE RECORD ONTO TAPE 2           4  0933  B 500              8
 135    350         DCW   @2@                                                       1  0937                     8
 136    360         DC    &REC                                                      3  0940  992                9
 137    370         DC    @W@                                                       1  0941                     9
 138    380         B     COPY                   GO READ ANOTHER RECORD.            4  0942  B 919              9
 139    390  RWD    RWD   0                      PRE-SET                            5  0946  U %U0 R            9
 140    400         WTM   2                                                         5  0951  U %U2 M            9
 141    410         RWD   2                                                         5  0956  U %U2 R            9
 142    420         CW    GRPMRK                                                    4  0961  ) |72             10
 143    430  CALL   B     SYSLNK                 CALL FLOWCHART PROGRAM             4  0965  B 400             10
 144    440         DCW   @4CHRA@                                                   5  0973                    10
 145    450  VERIFY B     SYSLNK                 CALL IN VERIFY PROGRAM.            4  0974  B 400             10
 146    460         DCW   @5VERA@                                                   5  0982                    10
 147    470  SYSTEM B     SYSLNK                 CALL IN SYSTEM MAINTENANCE         4  0983  B 400             10
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

148    480         DCW   @6CONA@                                                  5  0991                      10
149    490  REC    DA    1X80                                                        0992   1071               11
150    500  GRPMRK DC    @}@                                                      1  1072                      12
151    510  ERMESG DCW   @ERROR - ILLEGAL CONTROL CARD.  RUN TERMINATED.@        46  1118                      14
152    520         LTORG *&1                                                                1120
       111         DCW   @$CHART@                                                 6  1125              LIT     15
       113               @$VERIFY@                                                7  1132              LIT     15
       115               @$SYSTEM@                                                7  1139              LIT     15
       117               @$DAEND@                                                 6  1145              LIT     15
153    530  ORG    EQU   800                                                         0800
154    540  SYSLNK EQU   400                                                         0400
155    550  READ   EQU   781                                                         0781
156    560  PRINT  EQU   747                                                         0747
157    570  SYSIO  EQU   500                                                         0500
158    580  EJECT  EQU   704                                                         0704
159    590  TPUNIT EQU   675                                                         0675
160    600  SWEOF  EQU   674                                                         0674
161    610  HIGH   EQU   *&1                                                         1146
162    620         END   START                                                             / 800 080           16
149    490  REC    DA    1X80                                                        0992   1071               11             *****
150    500  GRPMRK DC    @}@                                                      1  1072                      12
151    510  ERMESG DCW   @ERROR - ILLEGAL CONTROL CARD.  RUN TERMINATED.@        46  1118                      14
152    520         LTORG *&1                                                                1120
       111         DCW   @$CHART@                                                 6  1125              LIT     15
       113               @$VERIFY@                                                7  1132              LIT     15
       115               @$SYSTEM@                                                7  1139              LIT     15
       117               @$DAEND@                                                 6  1145              LIT     15
153    530  ORG    EQU   800                                                         0800
154    540  SYSLNK EQU   400                                                         0400
155    550  READ   EQU   781                                                         0781
156    560  PRINT  EQU   747                                                         0747
157    570  SYSIO  EQU   500                                                         0500
158    580  EJECT  EQU   704                                                         0704
159    590  TPUNIT EQU   675                                                         0675
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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                                 1             4CHRA
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?              2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040              3

                          PHASE-1, PASS-1, FLOWCHARTER                              4CHRA              PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101  1 01   000    JOB   PHASE-1, PASS-1, FLOWCHARTER
 102  1 02          CTL   440
 103  1 025  *              VERSION 2  LEVEL 0   JULY 25,1965
 104  1 03          DCW   @$ADD     @                                                9  0341                       4
 105  1 04          DSA   SWLIST              LOWEST CORE USABLE                     3  0344  800                  4
 106  1 05          DSA   BRANCH                                                     3  0347  813                  4
 107  1 06          DSA   HIGH                                                       3  0350  I9Y                  4
 108  1 07          DCW   @033065@            ASSEMBLY DATE                          6  0356                       4
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

109  1 08          JOB   PHASE-1, PASS-1, EQU, DA, DC, AND DCW-S
110  1 09   *
111  1 10   *                              TAPE DEFINITIONS
112  1 11   IOCON2 EQU   200                 TAPE 2 FOR SYSIO CALL                 0200
113  1 12   IOCON3 EQU   300                 TAPE 3 FOR SYSIO CALL                 0300
114  1 13   IOCON4 EQU   400                 TAPE 4 FOR SYSIO CALL                 0400
115  1 14   IOTP2  EQU   %U2                 TAPE UNIT 2                           %U2
116  1 15   IOTP3  EQU   %U3                 TAPE UNIT 3                           %U3
117  1 16   IOTP4  EQU   %U4                 TAPE UNIT 4                           %U4
118  1 17   SYSTAP EQU   %U1                 SYSTEM TAPE UNIT 1                    %U1
119  1 18   *
120  1 19   *                              SYSTEM COMMUNICATION DEFINITIONS
121  1 20   LCARD  EQU   1                   1-80, $CONTROL CARD INPUT AREA        0001
122  1 21   *                              81 NOT USED, MAY HAVE BLANK, RM
123  1 22   MACH   EQU   82                  MACHINE CODE                          0082
124  1 23   LANG   EQU   83                  LANGUAGE CODE                         0083
125  1 24   SWEJEC EQU   84                  PRINT PAGE EJECT SWITCH               0084
126  1 25   SWMAST EQU   85                  SWITCH TO SAVE MASTER                 0085
127  1 26   *                              86 NOT ASSIGNED
128  1 27   X1     EQU   89                  87-89, INDEX REGISTER 1               0089
129  1 28   *                              90-91 NOT ASSIGNED
130  1 29   X2     EQU   94                  92-94, INDEX REGISTER 2               0094
131  1 30                                    95, 96 NOT ASSIGNED
132  1 31   X3     EQU   99                  97-99, INDEX REGISTER 3               0099
133  1 32                                    100 READ/PUNCH CHECK POSITION
134  1 33   LPUNCH EQU   101                 101-180, PUNCH-DAJOB HEADING          0101
135  1 34   *                              181-195, USED BY SYSLNK
136  1 35   OLPAGE EQU   199                 196-199, DAJOB PAGE HEADING           0199
137  1 36   *                              200 NOT ASSIGNED
138  1 37   LPRINT EQU   201                 201-332, PRINT AREA                   0201
139  1 38   SYSLNK EQU   400                 SYSTEM TAPE READ ROUTINE              0400
140  1 39   SYSIO  EQU   500                 READ-WRITE TAPE ROUTINE               0500
141  1 40   LINTOT EQU   659                 NUMBER OF LINES PER PAGE              0659
142  1 41   MESSG  EQU   660                 SYSTEM OPERATOR MESSAGE WRITER        0660
143  1 42   EJECT  EQU   704                 EJECT PAGE ROUTINE                    0704
144  1 43   PRINT  EQU   747                 PRINT LINE ROUTINE                    0747
145  1 44   READ   EQU   781                 READ CONTROL CARD ROUTINE             0781
146  1 45   PUNCH  EQU   789                 PUNCH CARD ROUTINE                    0789
147  1 46   SYSEND EQU   799                 LAST CHARACTER                        0799
148  1 47   *
149  1 48   *
150  1 49   *              SWITCHES COMMON TO ALL PHASES OF FLOWCHART
151  1 50   SWLIST EQU   SYSEND&1            LIST SWITCH                           0800
152  1 51   SWDECK EQU   SWLIST&1            DECK SWITCH                           0801
153  1 52   SWNOCH EQU   SWDECK&1            NOCHART SWITCH                        0802
154  1 53   SWNOST EQU   SWNOCH&1            NOSTOP SWITCH                         0803
155  1 54   SWCROS EQU   SWNOST&1            NOCROSS SWITCH                        0804
156  1 55   SWNONO EQU   SWCROS&1            NOT REFERENCED SWITCH FOR SFL         0805
157  1 56   *
158  1 57   *
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SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD

159  1 58          ORG   SWNONO&1                                                         0806
160  1 59   *              SWITCHES AND FIELDS COMMON TO PHASE 1
161  1 60   LOCADJ DCW   #3                  LOCATION COUNTER ADJUSTMENT          3  0808                      5
162  1 61   COREND DCW   #3                  CORE END                             3  0811                      5
163  1 62   SWMULT DC    #1                  MULTIPLE SEGMENTS SWITCH             1  0812                      5
164  1 63   *              COMMON BRANCH POINT FROM SYSTEM TAPE READ, OVERLAID
165  1 64   BRANCH B     START               GO TO INSTRUCTION AFTER READ         4  0813  B T03               5
166  1 65   *
167  1 66   *              THERE ARE GMWMS AT THE END OF EACH TAPE IO RECORD
168  1 67   *              AREA.
169  1 68   *              INDEX REGISTERS ARE NOT SAVED FOR THE NEXT PASS.
170  1 69   *              GENERAL XR USAGE--
171  1 70   *              XR3-BRANCHING, TABLE ENTRY FETCHING,
172  1 71   *              XR2-SCANNING CONTROL CARDS, COLUMN POINTER
173  1 72   *              XR1-SCANNING CONTROL CARDS, CHARACTER COUNT
174  1 73   *
175  1 74   OPTABL EQU   4505                                                     4505
176  1 75   *              IO AREA DEFINITIONS
177  1 76   SWR1EF DCW   #1                  REC1 EOF SWITCH # 1 IF EOF           1  0817                      5
178  1 77   REC1   DA    1X81                RECORD-1 AREA                           0818   0898               5
179  1 78   R1ACOD       10                  PASS-1 PROCESSING CODE                  0827             SBFLD
180  1 79   R1LCOD       11                  LENGTH CODE                             0828             SBFLD
181  1 80   R1LNTH       14                  LAST CHAR OF LENGTH                     0831             SBFLD
182  1 81   R1AREA       17                  LAST CHAR OF AREA NUMBER                0834             SBFLD
183  1 82   R1LABL       32                  LABEL FIELD                             0849             SBFLD
184  1 83   R1BCOP       38                  LAST CHAR OF BCD OPERATION FIELD        0855             SBFLD
185  1 84   R1DISP       42                  LAST CHAR OF OP. DISPLACEMENT           0859             SBFLD
186  1 85   R1OP1        45,54               LAST CHAR OF OP1                        0871             FIELD    5
187  1 86   R1OP2        61,70               LAST CHAR OF OP2                        0887             FIELD    5
188  1 87   R1OP3        71,80               LAST CHAR OF OP3                        0897             FIELD    6
189  1 88   *
190  1 89   SWR2EF DCW   #1                  REC1 EOF SWITCH # 2 IF EOF           1  0899                      6
191  1 90   REC2   DA    1X81                RECORD-2 AREA                           0900   0980               6
192  1 91   R2CHAI       9                                                        0908             SBFLD
193  1 92   R2ACOD       10                  PASS-1 PROCESSING CODE                  0909             SBFLD
194  1 93   R2LCOD       11                  LENGTH CODE                             0910             SBFLD
195  1 94   R2LNTH       14                  LAST CHAR OF LENGTH                     0913             SBFLD
196  1 95   R2AREA       17                  LAST CHAR OF AREA NUMBER                0916             SBFLD
197  1 96   R2LABL       32                  LABEL FIELD                             0931             SBFLD
198  1 961  R2BCOP       38                  LAST CHAR OF BCD OPERATION FIELD        0937             SBFLD
199  1 97   R2PCOD       39                  PASS-5 PROCESSING CODE                  0938             SBFLD
200  1 98   R2DISP       42                  LAST CHAR OF OP. DISPLACEMENT           0941             SBFLD
201  1 99   R2TCOD       43                  TRANSFER INSTRUCTION CODE               0942             SBFLD
202  2 00   R2OPCT       44                  OPERAND COUNT                           0943             SBFLD
203  2 01   R2OP1        45,54               LAST CHAR OF OP1                        0953             FIELD    6
204  2 02   R2OP2        61,70               LAST CHAR OF OP2                        0969             FIELD    6
205  2 03   R2OP3        71,80               LAST CHAR OF OP3                        0979             FIELD    6
206  2 04   R2CCOD EQU   R2DISP                                                   0941
207  2 05   *
208  2 06   REC3   DA    1X81                RECORD-3 AREA                           0981   1061               6
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SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD

209  2 07   R3ACOD       10                  PASS-1 PROCESSING CODE                  0990               SBFLD
210  2 08   R3LCOD       11                  LENGTH CODE                             0991               SBFLD
211  2 09   R3LNTH       14                  LAST CHAR OF LENGTH                     0994               SBFLD
212  2 10   R3AREA       17                  LAST CHAR OF AREA NUMBER                0997               SBFLD
213  2 11   R3PCOD       39                  PASS-5 PROCESSING CODE                  1019               SBFLD
214  2 12   R3DISP       42                  LAST CHAR OF OP. DISPLACEMENT           1022               SBFLD
215  2 13   R3TCOD       43                  TRANSFER INSTRUCTION CODE               1023               SBFLD
216  2 14   R3OPCT       44                  OPERAND COUNT                           1024               SBFLD
217  2 15   R3OP1        54                  LAST CHAR OF OPERAND-1                  1034               SBFLD
218  2 16   R3OP2        70                  LAST CHAR OF OPERAND-2                  1050               SBFLD
219  2 17   R3OP3        80                  LAST CHAR OF OPERAND-3                  1060               SBFLD
220  2 18   R3CCOD EQU   R3DISP                                                       1022
221  2 19   *
222  2 20   *              PASS-1 PROCESSING SWITCHES
223  2 21   SWTERM DC    #1                  SCAN TERMINATOR SWITCH                1 1062                        7
224  2 22   SWERR1 DC    #1                  LINE ERROR SWITCH                     1 1063                        7
225  2 23   SWERR  DC    #1                  OVERALL ERROR SWITCH                  1 1064                        7
226  2 24   SWONCE DC    #1                  PROCESSED SEGMENT SWITCH              1 1065                        7
227  2 25   SWSEG  DC    #1                  PROCESSED $SEGMENT CARD SWITCH        1 1066                        7
228  2 26   SWTOTH DC    #1                  TO-THRU SWITCH                        1 1067                        7
229  2 27   SWUNKN DC    #1                  UNKNOWN-KNOWN LENGTH SWITCH           1 1068                        7
230  2 28   *              CONSTANTS
231  2 29   L38    DCW   @008@               1620 LENGTH OF B7 AND DORG            3 1071                        7
232  2 30   L1S    DCW   @S@                 DORG LENGTH CODE TO DELETE KNOWN      1 1072                        7
233  2 31   L4SM4  DCW   @*-4 @              1620 DORG                             4 1076                        7
234  2 32   L4SM3  DCW   @*-3 @              1620 DORG                             4 1080                        7
235  2 33   L5DORG DCW   @DORG @             1620 DORG                             5 1085                        8
236  2 34   L3B7   DCW   @B7 @               1620 BRANCH  SPECIAL                  3 1088                        8
237  2 35   L1BLNK DCW   @ @                 BLANK                                 1 1089                        8
238  2 36   L11    DCW   @1@                 ONE                                   1 1090                        8
239  2 37   L12    DCW   @2@                 TWO                                   1 1091                        8
240  2 38   L14    DCW   @4@                 FOUR                                  1 1092                        8
241  2 39   L18    DCW   @8@                 EIGHT                                 1 1093                        8
242  2 40   L1GM   DC    @}@                 GROUP MARK                            1 1094                        9
243  2 41   L3010  DCW   @010@               TEN                                   3 1097                        9
244  2 42   L3000  DCW   @000@               ZERO                                  3 1100                        9
245  2 43   L3004  DCW   @004@               FOUR                                  3 1103                        9
246  2 44   L3001  DCW   @001@               ONE                                   3 1106                        9
247  2 45   L3011  DCW   @011@               ELEVEN                                3 1109                       10
248  2 46   *              CODES
249  2 47   L1COD  DCW   @L@                 LOC CNTR RELATIVE CODE                1 1110                       10
250  2 48   DEXCOD DCW   @5@                 DECID EXIT CODE FOR PASS-5            1 1111                       10
251  2 49   XITCOD DCW   @U@                 EXIT CODE FOR PASS 5                  1 1112                       10
252  2 50   JOBCOD DCW   @W011@              JOB CODE FOR PASS-5                   4 1116                       10
253  2 51   ENDCOD DCW   @X@                 END CODE FOR PASS-5                   1 1117                       10
254  2 52   PRECOD DCW   @3016@              PREDF CODE FOR PASS-5                 4 1121                       10
255  2 53   UNLCOD DCW   @0-@                UNKNOWN LENGTH CODE FOR PASS1         2 1123                       11
256  2 54   GOCOD  DCW   @V001@              GOTO CODE                             4 1127                       11
257  2 55   ENTCOD DCW   @9@                 ENTER CODE                            1 1128                       11
258  2 56   EQUCOD DCW   @015@               LAS-CAS EQUAL CODE                    3 1131                       11
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

259  2 57   DMOCOD DCW   @4020@              D MODIFIER CODE                      4  1135                      11
260  2 58   BCECOD DCW   @4021@             BCE CODE                              4  1139                      11
261  2 59   L010VE DCW   @$VERIFY   @                                            10  1149                      11
262  2 60   L010SY DCW   @$SYSTEM   @                                            10  1159                      12
263  2 61   L010SE DCW   @$SEGMENT  @                                            10  1169                      12
264  2 62          DCW   @$@                                                      1  1170                      12
265  2 63          ORG   *                  USED TO INSURE $DAEND IS NOT                    1171
266  2 64   L010DA DC    @DAEND    @         ON SAME OBJECT CARD IN COL 1         9  1179                      12
267  2 65   L10STR DCW   @**        @                                            10  1189                      13
268  2 66   L10BLN DCW   @          @       10 BLANKS                            10  1199                      13
269  2 67   L1PLUS DCW   @&@                PLUS                                  1  1200                      13
270  2 68   L53    DCW   @00003@            THREE                                 5  1205                      13
271  2 69   L1O    DCW   @O@                O                                     1  1206                      13
272  2 70   TO     DCW   @TO        @                                            10  1216                      13
273  2 71   THRU   DCW   @THRU      @                                            10  1226                      14
274  2 72   *             WORKING AREAS
275  2 73   WORD   DCW   #10                SCAN OUTPUT WORD                     10  1236                      14
276  2 74   FIRST  DCW   #10                FIRST PARAMETER ON $SEGMENT          10  1246                      14
277  2 75   SECOND DCW   #10                THIRD PARAMETER ON $SEGMENT          10  1256                      15
278  2 76   AREANO DCW   #3                 AREA NUMBER                           3  1259                      15
279  2 77   L10TMP DCW   #10                WORKING AREA                         10  1269                      15
280  2 78   L3TEMP DCW   #3                 WORKING AREA                          3  1272                      15
281  2 79   OP1SAV DCW   #10                TEMP STORAGE OP1                     10  1282                      15
282  2 80   OP2SAV DCW   #10                TEMP STORAGE OP2                     10  1292                      16
283  2 81   OP3SAV DCW   #10                TEMP STORAGE OP3                     10  1302                      16
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SEQ PG LIN  LABEL  OP    OPERANDS                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

284  2 82          JOB   PHASE-1, PASS-1, MAIN LINE PROCESSING ROUTINE
285  2 83   *              MAIN LINE PROCESSING ROUTINE
286  2 84   START  SW    SWMAST              PRESET TO SAVE MASTER              4  1303  , 085               17
287  2 85          CW    SWERR               CLEAR ERROR SWITCH                 4  1307  ) |64               17
288  2 86          CW    SWERR1              CLEAR LINE ERROR SWITCH            4  1311  ) |63               17
289  2 87          B     CHRTCD              GO SCAN $CHART CARD                4  1315  B U71               17
290  2 88          BCE   DOSFL,LANG,6        IF SFL LANGUAGE, GO CALL PHASE-2   8  1319  B U28 083 6         17
291  2 89          SW    SWNONO              SET SWITCH FOR NOT REFERENCED      4  1327  , 805               17
292  2 90   ALANG  B     INITIL              INITIALUZE FOR PASS-1 PROCESSING   4  1331  B 50V               17
293  2 91   READNX B     READ                READ NEXT $CONTROL CARD            4  1335  B 781               18
294  2 92          B     LEGIT               INSURE LEGITIMATE TYPE, PRINT      4  1339  B X54               18
295  2 93          BCE   LASTCN,LCARD&3,E    IF $DAEND                          8  1343  B T87 004 E         18
296  2 94          BCE   LASTCN,LCARD&3,R    IF $VERIFY                         8  1351  B T87 004 R         18
297  2 95          BCE   LASTCN,LCARD&3,S    IF $SYSTEM                         8  1359  B T87 004 S         18
298  2 96          B     SEGSCN              GO SCAN $SEGMENT CARD              4  1367  B Y68               18
299  2 97          BWZ   READNX,SWERR,1      IF ERROR, DONT SEARCH TAPE         8  1371  V T35 |64 1         19
300  2 98          B     PROCES              GO PROCESS SEGMENT                 4  1379  B L81               19
301  2 99          B     READNX              GO READ NEXT CONTROL CARD          4  1383  B T35               19
302  3 00   *              FOUND $DAEND, $VERIFY OR $SYSTEM
303  3 01   LASTCN BWZ   CPASS2,SWSEG,1      IF $SEGMENT CARDS WERE PROCESSED   8  1387  V U07 |66 1         19
304  3 02          BWZ   CPASS2,SWERR,1      IF ERROR SWITCH ON                 8  1395  V U07 |64 1         19
305  3 03          B     PROCES              GO PROCESS ENTIRE INPUT AS A SEG   4  1403  B L81               19
306  3 04   CPASS2 B     CLEAN               GO CLEAN UP                        4  1407  B 42W               20
307  3 05          BWZ   CHKCON,SWERR,1      IF ERRORS, DONT CALL PASS-2        8  1411  V U53 |64 1         20
308  3 06          B     SYSLNK              CALL                               4  1419  B 400               20
309  3 07          DCW   @4CHRS@              PASS2                             5  1427                      20
310  3 08   *
311  3 09   DOSFL  B     READ                READ NEXT $CONTROL CARD            4  1428  B 781               20
312  3 10          B     LEGIT               INSURE LEGITIMATE TYPE, PRINT      4  1432  B X54               20
313  3 11          BWZ   CHKCON,SWERR,1      IF ERROR ON $CHART                 8  1436  V U53 |64 1         20
314  3 12          B     SYSLNK              CALL                               4  1444  B 400               21
315  3 13          DCW   @4CHTA@              PHASE-2                           5  1452                      21
316  3 14   *
317  3 15   CHKCON RWD   SYSTAP              REWIND THE SYSTEM TAPE             5  1453  U %U1 R             21
318  3 16          B     CLEAN               GO CLEAN CORE                      4  1458  B 42W               21
319  3 17          B     SYSLNK              CALL                               4  1462  B 400               21
320  3 18          DCW   @1CONA@              SYSTEM CONTROL                    5  1470                      21
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

321  3 19          JOB   CHART CARD SCAN ROUTINE
322  3 20   *              THIS ROUTINE SCANS THE $CHART CARD
323  3 21   CHRTCD SBR   CHRTCX&3            SAVE EXIT                             4  1471  H X53               22
324  3 22          MLC   LCARD&8,LPUNCH&8    MOVE $CHART TO PUNCH HEADING          7  1475  M 009 109           22
325  3 23          MLC   L1BLNK,LPUNCH       BLANK OUT FIRST CHAR                  7  1482  M |89 101           22
326  3 24          BWZ   CHRTNO,SWEJEC,1     IF JUST EJECTED, BYPASS               8  1489  V V01 084 1         22
327  3 25          B     EJECT               GO OUTPUT CHART HEADING               4  1497  B 704               22
328  3 26   CHRTNO MLC   LCARD&79,LPRINT&80  MOVE $CHART CARD TO PRINT             7  1501  M 080 281           22
329  3 27          B     PRINT               GO PRINT $CHART CARD                  4  1508  B 747               23
330  3 28          MLC   L3010,X2            SET COLUMN TO SCAN VARIABLE FLD       7  1512  M |97 094           23
331  3 29   CHRTC1 B     SCAN                ISOLATE NEXT WORD                     4  1519  B !36               23
332  3 30          BWZ   CHRTC4,SWTERM,1     IF COMMA TERMINATOR, TEST ERROR       8  1523  V V43 |62 1         23
333  3 31          C     L3000,X1            BLANK, IF NO PARAM                    7  1531  C /00 089           23
334  3 32          BE    CHRTC3               GO TO ALL DONE                       5  1538  B X46 S             23
335  3 33   CHRTC4 B     TESTER              GO TEST IF ERROR                      4  1543  B K76               23
336  3 34          MLC   L3000,X3            OK, ZERO BRANCH REGISTER              7  1547  M /00 099           24
337  3 35          MLC   L3000,X1            ZERO COMPARE REGISTER FOR SEARCH      7  1554  M /00 089           24
338  3 36   CHRTC2 C     WORD,CHTAB1&X1      SEARCH, COMPARE NEXT ENTRY            7  1561  C S36 W/2           24
339  3 37          BE    CHTAB2&X3           IF FOUND, GO PROCESS                  5  1568  B WF6 S             24
340  3 38          A     L3004,X3            OTHERWISE BUMP BRANCH AND             7  1573  A /03 099           24
341  3 39          A     L3010,X1             COMPARE REGISTERS AND                7  1580  A |97 089           25
342  3 40          C     X1,CHTLIM            TEST AGAINST TABLE LIMITS            7  1587  C 089 W65           25
343  3 41          BE    CHERR1              IF NOT WITHIN TABLE, SET ERROR        5  1594  B X38 S             25
344  3 42          B     CHRTC2              GO TRY NEXT TABLE ENTRY               4  1599  B V61               25
345  3 43   *
346  3 44   CHTAB1 DCW   @LIST      @        LIST OPTION                          10  1612                      25
347  3 45          DCW   @DECK      @        DECK OPTION                          10  1622                      26
348  3 46          DCW   @NOCHART   @        NOCHART OPTION                       10  1632                      26
349  3 47          DCW   @NOSTOP    @        NOSTOP OPTION                        10  1642                      26
350  3 48          DCW   @NOCROSS   @        NO CROSS REFERENCE OPTION            10  1652                      27
351  3 49          DCW   @NOSAVE    @        NOSAVE OPTION                        10  1662                      27
352  3 50   *                                  MORE ENTRIES CAN BE MADE HERE
353  3 51   CHTLIM DCW   @060@               10 TIMES NO. OF TABLE ENTRIES         3  1665                      27
354  3 52   *
355  3 53   CHTAB2 B     CHSET1              LIST, GO SET SWITCH                   4  1666  B W90               27
356  3 54          B     CHSET2              DECK, GO SET SWITCH                   4  1670  B W98               27
357  3 55          B     CHSET3              NOCHART, GO SET SWITCH                4  1674  B X06               27
358  3 56          B     CHSET4              NOSTOP, GO SET SWITCH                 4  1678  B X14               27
359  3 57          B     CHSET5              NOCROSS, GO SET SWITCH                4  1682  B X22               28
360  3 58          B     CHSET6              NOSAVE, GO SET SWITCH                 4  1686  B X30               28
361  3 59   *
362  3 60   CHSET1 SW    SWLIST              SET LIST SWITCH                       4  1690  , 800               28
363  3 61          B     CHRTC1               AND RETURN                           4  1694  B V19               28
364  3 62   CHSET2 SW    SWDECK              SET DECK SWITCH                       4  1698  , 801               28
365  3 63          B     CHRTC1               AND RETURN                           4  1702  B V19               28
366  3 64   CHSET3 SW    SWNOCH              SET NOCHART SWITCH                    4  1706  , 802               28
367  3 65          B     CHRTC1               AND RETURN                           4  1710  B V19               29
368  3 66   CHSET4 SW    SWNOST              SET NOSTOP SWITCH                     4  1714  , 803               29
369  3 67          B     CHRTC1               AND RETURN                           4  1718  B V19               29
370  3 68   CHSET5 SW    SWCROS              SET NOCROSS SWITCH                    4  1722  , 804               29
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

371  3 69          B     CHRTC1               AND RETURN                             4  1726  B V19               29
372  3 70   CHSET6 CW    SWMAST              SET NOSAVE MASTER SWITCH                4  1730  ) 085               29
373  3 71          B     CHRTC1               AND RETURN                             4  1734  B V19               29
374  3 72   *
375  3 73   CHERR1 B     SETERR              GO SET ERROR                            4  1738  B L12               30
376  3 74          B     CHRTC1              GO SCAN NEXT PARAMETER                  4  1742  B V19               30
377  3 75   CHRTC3 B     PRINTE              CHECK IF ANY ERRORS                     4  1746  B J64               30
378  3 76   CHRTCX B     000                 EXIT                                    4  1750  B 000               30
379  3 77   *
380  3 78   LEGIT  SBR   LEGITX&3            SAVE EXIT                               4  1754  H Y55               30
381  3 79          MLC   L3001,X2            SET COLUMN POINTER AT 1                 7  1758  M /06 094           30
382  3 80          B     SCAN                GO SCAN                                 4  1765  B !36               30
383  3 81          BWZ   LEGIT1,SWTERM,1     IF COMMA TERMINATOR, GO PRINT           8  1769  V Y13 |62 1         31
384  3 82          C     WORD,L010VE         IF $VERIFY                              7  1777  C S36 /49           31
385  3 83          BE    LEGIT2               GO EXIT                                5  1784  B Y44 S             31
386  3 84          C     WORD,L010SY         IF $SYSTEM                              7  1789  C S36 /59           31
387  3 85          BE    LEGIT2               GO EXIT                                5  1796  B Y44 S             31
388  3 86          C     WORD,L010DA         IF $DAEND,                              7  1801  C S36 /79           31
389  3 87          BE    LEGIT2               GO TEST TERMINATOR                     5  1808  B Y44 S             32
390  3 88   LEGIT1 MLC   LCARD&79,LPRINT&80  OTHERWISE, MOVE TO PRINT AREA           7  1813  M 080 281           32
391  3 89          B     PRINT                AND PRINT CARD                         4  1820  B 747               32
392  3 891         BCE   LEGIT3,LANG,6       IF SFL, DONT ALLOW $SEGMENT             8  1824  B Y56 083 6         32
393  3 90          C     WORD,L010SE         IF NOT $SEGMENT                         7  1832  C S36 /69           32
394  3 91          BU    LEGIT3               GO SET ERROR                           5  1839  B Y56 /             32
395  3 92   LEGIT2 BWZ   LEGIT3,SWTERM,1     IF COMMA TERMINATOR, GO SET ERR         8  1844  V Y56 |62 1         33
396  3 93   LEGITX B     000                 NORMAL EXIT                             4  1852  B 000               33
397  3 94   LEGIT3 B     SETERR              GO SET ERROR                            4  1856  B L12               33
398  3 95          B     PRINTE              GO PRINT ERROR                          4  1860  B J64               33
399  3 96          B     CHKCON              GO TO UNUSUAL EXIT                      4  1864  B U53               33
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

400  3 97          JOB   THIS ROUTINE SCANS SEGMENT CARDS
401  3 98   *              THIS ROUTINE SCANS A SEGMENT CARD
402  3 99   SEGSCN SBR   SEGSCX&3            SAVE EXIT                              4  1868  H !07               34
403  4 00          CW    SWTOTH              PRESET SWITCH FOR THRU                 4  1872  ) |67               34
404  4 01          MLC   L3010,X2            SET COLUMN POINTER TO 10               7  1876  M |97 094           34
405  4 02          B     SCAN                GO SCAN FIRST PARAMETER                4  1883  B !36               34
406  4 03          MLC   WORD,FIRST          SAVE FIRST PARAMETER                   7  1887  M S36 S46           34
407  4 04          B     TESTER              GO TEST IF ERROR                       4  1894  B K76               34
408  4 05          BWZ   SEGSC1,SWSEG,1      IF PREVIOUS SEGMENT CARD               8  1898  V Z10 |66 1         34
409  4 06          B     SEGSC2               OTHERWISE GO SCAN SECOND PARAM        4  1906  B Z22               35
410  4 07   SEGSC1 C     FIRST,L10STR        IF FIRST IS **                         7  1910  C S46 /89           35
411  4 08          BE    SETERR               SET ERROR                             5  1917  B L12 S             35
412  4 09   SEGSC2 B     SCAN                SCAN SECOND PARAM                      4  1922  B !36               35
413  4 10          MLC   WORD,L10TMP         SAVE SECOND PARAMETER                  7  1926  M S36 S69           35
414  4 11          B     TESTER              GO TEST IF ERROR                       4  1933  B K76               35
415  4 12          C     L10TMP,THRU         IF SECOND PARAMETER IS THRU            7  1937  C S69 S26           35
416  4 13          BE    SEGSC3               GO SCAN THIRD PARAM                   5  1944  B Z65 S             36
417  4 14          C     L10TMP,TO           IF SECOND PARAM IS TO                  7  1949  C S69 S16           36
418  4 15          BU    SETERR               OK, OTHERWISE SET ERROR               5  1956  B L12 /             36
419  4 16          SW    SWTOTH              SET SWITCH FOR TO TYPE                 4  1961  , |67               36
420  4 17   SEGSC3 B     SCAN                SCAN THIRD PARAM                       4  1965  B !36               36
421  4 18          MLC   WORD,SECOND         SAVE THIRD PARAM                       7  1969  M S36 S56           36
422  4 19          B     TESTER              GO TEST IF ERROR                       4  1976  B K76               36
423  4 20          BWZ   SEGSC7,SWTOTH,1     IF TO, GO TEST END CONDITIONS          8  1980  V !16 |67 1         37
424  4 21   SEGSC4 BWZ   SEGSC6,SWTERM,1     IF COMMA WAS TERMINATOR, ERROR         8  1988  V !08 |62 1         37
425  4 22   SEGSC5 B     PRINTE              GO OUTPUT ANY ERRORS AND SPACE         4  1996  B J64               37
426  4 23          SW    SWSEG               SET PROCESSED $SEGMENT SWITCH          4  2000  , |66               37
427  4 24   SEGSCX B     000                 EXIT                                   4  2004  B 000               37
428  4 25   SEGSC6 B     SETERR              SET ERROR ON THIRD PARAM               4  2008  B L12               37
429  4 26          B     SEGSC5              GO PRINT ERRORS AND EXIT               4  2012  B Z96               37
430  4 27   SEGSC7 C     SECOND,L10STR       IF SECOND IS NOT **                    7  2016  C S56 /89           38
431  4 28          BU    SEGSC4               GO TEST TERMINATOR                    5  2023  B Z88 /             38
432  4 29          CW    SWTOTH              OTHERWISE SET TO PROCESS TO **         4  2028  ) |67               38
433  4 30          B     SEGSC4               LIKE THRU ** AND TEST ENDING          4  2032  B Z88               38
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SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD

434  4 31          JOB   PHASE-1, PASS-1, $CONTROL CARD SCAN ROUTINE
435  4 32   *              THIS ROUTINE SCANS AND ISOLATES A FIELD IN THE CARD
436  4 33   *              INPUT AREA, LCARD.
437  4 34   *              INPUT.
438  4 35   *               XR2 # COLUMN TO BEGIN SCAN, MAY BE 1 TO 80
439  4 36   *              OUTPUT.
440  4 37   *               XR2 # COLUMN OF FIRST BLANK ENCOUNTERED      OR
441  4 38   *                   # COLUMN BEYOND FIRST COMMA ENCOUNTERED.
442  4 39   *               XR1 # NUMBER OF CHARS IN ISOLATED WORD, MAY BE 0-80
443  4 40   *               WORD # BLANK IF XR1 IS EITHER 0 OR GTR THAN 10.
444  4 41   *                      OTHERWISE IS LEFT JUSTIFIED ISOLATED WORD
445  4 42   *                      WITH TRAILING BLANKS.
446  4 43   *               TERMSW # NO WM IF BLANK TERMINATOR
447  4 44   *                      # WM IF COMMA TERMINATOR.
448  4 45   *              A BLANK IS INSERTED AT LCARD&80 TO INSURE
449  4 46   *              TERMINATION.
450  4 47   SCAN   SBR   SCANX&3             SAVE EXIT                          4  2036  H J63             39
451  4 48          MLC   L1BLNK,LCARD&80     INSURE A TERMINATING BLANK         7  2040  M |89 081         39
452  4 49          MLC   L10BLN,WORD         BLANK OUT WORD                     7  2047  M /99 S36         39
453  4 50          MLC   L3000,X1            ZERO CHARACTER COUNT               7  2054  M /00 089         39
454  4 51          CW    SWTERM              PRESET FOR BLANK TERMINATOR        4  2061  ) |62             39
455  4 52          BCE   SCANX,LCARD-1&X2,   IF FIRST CHAR BLANK, EXIT          8  2065  B J60 0!0         39
456  4 53          BCE   SCAN4,LCARD-1&X2,,  IF FIRST CHAR COMMA, EXIT          8  2073  B J49 0!0 ,       40
457  4 54   SCAN1  A     L3001,X1            ADD ONE TO CHAR COUNT              7  2081  A /06 089         40
458  4 55          BCE   SCAN2,LCARD&X2,     IF NEXT CHAR BLANK, GO STORE       8  2088  B J15 0!1         40
459  4 56          BCE   SCAN2,LCARD&X2,,    IF NEXT CHAR COMMA, GO STORE       8  2096  B J15 0!1 ,       40
460  4 57          A     L3001,X2            ADD ONE TO COLUMN POINTER          7  2104  A /06 094         40
461  4 58          B     SCAN1               GO INSPECT NEXT CHAR               4  2111  B !81             41
462  4 59   SCAN2  C     L3010,X1            IF CHAR COUNT GTR THAN 10          7  2115  C |97 089         41
463  4 60          BH    SCAN3                  DO NOT STORE                    5  2122  B J34 U           41
464  4 61          MLC   LCARD-1&X2,WORD-10&X1  OTHERWISE, STORE WORD           7  2127  M 0!0 SS6         41
465  4 62   SCAN3  A     L3001,X2            ADD ONE TO COLUMN POINTER          7  2134  A /06 094         41
466  4 63          BCE   SCANX,LCARD-1&X2,   IF BLANK TERMINATOR, GO EXIT       8  2141  B J60 0!0         41
467  4 64   SCAN4  A     L3001,X2            ADD ONE TO COLUMN POINTER          7  2149  A /06 094         42
468  4 65          SW    SWTERM              SET SWITCH FOR COMMA TERMINATOR    4  2156  , |62             42
469  4 66   SCANX  B     000                 EXIT                               4  2160  B 000             42
470  4 67   *
471  4 68   PRINTE SBR   PRINTX&3            SAVE EXIT                          4  2164  H J83             42
472  4 69          BWZ   PRINT2,SWERR1,1     IF ERRORS GO PRINT 1@S             8  2168  V J84 |63 1       42
473  4 70   PRINT1 B     PRINT               SPACE                              4  2176  B 747             42
474  4 71   PRINTX B     000                 AND EXIT                           4  2180  B 000             42
475  4 72   PRINT2 B     PRINT               PRINT 1@S                          4  2184  B 747             43
476  4 73          MLC   L065E1,LPRINT&65    MOVE MESSAGE TO PRINT AREA         7  2188  M K75 266         43
477  4 74          B     PRINT               PRINT MESSAGE                      4  2195  B 747             43
478  4 75          SW    SWERR               SET OVERALL ERROR SWITCH           4  2199  , |64             43
479  4 76          CW    SWERR1              RESET LINE SWITCH                  4  2203  ) |63             43
480  4 77          B     PRINT1              GO SPACE AND EXIT                  4  2207  B J76             43
481  4 78          DCW   @ERROR. CONTROL CARD PARAMETERS UNDERSCORED WITH @    48  2258                    45
482  4 79   L065E1 DC    @A 1 ARE IN ERROR.@                                   17  2275                    45
483  4 80   *
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

484  4 81   *              THIS ROUTINE SETS AN ERROR IF ZERO LENGTH OR
485  4 82   *              LENGTH GREATER THAN 10.
486  4 83   TESTER SBR   TESTEX&3            SAVE EXIT                        4  2276  H L11              45
487  4 84          C     L3000,X1            IF ZERO LENGTH,                  7  2280  C /00 089          45
488  4 85          BE    TESTE1               GO SET ERROR                    5  2287  B L04 S            46
489  4 86          C     L3011,X1            IF LESS THAN 11,                 7  2292  C /09 089          46
490  4 87          BL    TESTEX               GO EXIT                         5  2299  B L08 T            46
491  4 88   TESTE1 B     SETERR              GO SET ERROR                     4  2304  B L12              46
492  4 89   TESTEX B     000                 EXIT                             4  2308  B 000              46
493  4 90   *              THIS ROUTINE SETS A 1 UNDER THE APPROPRIATE POSITION
494  4 91   *              IF ZERO LENGTH, 1 UNDER BLANK OR COMMA.
495  4 92   *              IF OTHER LENGTH, 1 UNDER LAST CHARACTER OF WORD.
496  4 93   SETERR SBR   SETERX&3            SAVE EXIT                        4  2312  H L50              46
497  4 94          C     L3000,X1            IF ZERO                          7  2316  C /00 089          46
498  4 95          BE    SETER1               LENGTH                          5  2323  B L62 S            47
499  4 96          BWZ   SETER2,SWTERM,1     IF COMMA                         8  2328  V L51 |62 1        47
500  4 97   SETER4 MLC   L11,LPRINT-1&X2     LENGTH NON-ZERO BLANK OR ZERO ,  7  2336  M |90 2!0          47
501  4 98   SETER3 SW    SWERR1                                               4  2343  , |63              47
502  4 99   SETERX B     000                 EXIT                             4  2347  B 000              47
503  5 00   SETER2 MLC   L11,LPRINT-2&X2     LENGTH NON ZERO COMMA            7  2351  M |90 1R9          47
504  5 01          B     SETER3                                               4  2358  B L43              47
505  5 02   SETER1 BWZ   SETER4,SWTERM,1     IF COMMA                         8  2362  V L36 |62 1        48
506  5 03          MLC   L11,LPRINT&X2       LENGTH ZERO BLANK                7  2370  M |90 2!1          48
507  5 04          B     SETER3                                               4  2377  B L43              48
508  5 05   *
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SEQ PG LIN  LABEL  OP    OPERANDS                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD

509  5 06          JOB   THIS ROUTINE PROCESSES A SEGMENT
510  5 07   PROCES SBR   PROCEX&3            SAVE EXIT                     4  2381  H N25               49
511  5 08          BWZ   PROCE1,SWONCE,1     IF READ BEFORE, GO READ ONE   8  2385  V M29 |65 1         49
512  5 09          SW    SWONCE              SET READ-BEFORE SWITCH        4  2393  , |65               49
513  5 10          B     P1READ              READ FIRST RECORD             4  2397  B 00V               49
514  5 11          B     P1READ              READ SECOND RECORD            4  2401  B 00V               49
515  5 12          C     FIRST,L10STR        IF FIRST IS NOT **            7  2405  C S46 /89           49
516  5 13          BU    PROCE2               GO TO PROCESS LABEL          5  2412  B M33 /             49
517  5 14          BCE   PROER1,SWR2EF,1     IF EOF ON FIRST, ERROR.       8  2417  B N60 899 1         50
518  5 15          B     PROCE3               OTHERWISE GENERATE JOB CARD  4  2425  B M60               50
519  5 16   PROCE1 B     P1READ              READ NEXT RECORD              4  2429  B 00V               50
520  5 17   PROCE2 BCE   PROER1,SWR2EF,1     IF EOF, ERROR                 8  2433  B N60 899 1         50
521  5 18          MLC   R2LABL,L10TMP       SAVE LABEL IN COMPARE FIELD   7  2441  M 931 S69           50
522  5 19          C     L10TMP,FIRST        IF LABELS DO NOT COMPARE      7  2448  C S69 S46           50
523  5 20          BU    PROCE1               GO TRY NEXT                  5  2455  B M29 /             51
524  5 21   PROCE3 B     GENJOB              GENERATE A JOB CARD           4  2460  B 20|               51
525  5 220  PROCE4 MLC   R2LABL,WORD         SAVE R2LABL, ITS DESTROYED    7  2464  M 931 S36           51
526  5 221         B     PSTATE              GO PROCESS STATEMENT          4  2471  B O40               51
527  5 222         MLC   WORD,L10TMP         PUT R2LABL IN TEMP FOR COMPARE 7 2475  M S36 S69           51
528  5 23          BWZ   PROCE6,SWTOTH,1     IF TO, GO INSPECT REC1 LABEL  8  2482  V N26 |67 1         51
529  5 25   PROCE8 C     L10TMP,SECOND        IS EQUAL TO SECOND           7  2490  C S69 S56           52
530  5 26          BE    PROCE5               GO GENERATE END CARD         5  2497  B N18 S             52
531  5 27          B     P1READ              READ NEXT RECORD              4  2502  B 00V               52
532  5 28          BCE   PROCE7,SWR2EF,1     IF EOF, GO SEE IF ERROR       8  2506  B N37 899 1         52
533  5 29          B     PROCE4              GO PROCESS STATEMENT          4  2514  B M64               52
534  5 30   PROCE5 B     GENEND              GENERATE AN END CARD          4  2518  B 26S               52
535  5 31   PROCEX B     000                 EXIT                          4  2522  B 000               52
536  5 32   PROCE6 MLC   R1LABL,L10TMP       GET RECORD-1 LABEL AND        7  2526  M 849 S69           53
537  5 33          B     PROCE8               GO SEE IF COMPARE            4  2533  B M90               53
538  5 34   PROCE7 C     SECOND,L10STR       IF EOF WHEN SECOND IS **      7  2537  C S56 /89           53
539  5 35          BE    PROCE5               GO GENERATE AN END CARD      5  2544  B N18 S             53
540  5 36          MLC   SECOND,LPRINT&63    OTHERWISE SAVE SECOND IN ERROR 7 2549  M S56 264           53
541  5 37          B     PROER2              GO OUTPUT ERROR               4  2556  B N67               53
542  5 38   PROER1 MLC   FIRST,LPRINT&63     MOVE FIRST TO ERROR NAME      7  2560  M S46 264           54
543  5 39   PROER2 MLC   L050E1,LPRINT&50    MOVE MESSAGE TO PRINT AREA    7  2567  M O39 251           54
544  5 40          B     PRINT               PRINT ERROR                   4  2574  B 747               54
545  5 41          B     PRINT               SPACE                         4  2578  B 747               54
546  5 42          SW    SWERR               SET ERROR SWITCH              4  2582  , |64               54
547  5 43          B     PROCEX               AND GO EXIT                  4  2586  B N22               54
548  5 44   *
549  5 45   L050E1 DCW   @ERROR. END OF FILE ENCOUNTERED WHILE SEARCHING FOR@    50  2639                    56
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

550  5 46          JOB   PHASE-1, PASS-1, RECORD 2 PROCESSING ROUTINE
551  5 47   *              THIS ROUTINE PROCESSES THE REC2 AREA
552  5 48   *              B BIT ON EQUALS UNKNOWN LENGTH
553  5 49   *              A BIT ON EQUALS DELETE
554  5 50   PSTATE SBR   PSTATX&3            SAVE EXIT                                4  2640  H D04              57
555  5 51          BWZ   PSTAT2,R2LCOD,C     IF LENGTH UNKNOWN, GO MOVE AREA          8  2644  V D05 910 C        57
556  5 52          BWZ   PSTAT2,R2LCOD,L     IF LENGTH UNKNOWN, GO MOVE AREA          8  2652  V D05 910 L        57
557  5 53          BWZ   PSTAT4,SWUNKN,1     IF FIRST KNOWN, GO BUMP AREA NO.         8  2660  V D51 |68 1        57
558  5 54   PSTAT5 MLC   AREANO,R2AREA       MOVE AREA NUMBER TO REC2                 7  2668  M S59 916          57
559  5 55          BWZ   PSTATX,R2LCOD,C     IF DELETE CODE, GO EXIT                  8  2675  V D01 910 C        58
560  5 56          BWZ   PSTATX,R2LCOD,T     IF DELETE CODE, GO EXIT                  8  2683  V D01 910 T        58
561  5 57          B     LENGTH              CALCULATE LENGTH                         4  2691  B E12              58
562  5 58   PSTAT6 BCE   PSTA28,R2PCOD,7     IF JUMP TYPE, GO SEE IF GOTO NXT         8  2695  B P47 938 7        58
563  5 59   PSTA29 MLNS  R2ACOD,X3           GET PASS 1 PROCESSING CODE               7  2703  D 909 099          58
564  5 60          MLC   L3000,X3-1          ZERO LEFT 2 CHARACTERS                   7  2710  M /00 098          59
565  5 61          BWZ   PSTA20,R2ACOD,2     IF NUMERIC, OK                           8  2717  V P32 909 2        59
566  5 62          A     L18,X3              OTHERWISE, ADD 8                         7  2725  A |93 099          59
567  5 63   PSTA20 B     X3X3                TIMES 3 FOR ADDRESS TABLE                4  2732  B 17U              59
568  5 64          MLC   PROCTB&X3,X3        GET BRANCH ADDRESS                       7  2736  M PH3 099          59
569  5 65          B     0&X3                GO TO PROCESSING                         4  2743  B 0?0              59
570  5 66   PSTA28 B     SWITCH              SAVE OP1 IN OP2                          4  2747  B R83              60
571  5 67          BCE   PSTA29,R1DISP-3,V   IF NEXT IS GOTO,LET PASS5 DO IT          8  2751  B P03 856 V        60
572  5 68          B     RELATI              GO PUT *,&, AND REL CODE IN OP1          4  2759  B A53              60
573  5 69          MLC   L12,R2OP1&6         PUT 2 IN RELATIVE DISPLACEMENT           7  2763  M |91 959          60
574  5 70          MLC   L14,R2PCOD          SET TYPE TO DECID YES                    7  2770  M |92 938          60
575  5 71          B     PSTA29              GO BACK TO SPECIAL PROCESSING            4  2777  B P03              60
576  5 72   *              PASS-1 PROCESSING BRANCH TABLE
577  5 73   PROCTB DSA   PSTA11              O NO ACTION                              3  2783  C81                60
578  5 74          DSA   PSTA12              1 IF OP1, GENERATE GOTO                  3  2786  Q39                61
579  5 75          DSA   PSTA13              2 IF OP2, GENERATE GOTO                  3  2789  R55                61
580  5 76          DSA   PSTA14              3 SWITCH OP1-2 UNLESS OP2 BLANK          3  2792  ?12                61
581  5 77          DSA   PSTA15              4 SWITCH OP1-2                           3  2795  ?20                61
582  5 78          DSA   PSTA16              5 SBR                                    3  2798  ?47                61
583  5 79          DSA   PSTA17              6 GENERATE GOTO                          3  2801  Q51                61
584  5 80          DSA   PSTA18              7 IF OPCOUNT GTR 1, SET OTHERS           3  2804  ?89                61
585  5 81          DSA   PSTA19              8 CAS, LAS                               3  2807  A16                62
586  5 82          DSA   PSTA21              9 AUTOCODER-SPS W, P, R                  3  2810  Q23                62
587  5 83          DSA   PSTA22              S 7080 SWITCH OP1 AND OP3                3  2813  A89                62
588  5 84          DSA   PSTA25              T IF D-MODFER W,ADD 1 TO SKL ADD         3  2816  R28                62
589  5 85          DSA   PSTA27              U 1400 DECISION CHAINING                 3  2819  B14                62
590  5 86          DSA   PSTA30              V 1401 SPS-AUTOCODER BRANCH              3  2822  C39                62
591  5 87   *
592  5 88   PSTA21 BCE   PSTA24,MACH,2       IF MACHINE IS 1440 & W, P OR R           8  2823  B Q98 082 2        62
593  5 89          BCE   PSTA23,R2TCOD,D     IF OP1 IS D MODIFIER                     8  2831  B Q80 942 D        63
594  5 90   PSTA12 BCE   PSTA17,R2OPCT,1     IF EXACTLY 1 OP, GENERATE GOTO           8  2839  B Q51 943 1        63
595  5 91          B     PSTA11              GO RETURN FROM PROCESSING                4  2847  B C81              63
596  5 92   PSTA17 B     WRITE2              WRITE OUT REC2                           4  2851  B 28/              63
597  5 93   PST171 MLC   GOCOD,R2CCOD        GET GOTO CODE                            7  2855  M /27 941          63
598  5 94   PST172 MLC   L3000,R2LNTH        SET LENGTH ZERO                          7  2862  M /00 913          63
599  5 95          MLC   L10BLN,R2LABL       BLANK OUT LABEL FIELD                    7  2869  M /99 931          64
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

600  5 96          B     PSTA11              GO RETURN TO WRITE OUT                   4  2876  B C81                64
601  5 97   PSTA23 S     L12,R2LNTH          SUBTRACR 2 FROM LENGTH                   7  2880  S |91 913            64
602  5 98          MLZS  L1BLNK,R2LNTH       BLANK ZONE IN LENGTH FIELD               7  2887  Y |89 913            64
603  5 99          B     PSTA11              GO RETURN FROM PROCESSING                4  2894  B C81                64
604  6 00   PSTA24 BCE   PSTA33,R2OPCT,2     MACH 1440, IF 2 OPS R 1,L  ADD 3         8  2898  B R17 943 2          64
605  6 01          A     L14,R2LNTH           OTHERWISE ADD 4  W LOC                  7  2906  A |92 913            65
606  6 02          B     PSTA11               AND EXIT                                4  2913  B C81                65
607  6 03   PSTA33 A     L53,R2LNTH          ADD 3                                    7  2917  A S05 913            65
608  6 04          B     PSTA11               AND EXIT                                4  2924  B C81                65
609  6 05   PSTA25 BCE   PSTA11,R2OP3-9,R    IF D-MODFR IS R, GO RETURN               8  2928  B C81 970 R          65
610  6 06          SW    R2CCOD-2            SET WDMARK IN REC 2 CODE                 4  2936  , 939                65
611  6 07          A     L11,R2CCOD          ADD 1 TO SKELETON ADDR                   7  2940  A |90 941            66
612  6 08          CW    R2CCOD-2            CLEAR WDMARK IN REC 2 CODE               4  2947  ) 939                66
613  6 09          B     PSTA11              GO RETURN TO WRITE OUT                   4  2951  B C81                66
614  6 10   PSTA13 BCE   PST131,R2OPCT,2     IF 2 OPERANDS - CS TYPE                  8  2955  B R67 943 2          66
615  6 11          B     PSTA11              ONE OPERAND, GO EXIT                     4  2963  B C81                66
616  6 12   PST131 B     SWITCH              SWITCH OP1 AND OP2                       4  2967  B R83                66
617  6 13          B     WRITE2              WRITE OUT STATEMENT                      4  2971  B 28/                66
618  6 14          B     SWITCH              RESTORE OP1 AND OP2                      4  2975  B R83                67
619  6 15          B     PST171              GO SET UP GOTO                           4  2979  B Q55                67
620  6 16   *
621  6 17   SWITCH SBR   SWITCX&3            SAVE RETURN                              4  2983  H ?11                67
622  6 18          MLC   R2OP1,L10TMP        MOVE OP1 TO TEMP                         7  2987  M 953 S69            67
623  6 19          MLC   R2OP2,R2OP1         MOVE OP2 TO  OP1                         7  2994  M 969 953            67
624  6 20          MLC   L10TMP,R2OP2        PUT OP1 IN OP2                           7  3001  M S69 969            67
625  6 21   SWITCX B     000                 EXIT                                     4  3008  B 000                67
626  6 22   PSTA14 BCE   PSTA26,R2OPCT,1     IF OPCT # 1, NO CHAINING                 8  3012  B ?32 943 1          68
627  6 23   PSTA15 B     CHAINT              GO SEE IF CHAINING                       4  3020  B B22                68
628  6 24          B     SWITCH              GO SWITCH OP1 AND OP2                    4  3024  B R83                68
629  6 25          B     PSTA11              RETURN                                   4  3028  B C81                68
630  6 26   PSTA26 MLC   R2OP1,R2OP2         DUPLICATE OP1 IN OP2                     7  3032  M 953 969            68
631  6 27          B     SAVE                GO SAVE 3&S FOR NEXT POSSIBLE            4  3039  B C10                68
632  6 28          B     PSTA11              AND EXIT                                 4  3043  B C81                68
633  6 29   PSTA16 BCE   PST161,R2OPCT,1     SBR, IF ONE OPERAND, TRY LABEL           8  3047  B ?59 943 1          69
634  6 30          B     PSTA11              2 OPS, CANT BE SUBROUTINE ENTER          4  3055  B C81                69
635  6 31   PST161 MLC   R2LABL,L10TMP       IF                                       7  3059  M 931 S69            69
636  6 32          C     L10TMP,L10BLN         NO                                     7  3066  C S69 /99            69
637  6 33          BE    PSTA11               LABEL, PROBABLY ISNT ENTER              5  3073  B C81 S              69
638  6 34          MLC   ENTCOD,R2PCOD       QUALIFIES AS ENTER, CHANGE CODE          7  3078  M /28 938            69
639  6 35          B     PSTA11              AND RETURN                               4  3085  B C81                70
640  6 36   PSTA18 BCE   PSTA11,R2OPCT,1     7090 BRANCH, IF OPCOUNT 1                8  3089  B C81 943 1          70
641  6 37          BCE   PSTA11,R2OPCT,0     OR ZERO, INSTRUCTION NOT INDEXRD         8  3097  B C81 943 0          70
642  6 38          MLC   L1O,R2TCOD          INDEXED TRANSFER, GET TYPE 0             7  3105  M S06 942            70
643  6 39          B     PSTA11              AND RETURN                               4  3112  B C81                70
644  6 40   PSTA19 B     SWITCH              LAS,CAS, SAVE OP1 IN OP2                 4  3116  B R83                70
645  6 41          B     RELATI              GO PUT *,&, AND REL CODE IN OP1          4  3120  B A53                70
646  6 42          MLC   L53,R2OP1&6          3 INTO OP1                              7  3124  M S05 959            71
647  6 43          B     WRITE2              WRITE OUT                                4  3131  B 28/                71
648  6 44          MLC   L12,R2OP1&6         CHANGE TO *&2                            7  3135  M |91 959            71
649  6 45          MLC   EQUCOD,R2CCOD       CHANGE TO EQUAD CODE                     7  3142  M /31 941            71
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SEQ PG LIN  LABEL  OP    OPERANDS                                                 SFX CT  LOCN  INSTRUCTION TYPE  CARD

650  6 46          B     PST172              GO BLANK LABEL, SET ZERO LENGTH          4  3149  B Q62                71
651  6 47   RELATI SBR   RELATX&3            SAVE EXIT                                4  3153  H A88                71
652  6 48          MLC   L10BLN,R2OP1        BLANK OUT OP1                            7  3157  M /99 953            72
653  6 49          MLC   L10STR-9,R2OP1-9    INSERT *                                 7  3164  M /80 944            72
654  6 50          MLC   L1PLUS,R2OP1&1       &                                       7  3171  M S00 954            72
655  6 51          MLC   L1COD,R2TCOD        MOVE LOC CNTR CODE TO REC2               7  3178  M /10 942            72
656  6 52   RELATX B     000                 RETURN                                   4  3185  B 000                72
657  6 53   PSTA22 MLC   R2OP1,L10TMP        SWITCH                                   7  3189  M 953 S69            72
658  6 54          MLC   R2OP3,R2OP1          OP3                                     7  3196  M 979 953            73
659  6 55          MLC   L10TMP,R2OP3        WITH OP1                                 7  3203  M S69 979            73
660  6 56          B     PSTA11               AND RETURN                              4  3210  B C81                73
661  6 57   PSTA27 B     CHAINT              GO SEE IF CHAINING                       4  3214  B B22                73
662  6 58          B     PSTA11              AND EXIT                                 4  3218  B C81                73
663  6 59   *
664  6 60   CHAINT SBR   CHAINX&3            SAVE EXIT                                4  3222  H B53                73
665  6 61          BCE   CHAIN1,MACH,1       1401,1460                                8  3226  B B54 082 1          73
666  6 62          BCE   CHAIN1,MACH,2       1440                                     8  3234  B B54 082 2          74
667  6 63          BCE   CHAIN1,MACH,3       1410,7010                                8  3242  B B54 082 3          74
668  6 64   CHAINX B     000                 EXIT                                     4  3250  B 000                74
669  6 65   CHAIN1 BCE   CHAIN2,R2OPCT,0     IF NO OPS,CHAIN ALL 3                    8  3254  B B78 943 0          74
670  6 66          BCE   CHAIN3,R2OPCT,1     IF 1 OP, CHAIN OP2 AND OP3               8  3262  B B85 943 1          74
671  6 67   CHAIN4 B     SAVE                GO SAVE 3&S FOR NEXT POSSIBLE            4  3270  B C10                75
672  6 68          B     CHAINX              IF 2 OR MORE OPS, GO EXIT                4  3274  B B50                75
673  6 69   CHAIN2 MLC   OP1SAV,R2OP1        PUT PREVIOUS OP1                         7  3278  M S82 953            75
674  6 70   CHAIN3 MLC   OP2SAV,R2OP2        PUT PREVIOUS OP2                         7  3285  M S92 969            75
675  6 71          MLC   OP3SAV,R2OP3        PUT PREVIOUS OP3                         7  3292  M T02 979            75
676  6 72          MLC   L11,R2CHAI          SET CHAINING BIT                         7  3299  M |90 908            75
677  6 73          B     CHAIN4              GO SAVE OPS AND EXIT                     4  3306  B B70                76
678  6 74   SAVE   SBR   SAVEX&3             SAVE RETURN                              4  3310  H C38                76
679  6 75          MLC   R2OP1,OP1SAV        SAVE OP1                                 7  3314  M 953 S82            76
680  6 76          MLC   R2OP2,OP2SAV         OP2                                     7  3321  M 969 S92            76
681  6 77          MLC   R2OP3,OP3SAV         AND OP3 FOR POSSIBLE CHAINING           7  3328  M 979 T02            76
682  6 78   SAVEX  B     000                 RETURN                                   4  3335  B 000                76
683  6 79   PSTA30 BCE   PSTA31,R2OPCT,3     IF 3 OPS USE BCE SKELETON CODE           8  3339  B C59 943 3          77
684  6 80          BCE   PSTA32,R2OPCT,2     IF 2 OPS USE D MODIFIER CODE             8  3347  B C70 943 2          77
685  6 81          B     PSTA11              OTHERWISE LEAVE IT AS BRANCH             4  3355  B C81                77
686  6 82   PSTA31 MLC   BCECOD,R2CCOD       PUT IN BCE CODE                          7  3359  M /39 941            77
687  6 83          B     PSTA11              AND EXIT                                 4  3366  B C81                77
688  6 84   PSTA32 MLC   DMOCOD,R2CCOD       PUT IN D MODIFIER CODE                   7  3370  M /35 941            77
689  6 85          B     PSTA11                                                       4  3377  B C81                78
690  6 86   *              RETURN FROM PROCESSING
691  6 87   PSTA11 BCE   PSTAT7,R2PCOD,4     IF DECID-YES TYPE                        8  3381  B D66 938 4          78
692  6 88          BCE   PSTAT8,R2PCOD,V     IF GOTO TYPE                             8  3389  B D89 938 V          78
693  6 89   PSTAT1 B     WRITE2              GO WRITE REC2                            4  3397  B 28/                78
694  6 90   PSTATX B     000                 EXIT                                     4  3401  B 000                78
695  6 91   PSTAT2 MLC   AREANO,R2AREA       MOVE CURRENT AREA NO. TO REC2            7  3405  M S59 916            78
696  6 92          BWZ   PSTAT3,SWUNKN,1     IF NOT FIRST UNKNOWN                     8  3412  V D31 |68 1          79
697  6 93          SW    SWUNKN              SET UNKNOWN AREA SWITCH                  4  3420  , |68                79
698  6 94          MA    L3001,AREANO        ADD 1 TO AREA NO.                        7  3424  # /06 S59            79
699  6 95   PSTAT3 BWZ   PSTATX,R2LCOD,T     IF DELETE CODE                           8  3431  V D01 910 T          79
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

700  6 96          BWZ   PSTATX,R2LCOD,C     IF DELETE CODE, GO EXIT              8  3439  V D01 910 C         79
701  6 97          B     PSTAT6              NOT DELETE, GO PROCESS               4  3447  B O95               79
702  6 98   PSTAT4 MA    L3001,AREANO        FIRST IN KNOWN AREA                  7  3451  # /06 S59           80
703  6 99          CW    SWUNKN              SET KNOWN LENGTH AREA SWITCH         4  3458  ) |68               80
704  7 00          B     PSTAT5              GO PROCESS                           4  3462  B O68               80
705  7 01   PSTAT7 BCE   PSTAT9,R2TCOD,O     IF COMPLEX DECID                     8  3466  B D78 942 O         80
706  7 02          B     PSTAT1              GO WRITE REC2                        4  3474  B C97               80
707  7 03   PSTAT9 MLC   DEXCOD,R2PCOD       SET DECID EXIT CODE                  7  3478  M /11 938           80
708  7 04          B     PSTAT1              GO WRITE REC2                        4  3485  B C97               80
709  7 05   PSTAT8 BCE   PSTA10,R2TCOD,O     IF COMPLEX GOTO                      8  3489  B E01 942 O         81
710  7 06          B     PSTAT1              GO WRITE REC2                        4  3497  B C97               81
711  7 07   PSTA10 MLC   XITCOD,R2PCOD       SET EXIT CODE                        7  3501  M /12 938           81
712  7 08          B     PSTAT1              GO WRITE REC2                        4  3508  B C97               81
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SEQ PG LIN  LABEL  OP    OPERANDS                                                 SFX CT  LOCN  INSTRUCTION TYPE  CARD

713  7 081         JOB   LENGTH CALCULATION SUBROUTINE
714  7 09   LENGTH SBR   LENGTX&3            SAVE EXIT                                 4  3512  H F41                82
715  7 10          MLZS  L10BLN,X3           CLEAR ZONE FROM UNITS POS - X3            7  3516  Y /99 099            82
716  7 11          MLNS  R2LCOD,X3           GET KNOWN LENGTH CODE                     7  3523  D 910 099            82
717  7 12          BCE   LENGT2,X3,9         IF FIXED LENGTH MACHINE                   8  3530  B F42 099 9          82
718  7 13          MLC   L3000,L3TEMP        PRESET LENGTH ZERO                        7  3538  M /00 S72            82
719  7 14          BCE   LENGT1,X3,8         IF LENGTH ZERO GO STORE AND EXIT          8  3545  B F31 099 8          83
720  7 141         BCE   LEN360,MACH,0      IF 360 USE CODE FOR LENGTH                 8  3553  B G45 082 0          83
721  7 15          MLC   R2OPCT,X2           GET OPERAND COUNT TO XR2                  7  3561  M 943 094            83
722  7 16          MLC   L3000,X2-1          ZERO LEFTMOST 2 CHARACTERS                7  3568  M /00 093            83
723  7 17          BCE   LENGT3,MACH,3       IF 1410, 7010                             8  3575  B G56 082 3          83
724  7 18          BCE   LENGT4,X3,0         IF 1401, RULE 1                           8  3583  B H08 099 0          84
725  7 19          BCE   LENGT5,X3,1         IF 1401, RULE 2                           8  3591  B H19 099 1          84
726  7 20          BCE   LENGT6,X3,2         IF 1401, RULE 3                           8  3599  B H30 099 2          84
727  7 21          BCE   LENG13,X3,3         IF 1401, RULE 4                           8  3607  B H74 099 3          84
728  7 22          BCE   LENG14,X3,4         IF 1401, RULE 5                           8  3615  B H85 099 4          85
729  7 221         BCE   LENG19,X3,5         IF 1401, RULE 6                           8  3623  B H96 099 5          85
730  7 23   LENGT1 MLC   L3TEMP,R2LNTH       MOVE LENGTH TO REC2                       7  3631  M S72 913            85
731  7 24   LENGTX B     000                 EXIT                                      4  3638  B 000                85
732  7 25   LENGT2 MLC   LOCADJ,R2LNTH       MOVE FIXED LENGTH TO REC2                 7  3642  M 808 913            85
733  7 26          BCE   LENG16,MACH,4       IF 1620, GO CHECK FOR DORG                8  3649  B F61 082 4          86
734  7 27          B     LENGTX              GO EXIT                                   4  3657  B F38                86
735  7 28   LENG16 MLC   R1BCOP,L10TMP-4      SAVE BCD OP                              7  3661  M 855 S65            86
736  7 29          C     L5DORG,L10TMP-5     IS OP DORG                                7  3668  C |85 S64            86
737  7 30          BU    LENG17              IF NOT, GO CHECK FOR B7                   5  3675  B G22 /              86
738  7 31          C     L4SM3,R1OP1-6       IS DORG *-3                               7  3680  C |80 865            86
739  7 32          BE    LENG15              IF YES, GO MAKE LENGTH EQUAL 8            5  3687  B G04 S              87
740  7 33          C     L4SM4,R1OP1-6       IS DORG *-4                               7  3692  C |76 865            87
741  7 34          BU    LENGTX              IF NOT, GO EXIT                           5  3699  B F38 /              87
742  7 35   LENG15 MLC   L1S,R1LCOD          OTHERWISE RESET DOR LENGTH CODE           7  3704  M |72 828            87
743  7 36   LENG18 MLC   L38,R2LNTH          MOVE LENGTH 8 TO LENGTH                   7  3711  M |71 913            87
744  7 37          B     LENGTX              EXIT                                      4  3718  B F38                87
745  7 38   LENG17 MLC   R2BCOP,L10TMP-4     MOVE REC2 BCD OP INTO TEMP AND            7  3722  M 937 S65            88
746  7 381         C     L3B7,L10TMP-7        COMPARE TO B7                            7  3729  C |88 S62            88
747  7 39          BE    LENG18              IF SO GO MAKE LENGTH 8                    5  3736  B G11 S              88
748  7 40          B     LENGTX              OTHERWISE EXIT                            4  3741  B F38                88
749  7 401  LEN360 MLNS  X3,L3TEMP          GET CODE                                   7  3745  D 099 S72            88
750  7 402         B     LENGT1             GO STORE                                   4  3752  B F31                88
751  7 41   LENGT3 A     X2                  OPERAND COUNT TIMES 2                     4  3756  A 094                88
752  7 42          BCE   LENGT7,X3,0         IF 1410, RULE 1                           8  3760  B H41 099 0          89
753  7 43          BCE   LENGT8,X3,1         IF 1410, RULE 2                           8  3768  B H52 099 1          89
754  7 44          BCE   LENGT9,X3,2         IF 1410, RULE 3                           8  3776  B H63 099 2          89
755  7 45          BCE   LENG10,X3,3         IF 1410, RULE 4                           8  3784  B I07 099 3          89
756  7 46          BCE   LENG11,X3,4         IF 1410, RULE 5                           8  3792  B I18 099 4          90
757  7 47          BCE   LENG12,X3,5         IF 1410, RULE 6                           8  3800  B I29 099 5          90
758  7 48   *
759  7 49   LENGT4 A     T11401&X2,L3TEMP    1401  1,%3),%3)                           7  3808  A IM0 S72            90
760  7 50          B     LENGT1              GO STORE AND EXIT                         4  3815  B F31                90
761  7 51   LENGT5 A     T21401&X2,L3TEMP    1401  1,%1),%3),%3)                       7  3819  A IM4 S72            90
762  7 52          B     LENGT1              GO STORE AND EXIT                         4  3826  B F31                90
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SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

763  7 53   LENGT6 A     T31401&X2,L3TEMP    1401  2,%3),%3)                              7  3830  A IM8 S72           91
764  7 54          B     LENGT1              GO STORE AND EXIT                            4  3837  B F31               91
765  7 55   LENGT7 A     T11410&X2,L3TEMP    1410  1,%5),%5)                              7  3841  A IO2 S72           91
766  7 56          B     LENGT1              GO STORE AND EXIT                            4  3848  B F31               91
767  7 57   LENGT8 A     T21410&X2,L3TEMP    1410  1,%1),%5),%5)                          7  3852  A IP0 S72           91
768  7 58          B     LENGT1              GO STORE AND EXIT                            4  3859  B F31               91
769  7 59   LENGT9 A     T31410&X2,L3TEMP    1410  2,%5),%5)                              7  3863  A IP8 S72           92
770  7 60          B     LENGT1              GO STORE AND EXIT                            4  3870  B F31               92
771  7 61   LENG13 A     T41401&X2,L3TEMP    1401  3, %1), %3), %1), %3)                  7  3874  A IN1 S72           92
772  7 62          B     LENGT1              GO STORE AND EXIT                            4  3881  B F31               92
773  7 63   LENG14 A     T51401&X2,L3TEMP    1401 4, %5), %3)                             7  3885  A IN5 S72           92
774  7 64          B     LENGT1              GO STORE AND EXIT                            4  3892  B F31               92
775  7 641  LENG19 A     T61401&X2,L3TEMP    1401 5  %8),%8),%8),%8)                      7  3896  A IN7 S72           93
776  7 642         B     LENGT1              GO STORE AND EXIT                            4  3903  B F31               93
777  7 65   LENG10 A     T41410&X2,L3TEMP    1410  1,%1),%3),%5)                          7  3907  A IQ4 S72           93
778  7 66          B     LENGT1              GO STORE AND EXIT                            4  3914  B F31               93
779  7 67   LENG11 A     T51410&X2,L3TEMP    1410  2,%3),%5)                              7  3918  A IR2 S72           93
780  7 68          B     LENGT1              GO STORE AND EXIT                            4  3925  B F31               93
781  7 69   LENG12 A     T61410&X2,L3TEMP                                                 7  3929  A IR8 S72           94
782  7 70          B     LENGT1              GO STORE AND EXIT                            4  3936  B F31               94
783  7 71   T11401 DCW   @1@                 1401 RULE 0                                  1  3940                      94
784  7 72          DCW   @4@                                                              1  3941                      94
785  7 73          DCW   @7@                                                              1  3942                      94
786  7 74          DCW   @8@                                                              1  3943                      94
787  7 75   T21401 DCW   @1@                 1401 RULE 1                                  1  3944                      94
788  7 76          DCW   @2@                                                              1  3945                      95
789  7 77          DCW   @5@                                                              1  3946                      95
790  7 78          DCW   @8@                                                              1  3947                      95
791  7 79   T31401 DCW   @2@                 1401 RULE 2                                  1  3948                      95
792  7 80          DCW   @5@                                                              1  3949                      95
793  7 81          DCW   @8@                                                              1  3950                      95
794  7 82   T41401 DCW   @1@                 1401 RULE 3                                  1  3951                      95
795  7 83          DCW   @4@                                                              1  3952                      96
796  7 84          DCW   @5@                                                              1  3953                      96
797  7 85          DCW   @8@                                                              1  3954                      96
798  7 86   T51401 DCW   @5@                 1401 RULE 4                                  1  3955                      96
799  7 87          DCW   @8@                                                              1  3956                      96
800  7 871  T61401 DCW   @8@                 1401 RULE 5                                  1  3957                      96
801  7 872         DCW   @8@                                                              1  3958                      96
802  7 873         DCW   @8@                                                              1  3959                      97
803  7 874         DCW   @8@                                                              1  3960                      97
804  7 88   T11410 DCW   @01@                1410 RULE 0                                  2  3962                      97
805  7 89          DCW   @06@                                                             2  3964                      97
806  7 90          DCW   @11@                                                             2  3966                      97
807  7 91          DCW   @12@                                                             2  3968                      97
808  7 92   T21410 DCW   @01@                1410 RULE 1                                  2  3970                      97
809  7 93          DCW   @02@                                                             2  3972                      98
810  7 94          DCW   @07@                                                             2  3974                      98
811  7 95          DCW   @12@                                                             2  3976                      98
812  7 96   T31410 DCW   @02@                1410 RULE 2                                  2  3978                      98
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SEQ PG LIN  LABEL  OP    OPERANDS                                                      SFX CT  LOCN  INSTRUCTION TYPE  CARD

813  7 97          DCW   @07@                                                              2  3980                       98
814  7 98          DCW   @12@                                                              2  3982                       98
815  7 99   T41410 DCW   @01@                1410 RULE 3                                   2  3984                       98
816  8 00          DCW   @02@                                                              2  3986                       99
817  8 01          DCW   @05@                                                              2  3988                       99
818  8 02          DCW   @10@                                                              2  3990                       99
819  8 03   T51410 DCW   @02@                1410 RULE 4                                   2  3992                       99
820  8 04          DCW   @05@                                                              2  3994                       99
821  8 05          DCW   @10@                                                              2  3996                       99
822  8 06   T61410 DCW   @01@                1410 RULE 5                                   2  3998                       99
823  8 07          DCW   @06@                                                              2  4000                      100
824  8 08          DCW   @12@                                                              2  4002                      100
825  8 081         DCW   @12@                                                              2  4004                      100
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SEQ PG LIN  LABEL  OP    OPERANDS                                   SFX CT  LOCN  INSTRUCTION TYPE  CARD

826  8 09          JOB   PHASE-1, PASS-1, RECORD 1 PROCESSING ROUTINE
827  8 10   *
828  8 11   *         THIS ROUTINE MOVES REC1 TO REC2, THEN READS REC1.
829  8 12   *              THE OPERATION DISPLACEMENT OF REC1 IS EXAMINED.
830  8 13   *              IF BLANK, INDICATING COMMENTS, ANOTHER RECORD IS
831  8 14   *              READ INTO INTO REC1. IF THE DISPLACEMENT IS ZERO,
832  8 15   *              INDICATING THE OP IS NOT IN THE TABLE, A STANDARD
833  8 16   *              PREDF CODE IS PLACED IN REC1  OTHERWISE, THE
834  8 17   *              DISPLACEMENT IS USED TO FETCH THE OPERATION CODE
835  8 18   *              FROM A DICTIONARY AND ENTER THE CODE INTO REC1.
836  8 19   P1READ SBR   P1REAX&3             SAVE RETURN                      4  4005  H 09T              101
837  8 20          MLC   REC1&79,REC2&79      MOVE REC1 TO REC2                7  4009  M 897 979          101
838  8 21          MLC                        COL 70 THRU 61                   1  4016  M                  101
839  8 22          MLC                        COL 60 THRU 45                   1  4017  M                  101
840  8 23          MLC                        COL 44 THRU 1                    1  4018  M                  101
841  8 24          MLC   SWR1EF,SWR2EF        MOVE EOF SWITCHES TO REC2        7  4019  M 817 899          101
842  8 25   TSTEOF BCE   P1REAX,SWR2EF,1      IF EOF, DONT READ NEXT REC1      8  4026  B 09| 899 1        101
843  8 26   P1REA1 B     SYSIO                READ NEXT ASSEMBLY LANGUAGE      4  4034  B 500              102
844  8 27   TAPNM2 DCW   &IOCON2               RECORD FROM UNIT2               3  4040  200                102
845  8 28          ORG   *-2                                                           4039
846  8 29          DC    &REC1                 INTO REC1 AREA                  3  4041  818                103
847  8 30          DC    @R@                   READ                            1  4042                     103
848  8 31          BEF   P1REA2                IF EOF, GO SET SWITCH           5  4043  B 09U K            103
849  8 32          MLC   R1DISP,L3TEMP         GET DISPLACEMENT FROM REC1      7  4048  M 859 S72          103
850  8 33          C     L10BLN-7,L3TEMP      SEE IF COMMENTS CARD             7  4055  C /92 S72          103
851  8 34          BE    P1REA1                IF BLANK, GO READ NEXT RECORD   5  4062  B 03U S            103
852  8 35          MLC   L10BLN,R1AREA        BLANK OUT 10 CHARS OF SORT FIELD 7  4067  M /99 834          104
853  8 36          C     L3000,L3TEMP         SEE IF UNDEFINED OPERATION       7  4074  C /00 S72          104
854  8 37          BE    P1REA3               IF UNDEFINED, GO GET PREDF CODE  5  4081  B 10V S            104
855  8 38          B     GETOP                GO FETCH OPERATION CODE          4  4086  B 12T              104
856  8 39   P1REAX B     000                  EXIT                             4  4090  B 000              104
857  8 40   P1REA2 MLC   L11,SWR1EF           SET EOF SWITTH IN REC1           7  4094  M |90 817          104
858  8 41          B     P1REAX               GO EXIT                          4  4101  B 09|              104
859  8 42   P1REA3 MLC   PRECOD,R1DISP        MOVE PREDF CODE TO REC1          7  4105  M /21 859          105
860  8 43          MLC   UNLCOD,R1LCOD        MOVE UNKNOWN LENGTH TO REC1      7  4112  M /23 828          105
861  8 44          B     P1REAX               GO EXIT                          4  4119  B 09|              105
862  8 45   *
863  8 46   *              THIS ROUTINE FETCHES THE OPCODE FROM THE DICTIONARY
864  8 47   *              INPUT IS IN L3TEMP
865  8 48   *
866  8 49   GETOP  SBR   GETOPX&3             SAVE RETURN                      4  4123  H 17T              105
867  8 50          MLC   L3TEMP,X3            GET OPERATION INDEX              7  4127  M S72 099          105
868  8 51          MA    X3                   TIMES TWO                        4  4134  # 099              105
869  8 52          MA    L3TEMP,X3            TIMES THREE                      7  4138  # S72 099          106
870  8 53          MA    X3                   TIMES 6                          4  4145  # 099              106
871  8 54          MLC   OPTABL-6&X3,L10TMP-6   GET COMMENT CODE               7  4149  M 4IZ S63          106
872  8 55          MLC   OPTABL-10&X3,R1LCOD  PUT LENGTH CODE INTO REC1        7  4156  M 4IV 828          106
873  8 56          MLC   L10TMP-6,R1DISP      PUT COMMENT CODE INTO REC1       7  4163  M S63 859          106
874  8 57   GETOPX B     000                  EXIT                             4  4170  B 000              106
875  8 58   X3X3   SBR   X3X3X&3              SAVE EXIT                        4  4174  H 19Z              107
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

876  8 59          MLC   X3,L3TEMP           SAVE X3                                  7  4178  M 099 S72           107
877  8 60          A     X3                  X3 TIMES 2                               4  4185  A 099               107
878  8 61          A     L3TEMP,X3           X3 TIMES 3                               7  4189  A S72 099           107
879  8 62   X3X3X  B     000                 EXIT                                     4  4196  B 000               107
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SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD

880  8 63          JOB   PHASE-1, PASS-1, JOB AND END CARD PROCESSING ROUTINE
881  8 64   *              THIS ROUTINE MULTIPLIES X3 BY THREE
882  8 65   *              THIS ROUTINE GENERATES A JOB CARD %INTERNAL FORMAT)
883  8 66   *
884  8 67   GENJOB SBR   GENJOX&3            SAVE EXIT                              4  4200  H 26/              108
885  8 68          MLC   L3000,AREANO                                               7  4204  M /00 S59          108
886  8 69          MLC   JOBCOD,R3CCOD       ENTER JOB CODE INTO REC3               7  4211  M /16 |22          108
887  8 70          MLC   FIRST,R3OP1         ENTER OP1 AS LABEL-1                   7  4218  M S46 |34          108
888  8 71          MLC   TO,R3OP2            ENTER TO AS OP2                        7  4225  M S16 |50          108
889  8 72          BWZ   GENJO1,SWTOTH,1     IF SEGMENT THRU TYPE, OK               8  4232  V 24X |67 1        109
890  8 73          MLC   THRU,R3OP2           OTHERWISE, RESET WITH THRU            7  4240  M S26 |50          109
891  8 74   GENJO1 MLC   SECOND,R3OP3        ENTER OP3 AS LABEL-2                   7  4247  M S56 |60          109
892  8 75          B     WRITE3              WRITE ALT. OUTPUT AREA, RESET          4  4254  B 37Y              109
893  8 76   GENJOX B     000                 EXIT                                   4  4258  B 000              109
894  8 77   *              THIS ROUTINE GENERATES AN END CARD %INTERNAL FORMAT)
895  8 78   GENEND SBR   GENENX&3            SAVE EXIT                              4  4262  H 28|              109
896  8 79          MLC   ENDCOD,R3PCOD       ENTER END CODE INTO REC3               7  4266  M /17 |19          110
897  8 80          B     WRITE3              GO WRITE OUT REC3, RESET               4  4273  B 37Y              110
898  8 81   GENENX B     000                 EXIT                                   4  4277  B 000              110
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

899  8 82          JOB   PHASE-1, PASS-1, TAPE WRITE ROUTINE
900  8 83   *              THIS ROUTINE WRITES OUT REC2
901  8 84   WRITE2 SBR   WRIT2X&3            SAVE EXIT                           4  4281  H 30S              111
902  8 85          B     SYSIO               CALL SYSTEM IO                      4  4285  B 500              111
903  8 86          DCW   IOCON4               ONTO UNIT 4                        3  4291  400                111
904  8 87          ORG   *-2                                                          4290
905  8 88          DC    &REC2                FROM REC2 AREA                     3  4292  900                112
906  8 89          DC    @W@                  WRITE                              1  4293                     112
907  8 90          BEF   TAPERR              IF END OF TAPE, ERROR               5  4294  B 30T K            112
908  8 91   WRIT2X B     000                 EXIT                                4  4299  B 000              112
909  8 92   TAPERR MLC   ERRTAP,LPRINT&48    MOVE MESSAGE TO PRINT AREA          7  4303  M 37X 249          112
910  8 93          B     MESSG               PRINT MESSAGE                       4  4310  B 660              112
911  8 94          RWD   SYSTAP              REWIND SYSTEM TAPE                  5  4314  U %U1 R            113
912  8 95   TAPER1 H     6,6                 AND HALT                            7  4319  . 006 006          113
913  8 96          B     TAPER1               REPETITIVELY                       4  4326  B 31Z              113
914  8 97          DCW   @ERROR. TAPE @                                         12  4341                     113
915  8 98          DC    IOCON4                                                  3  4344  400                113
916  8 99          ORG   *-2                                                          4343
917  9 00   ERRTAP DC    @ TOO SHORT. REPLACE IT AND RESTART.@                  35  4377                     114
918  9 01   *              THIS ROUTINE WRITES OUT REC3 AND REINITIALIZES
919  9 02   WRITE3 SBR   WRIT3X&3            SAVE EXIT                           4  4378  H 40T              114
920  9 03          B     SYSIO               CALL SYSTEM IO                      4  4382  B 500              115
921  9 04          DCW   IOCON4               ONTO UNIT 4                        3  4388  400                115
922  9 05          ORG   *-2                                                          4387
923  9 06          DC    &REC3                FROM ALT. OUTPUT AREA %REC3)       3  4389  981                116
924  9 07          DC    @W@                  WRITE                              1  4390                     116
925  9 08          B     INITR3              GO REINITIALIZE REC3 AREA           4  4391  B 40U              116
926  9 09          BEF   TAPERR              IF END OF TAPE, ERROR               5  4395  B 30T K            116
927  9 10   WRIT3X B     000                 EXIT                                4  4400  B 000              116
928  9 11   *
929  9 12   *              THIS ROUTINE INITIALIZES THE REC3 OUTPUT AREA
930  9 13   INITR3 SBR   INITRX&3            SAVE EXIT                           4  4404  H 42V              116
931  9 14          MLC   L1BLNK,REC3&79      BLANK OUT CHARACTER 80              7  4408  M |89 |60          117
932  9 15          MLC   REC3&79,REC3&78     CASCADE BLANKS BACKWARD TO WM       7  4415  M |60 |59          117
933  9 16   INITRX B     000                 EXIT                                4  4422  B 000              117
934  9 17   CLEAN  SBR   CLEANX&3            SAVE EXIT                           4  4426  H 46Z              117
935  9 18          MLC   L1BLNK,REC1&80      BLANK                               7  4430  M |89 898          117
936  9 19          MLC   L1BLNK,REC2&80       OUT                                7  4437  M |89 980          117
937  9 20          MLC   L1BLNK,REC3&80       ALL GMWMS                          7  4444  M |89 |61          118
938  9 21          WTM   IOTP4               WRITE EOF ON OUTPUT TAPE            5  4451  U %U4 M            118
939  9 22          RWD   IOTP4               REWIND OUTPUT                       5  4456  U %U4 R            118
940  9 23          RWD   IOTP2               REWIND INPUT                        5  4461  U %U2 R            118
941  9 24   CLEANX B     000                 EXIT                                4  4466  B 000              118
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

942  9 25          JOB   PASS-1 INITIALIZATION ROUTINE
943  9 26          ORG   OPTABL              ORIGIN INITIALIZATION AT OP AREA              4505
944  9 27   INITIL SBR   INITIX&3            SAVE EXIT                            4  4505  H 63U               119
945  9 28          RWD   IOTP2               REWIND INPUT                         5  4509  U %U2 R             119
946  9 29          RWD   IOTP4               REWIND OUTPUT                        5  4514  U %U4 R             119
947  9 30          SW    REC1&80,REC2&80     SET GMWM@S                           7  4519  , 898 980           119
948  9 31          SW    REC3&80              IN                                  4  4526  , |61               119
949  9 32          MLC   L1GM,REC1&80         REC1                                7  4530  M |94 898           119
950  9 33          MLC   L1GM,REC2&80         REC2                                7  4537  M |94 980           119
951  9 34          MLC   L1GM,REC3&80         REC3                                7  4544  M |94 |61           120
952  9 35          B     INITR3              INITIALIZE REC3 OUTPUT AREA          4  4551  B 40U               120
953  9 36          MLC   L10STR,FIRST        SET FIRST TO **                      7  4555  M /89 S46           120
954  9 37          MLC   L10STR,SECOND       SET SECOND TO **                     7  4562  M /89 S56           120
955  9 38          MLC   L1BLNK,SWR1EF       CLEAR EOF IN REC1 SWITCH             7  4569  M |89 817           120
956  9 39          MLC   L1BLNK,SWR2EF       CLEAR EOF IN REC2 SWITCH             7  4576  M |89 899           120
957  9 40          MLC   MACH,X3             ZERO X3                              7  4583  M 082 099           121
958  9 41          MLC   L3000,X3-1          ZERO LEFT 2 CHARACTERS               7  4590  M /00 098           121
959  9 420         MLC   NAMETB&X3,RECNM    GET LAST CHAR OF RECORD NAME          7  4597  M 6CV 63|           121
960  9 43          B     X3X3                TIMES 3                              4  4604  B 17U               121
961  9 44          MLC   ADJTB-3&X3,LOCADJ   GET ADJUSTMENT FACTOR FROM TABLE     7  4608  M 6DU 808           121
962  9 45          MLC   INITIX&3,BRANCH&3   MOVE SUB EXIT TO BRANCH RETURN       7  4615  M 63U 816           121
963  9 46          B     SYSLNK              CALL IN OP DICTIONARY                4  4622  B 400               122
964  9 47   RECNM  DCW   @4CHR @              RECORD NAME                         5  4630                      122
965  9 48   INITIX B     000                 EXIT                                 4  4631  B 000               122
966  9 49   *
967  9 500  NAMETB DCW   @H@                360                                   1  4635                      122
968  9 501         DCW   @B@                1401,1460                             1  4636                      122
969  9 51          DCW   @B@                 1440                                 1  4637                      122
970  9 52          DCW   @C@                 1410,7010                            1  4638                      122
971  9 53          DCW   @D@                 1620                                 1  4639                      123
972  9 54          DCW   @E@                 705                                  1  4640                      123
973  9 55          DCW   @E@                 7080                                 1  4641                      123
974  9 56          DCW   @F@                 7070, 7072, 7074                     1  4642                      123
975  9 57          DCW   @G@                 7040, 7044                           1  4643                      123
976  9 58          DCW   @G@                 7090, 7094                           1  4644                      123
977  9 59   *
978  9 591  *              NOTE 360 DOESNT USE ADJTB ENTRY
979  9 60   ADJTB  DCW   @001@               1401,1460                            3  4647                      123
980  9 61          DCW   @001@               1440                                 3  4650                      124
981  9 62          DCW   @001@               1410,7010                            3  4653                      124
982  9 63          DCW   @012@               1620                                 3  4656                      124
983  9 64          DCW   @005@               705                                  3  4659                      124
984  9 65          DCW   @005@               7080                                 3  4662                      124
985  9 66          DCW   @001@               7070,7072,7074                       3  4665                      124
986  9 67          DCW   @001@               7040,7044                            3  4668                      124
987  9 68          DCW   @001@               7090,7094                            3  4671                      125
988  9 69   HIGH   EQU   7998                SET LAST USABLE AT CORE END             7998
989  9 70          END   START                                                             / T03 080           126
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972  9 54          DCW   @E@                 705                                  1  4640                      123              *****
973  9 55          DCW   @E@                 7080                                 1  4641                      123
974  9 56          DCW   @F@                 7070, 7072, 7074                     1  4642                      123
975  9 57          DCW   @G@                 7040, 7044                           1  4643                      123
976  9 58          DCW   @G@                 7090, 7094                           1  4644                      123
977  9 59   *
978  9 591  *              NOTE 360 DOESNT USE ADJTB ENTRY
979  9 60   ADJTB  DCW   @001@               1401,1460                            3  4647                      123
```

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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                  1             4CHRB
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?   2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040   3

                          1401,1440,1460 DICTIONARY                           4CHRB            PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                       SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101  1 01   000    JOB   1401,1440,1460 DICTIONARY
 102  1 02          CTL   440
 103  1 025  *              VERSION 2  LEVEL 0   JULY 25,1965
 104  1 03          DCW   @$ADD     @         CARDS COMMON TO ALL DICTIONARIES     9  0341                     4
 105  1 04          DSA   LOW                 --REQUIRED TO                        3  0344  50|                4
 106  1 05          DSA   START               --GENERATE THE APPROPRIATE           3  0347  813                4
 107  1 06          DSA   HIGH                --$ADD CARD                          3  0350  X7S                4
 108  1 07          DCW   @042665@            ASSEMBLY DATE                        6  0356                     4
 109  1 08          ORG   4500                                                           4500
 110  1 09   OPTABL DCW   @10S000@      .     WAIT               HALT              6  4505                     5
 111  1 10          DCW   @000027@      )     BLOCK,CLR WRD MRK  CLEAR WRD MK      6  4511                     5
 112  1 11          DCW   @200023@      /     BLOCK,CLEAR OP1    CLEAR STORAGE     6  4517                     5
 113  1 12          DCW   @000030@      ,     BLOCK,SET WRD MRK  SET WORD MARK     6  4523                     5
 114  1 13          DCW   @300035@      %     BLOCK,DIV 1 BY 2   DIVIDE            6  4529                     5
 115  1 14          DCW   @302039@      #     MODFY,MODFY OP1    MODFY ADDR        6  4535                     5
 116  1 15          DCW   @300034@      AT    BLOCK,MULT 2 BY 1  MULTIPLY          6  4541                     6
 117  1 16          DCW   @300036@      &     BLOCK,ADD 2 TO 1   ZERO AND ADD      6  4547                     6
 118  1 17          DCW   @300032@      A     BLOCK,ADD OP2 TO 1 ADD               6  4553                     6
 119  1 18          DCW   @V3V001@      B     GOTO OP1           UNCOND BR         6  4559                     6
 120  1 19          DCW   @000101@      C     TRANSPARENT        COMPARE           6  4565                     6
 121  1 20          DCW   @400031@      D     BLOCK,MOVE 2 TO 1  MOVE NUMERIC      6  4571                     6
 122  1 21          DCW   @400040@      E     BLOCK,EDIT OP1     MV CHAR           6  4577                     7
 123  1 22          DCW   @211120@      F     IO,CTL PRNTR,OP1   CONTROL CARR      6  4583                     7
 124  1 23          DCW   @502031@      H     MODFY,MODFY OP1    STO B REG         6  4589                     7
 125  1 24          DCW   @300037@      -     BLOCK,SUB 2 FROM 1 ZERO & SUBTR      6  4595                     7
 126  1 25          DCW   @211121@      K     IO,SELECT MODE     SELECT STCKR      6  4601                     7
 127  1 26          DCW   @000025@      L     BLOCK,LOAD 1,2,3   SPS-LU OR LCA     6  4607                     7
 128  1 27          DCW   @000026@      M     BLOCK,MOVE 1,2,3   SPS- MU           6  4613                     8
 129  1 28          DCW   @003022@      N     PREDF              NOP               6  4619                     8
 130  1 29          DCW   @400031@      P     BLOCK,MOVE OP2 TO 1MV CHAR TO RM     6  4625                     8
 131  1 30          DCW   @002031@      Q     MODFY,MODFY OP1    STO A REG         6  4631                     8
 132  1 31          DCW   @300033@      S     BLOCK,SUB 2 FROM 1 SUBTRACT          6  4637                     8
 133  1 311         DCW   @400038@      T     BLOCK,TRS 2 FRM 1  TRANSLATE         6  4643                     8
 134  1 32          DCW   @011122@      U     IO,CTL UNIT OP1    CONTROL UNIT      6  4649                     9
 135  1 33          DCW   @U04060@      V     DECID,WM OR ZONE   BR WM OR ZONE     6  4655                     9
 136  1 34          DCW   @U04051@      W     DECID,IS BIT #     BR IF BIT EQ      6  4661                     9
 137  1 35          DCW   @400031@      X     BLOCK,MOVE 2 TO 1  MV & INSERT       6  4667                     9
 138  1 36          DCW   @400031@      Y     BLOCK,MOVE 2 TO 1  MOVE ZONE         6  4673                     9
 139  1 37          DCW   @400031@      Z     BLOCK,MOVE 2 TO 1  MV CHAR-SUPPR     6  4679                     9
 140  1 38          DCW   @931106@      1     IO,READ A CARD     READ CARD         6  4685                    10
 141  1 39          DCW   @931108@      2     IO,WRITE DISK      WRITE A LINE      6  4691                    10
 142  1 40          DCW   @101111@      3     IO,WRITE & READ    WR AND READ       6  4697                    10
 143  1 41          DCW   @931107@      4     IO,PUNCH A CARD    PUNCH CARD        6  4703                    10
 144  1 42          DCW   @101109@      5     IO,READ AND PUNCH  RD AND PUNCH      6  4709                    10
 145  1 43          DCW   @931112@      6     IO,WRITE & PUNCH   WR & PUNCH        6  4715                    10
 146  1 44          DCW   @101110@      7     IO,WR,RD, & PUNCH  WR,RD,& PNCH      6  4721                    11
 147  1 45          DCW   @001113@      8     IO,SRT READ FEED   SRT READ FEED     6  4727                    11
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SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

148  1 46          DCW   @001114@      9     IO,SRT PUNCH FEED  SRT PNCH FEED      6  4733                      11
149  1 47          DCW   @300032@      A     BLOCK,ADD 2 TO 1   ADD                6  4739                      11
150  1 48          DCW   @0-0200@      ADD    MACRO-COMPUTE     ADD MACRO          6  4745                      11
151  1 49          DCW   @V3V001@      B     GOTO OP1           UNCOND BR          6  4751                      11
152  1 50          DCW   @024063@      BAV   DECID,OVFL IND ON  AR OVF IND BR      6  4757                      12
153  1 51          DCW   @U04051@      BBE   DECID,IS BIT #     BR IF BIT EQ       6  4763                      12
154  1 52          DCW   @U04050@      BCE   DECID,IS CHAR #    BR CHAR EQUAL      6  4769                      12
155  1 53          DCW   @024066@      BCV   DECID,CARR OVFLO   BR CARR OVFLO      6  4775                      12
156  1 54          DCW   @024059@      BC9   DECID,IS IND ON    BR CH 9            6  4781                      12
157  1 55          DCW   @024056@      BE    DECID,IS 6 # 5     BR IF EQUAL        6  4787                      12
158  1 56          DCW   @024054@      BEF   DECID,IS THIS EOF  BR EOF             6  4793                      13
159  1 57          DCW   @024064@      BER   DECID,TP TRANS ER  BR TP TRANS        6  4799                      13
160  1 58          DCW   @024058@      BH    DECID,IS 6 GR TN5  BR IF HIGH         6  4805                      13
161  1 59          DCW   @034052@      BIN   DECID,IS IND OP2ON BR ON INDCTOR      6  4811                      13
162  1 60          DCW   @024057@      BL    DECID,IS 6 LS TN5  BR IF LOW          6  4817                      13
163  1 61          DCW   @024053@      BLC   DECID,IS LAST CARD BR IF LST CRD      6  4823                      13
164  1 62          DCW   @U24061@      BM    DECID,BIT COND ON  BR IF MINUS        6  4829                      14
165  1 63          DCW   @0-3029@      BOOL  PREDF              BOOL MACRO         6  4835                      14
166  1 64          DCW   @024065@      BPB   DECID,IS PRNTR BY  BR PRNTR BUSY      6  4841                      14
167  1 65          DCW   @024065@      BPCB  DECID,IS PRNTR BY  BR PRNTR BUSY      6  4847                      14
168  1 66          DCW   @021104@      BSP   IO,BCKSP TAPE OP1  BCKSPCE TAPE       6  4853                      14
169  1 67          DCW   @034052@      BSS   DECID,IS IND OP2ON BR IF SS ON        6  4859                      14
170  1 68          DCW   @024055@      BU    DECID,IS 6 UNEQ 5  BR UNEQUAL         6  4865                      15
171  1 69          DCW   @U24061@      BW    DECID,BIT COND ON  BR IF WRD MRK      6  4871                      15
172  1 70          DCW   @U04060@      BWZ   DECID,WM OR ZONE   BR WM OR ZONE      6  4877                      15
173  1 71          DCW   @000101@      C     TRANSPARENT        COMPARE            6  4883                      15
174  1 72          DCW   @0-Y012@      CALL  SUBRT,OP1 BKS SEQ  CALL MACRO         6  4889                      15
175  1 73          DCW   @211120@      CC    IO,CTL PRNTR,OP1   CONTROL CARR       6  4895                      15
176  1 74          DCW   @211120@      CCB   IO,CTL PRNTR,OP1   CTL CARR & BR      6  4901                      16
177  1 75          DCW   @0&    @      CHAIN DELETE-UNKNOWN     CHAIN MACRO        6  4907                      16
178  1 76          DCW   @0-1125@      CLOSE IO CLOSE OP1       CLOSE FILE         6  4913                      16
179  1 77          DCW   @0-3028@      COMPR PREDF              COMPR MACRO        6  4919                      16
180  1 78          DCW   @200023@      CS    BLOCK,CLEAR OP1    CLEAR STORAGE      6  4925                      16
181  1 79          DCW   @0Y    @      CTL   DELETE-KNOWN       CTL PM             6  4931                      16
182  1 80          DCW   @031122@      CU    IO,CTL UNIT OP1    CONTROL UNIT       6  4937                      17
183  1 81          DCW   @000027@      CW    BLOCK,CLR WRD MRK  CLEAR WRD MK       6  4943                      17
184  1 82          DCW   @300035@      D     BLOCK,DIV 1 BY 2   DIVIDE             6  4949                      17
185  1 83          DCW   @0&    @      DA    DELETE-UNKNOWN     DATA               6  4955                      17
186  1 84          DCW   @0&    @      DC    DELETE-UNKNOWN     DATA               6  4961                      17
187  1 85          DCW   @0-1125@      DCLOS DELETE- UNKNOWN    DCLOS MACRO        6  4967                      17
188  1 86          DCW   @021130@      DCR   IO,DIS CHAR RDR    DISENG CH RDR      6  4973                      18
189  1 87          DCW   @0&    @      DCW   DELETE-UNKNOWN     DATA               6  4979                      18
190  1 88          DCW   @0&    @      DELET DELETE- UNKNOWN                       6  4985                      18
191  1 881         DCW   @0&    @      DIOCS                                       6  4991                      18
192  1 89          DCW   @0-0200@      DIVID  BLOCK,COMPUTE     DIVIDE MACRO       6  4997                      18
193  1 90          DCW   @0&    @      DS    DELETE-UNKNOWN     DATA               6  5003                      18
194  1 91          DCW   @0&    @      DSA   DELETE-UNKNOWN     DATA               6  5009                      19
195  1 911         DCW   @0&    @      DTF                                         6  5015                      19
196  1 92          DCW   @021131@      ECR   IO,EN  CHAR RDR    ENG CHAR RDR       6  5021                      19
197  1 93          DCW   @0&    @      END   DELETE-UNKNOWN     PM-END             6  5027                      19
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

198  1 94          DCW   @0Y    @      ENT   DELETE-KNOWN       PM-ENT               6  5033                      19
199  1 95          DCW   @0Y    @      EQU   DELETE-KNOWN       PM- EQU SYM          6  5039                      19
200  1 96          DCW   @0&    @      EX    DELETE-UNKNOWN     PM-EXECUTE           6  5045                      20
201  1 97          DCW   @0-1126@      FEORL IO FORCE END OF RL REEL SWITCH          6  5051                      20
202  1 98          DCW   @0-1129@      GET   IO,READ FROM 1     GET MACRO            6  5057                      20
203  1 99          DCW   @10S000@      H     WAIT               HALT                 6  5063                      20
204  2 00          DCW   @0&    @      INCLD  DELETE-UNKNOWN    INCLD MACRO          6  5069                      20
205  2 01          DCW   @0&    @      INSER DELETE- UNKNOWN                         6  5075                      20
206  2 02          DCW   @0&    @      JOB    DELETE-UNKNOWN    PM-JOB               6  5081                      21
207  2 03          DCW   @011124@      K     IO,CTL PPR TAPE    BCK PAPR TAPE        6  5087                      21
208  2 04          DCW   @400031@      LCA   BLOCK,MOVE 2 TO 1  LOAD TO A WM         6  5093                      21
209  2 05          DCW   @0&    @      LIST  DELETE- UNKNOWN                         6  5099                      21
210  2 06          DCW   @0-4062@      LOOP  DECID,SHLD LOOP RT LOOP MACRO           6  5105                      21
211  2 07          DCW   @0&    @      LTORG  DELETE,UNKNOWN    LTORG MACRO          6  5111                      21
212  2 08          DCW   @T01132@      LU    IO,LU OR MU                             6  5117                      22
213  2 09          DCW   @300034@      M     BLOCK,MULT 2 BY 1  MULTIPLY             6  5123                      22
214  2 10          DCW   @302039@      MA    MODFY,MODFY OP1    MODFY ADDR           6  5129                      22
215  2 11          DCW   @0-0210@      MATH  BLOCK,COMPUTE OP1  MATH MACRO           6  5135                      22
216  2 12          DCW   @420031@      MBC   BLOCK,MOVE 2TO 1   MV BIN & CODE        6  5141                      22
217  2 13          DCW   @420031@      MBD   BLOCK,MOVE 2 TO 1  MV BIN-DECODE        6  5147                      22
218  2 14          DCW   @400040@      MCE   BLOCK,EDIT OP1     MV CHAR              6  5153                      23
219  2 15          DCW   @400031@      MCM   BLOCK,MOVE 2 TO 1  MV CHAR TO RM        6  5159                      23
220  2 16          DCW   @400031@      MCS   BLOCK,MOVE 2 TO 1  MV CHAR-SUPPR        6  5165                      23
221  2 17          DCW   @400031@      MCW   BLOCK,MOVE 2 TO 1                       6  5171                      23
222  2 18          DCW   @0Y    @      MEND  DELETE-KNOWN       MEND MACRO           6  5177                      23
223  2 19          DCW   @400031@      MIC   BLOCK,MOVE 2 TO 1  MOVE TO WM           6  5183                      23
224  2 20          DCW   @400031@      MIZ   BLOCK,MOVE 2 TO 1   V & INSERT          6  5189                      24
225  2 21          DCW   @400031@      MLC   BLOCK,MOVE 2 TO 1   V TO WM             6  5195                      24
226  2 22          DCW   @400031@      MLCWA BLOCK,MOVE 2 TO 1  MV TO WM             6  5201                      24
227  2 23          DCW   @400031@      MLNS  BLOCK,MOVE 2 TO 1  MV NUMERIC           6  5207                      24
228  2 24          DCW   @0-0200@      MLTPY  BLOCK,COMPUTE     MULT MACRO           6  5213                      24
229  2 25          DCW   @400031@      MLZS  BLOCK,MOVE 2 TO 1                       6  5219                      24
230  2 26          DCW   @400031@      MN    BLOCK,MOVE 2 TO 1  MV NUMERIC           6  5225                      25
231  2 27          DCW   @400031@      MRCM  BLOCK,MOVE 2 TO 1  MV TO RM             6  5231                      25
232  2 28          DCW   @400031@      MRCWG BLOCK,MOVE 2 TO 1  MOVE TO WM           6  5237                      25
233  2 29          DCW   @T01132@      MU    IO,LU OR MU                             6  5243                      25
234  2 30          DCW   @400031@      MZ    BLOCK,MOVE 2 TO 1  MOVE ZONE            6  5249                      25
235  2 31          DCW   @003022@      NOP   PREDF                                   6  5255                      25
236  2 32          DCW   @0-1125@      OPEN  IO OPEN OP1        OPEN FILE            6  5261                      26
237  2 33          DCW   @0&    @      ORG   DELETE-UNKNOWN     PM- ORG              6  5267                      26
238  2 34          DCW   @0&    @      OVLAY DELETE-UNKNOWN     PM-OVERLAY           6  5273                      26
239  2 35          DCW   @931107@      P     IO,PUNCH A CARD    PUNCH CARD           6  5279                      26
240  2 36          DCW   @121107@      PCB   IO,PUNCH A CARD    PNCH COL BIN         6  5285                      26
241  2 37          DCW   @021107@      PS    IO, PUNCH A CARD   PNCH & STOP          6  5291                      26
242  2 38          DCW   @011123@      PSK   IO,CTL PUNCH       PUNCH & SKIP         6  5297                      27
243  2 39          DCW   @0-1128@      PUT   IO$WR TAPE         PUT MACRO            6  5303                      27
244  2 40          DCW   @931106@      R     IO,READ A CARD     READ CARD            6  5309                      27
245  2 41          DCW   @121106@      RCB   IO,READ A CARD     RD COL BINARY        6  5315                      27
246  2 42          DCW   @041116@      RCP   IO,RD TYP INT 1    RD CONS PRNTR        6  5321                      27
247  2 421         DCW   @041116@      RCPW  IO,RD TYP INT 1    RD CONS PRNTR        6  5327                      27
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  2 43          DCW   @051117@      RD     IO,READ DISK       READ DISK-SIG     6  5333                      28
249  2 44          DCW   @051117@      RDCO   IO, READ DISK      RD DISK           6  5339                      28
250  2 45          DCW   @051117@      RDCOW IO, READ DISK       RD DISK-WM        6  5345                      28
251  2 46          DCW   @0&    @      RDLIN  DELETE- UNKNOWN    RDLIN MACRO       6  5351                      28
252  2 47          DCW   @051117@      RDT    IO,READ DISK       READ DISK-FUL     6  5357                      28
253  2 48          DCW   @051117@      RDTA   IO, READ DISK      RD DISK-ADDR      6  5363                      28
254  2 49          DCW   @051117@      RDTAW IO, READ DISK       RD DISK-WM&AD     6  5369                      29
255  2 50          DCW   @051117@      RDTR   IO,READ DISK       RD DSK REC        6  5375                      29
256  2 51          DCW   @051117@      RDTRW IO,READ DISK        RD DSK REC        6  5381                      29
257  2 52          DCW   @051117@      RDTW   IO,READ DISK       RD DSK-FUL&WM     6  5387                      29
258  2 53          DCW   @051117@      RDW    IO,READ DISK       RD DSK-SIG&WM     6  5393                      29
259  2 54          DCW   @0-1127@      RELSE IO                                    6  5399                      29
260  2 55          DCW   @121109@      RF     IO,READ AND PUNCH  RD PUNCH FEED     6  5405                      30
261  2 56          DCW   @101109@      RP     IO,READ AND PUNCH  READ & PUNCH      6  5411                      30
262  2 57          DCW   @021100@      RT     IO,READ TAPE OP1   READ TAPE         6  5417                      30
263  2 58          DCW   @021100@      RTB    IO,READ TAPE OP1   READ TAPE BIN     6  5423                      30
264  2 59          DCW   @021100@      RTW    IO,READ TAPE OP1   RD TPE WM         6  5429                      30
265  2 60          DCW   @021101@      RWD    IO,REWIND TAPE OP1 REWIND            6  5435                      30
266  2 61          DCW   @021101@      RWU    IO,REWIND TAPE OP1 REWIND & UNLD     6  5441                      31
267  2 62          DCW   @300033@      S      BLOCK,SUB 2 FROM 1  UBTRACT          6  5447                      31
268  2 63          DCW   @002031@      SAR    MODFY,MODFY OP1    STO A REG         6  5453                      31
269  2 64          DCW   @502031@      SBR    MODFY,MODFY OP1    STO B REG         6  5459                      31
270  2 65          DCW   @051119@      SD     IO, CTL DISK       SEEK DISK         6  5465                      31
271  2 66          DCW   @051119@      SDE    IO, CTL DISK       SCAN DISK         6  5471                      31
272  2 67          DCW   @051119@      SDEW   IO, CTL DISK       SCAN DISK-WM      6  5477                      32
273  2 68          DCW   @051119@      SDH    IO, CTL DISK       SCAN DISK         6  5483                      32
274  2 69          DCW   @051119@      SDHW   IO, CTL DISK       SCAN DISK         6  5489                      32
275  2 70          DCW   @051119@      SDL    IO, CTL DISK       SCAN DISK         6  5495                      32
276  2 71          DCW   @051119@      SDLW   IO, CTL DISK       SCAN DISK         6  5501                      32
277  2 72          DCW   @0Y    @      SFX    DELETE- KNOWN      SUFFIX            6  5507                      32
278  2 73          DCW   @0-1120@      SKIP   IO,CTL PRNTR       SKIP MACRO        6  5513                      33
279  2 74          DCW   @0&    @      SKIPN DELETE- UNKNOWN                       6  5519                      33
280  2 75          DCW   @021105@      SKP    IO,SK & BLK TAPE   SKP & BLK TPE     6  5525                      33
281  2 76          DCW   @0-1120@      SPACE IO,CTL PRNTR        SPACE MACRO       6  5531                      33
282  2 77          DCW   @0&    @      SPCE   DELETE- UNKNOWN                      6  5537                      33
283  2 78          DCW   @001114@      SPF    IO,SRT PUNCH FEED  SRT PNCH FED      6  5543                      33
284  2 79          DCW   @001113@      SRF    TO,SRT READ FEED   SRT RD FEED       6  5549                      34
285  2 80          DCW   @211121@      SS     IO,SELECT MODE     SELECT STCKR      6  5555                      34
286  2 81          DCW   @211121@      SSB    IO,SELECT MODE     RST OVRLAP&BR     6  5561                      34
287  2 82          DCW   @0-1125@      STACK IO STACK OP1        STACKER SEL       6  5567                      34
288  2 83          DCW   @0-0200@      SUB    BLOCK,COMPUTE      SUBTR MACRO       6  5573                      34
289  2 84          DCW   @000030@      SW     BLOCK,SET WRD MRK  SET WORD MARK     6  5579                      34
290  2 85          DCW   @0&    @      TOVLY DELETE-UNKNOWN      PM-TAPE OVLY      6  5585                      35
291  2 86          DCW   @400038@      TR     BLOCK,TRS 2 FM 1   TRANSLATE         6  5591                      35
292  2 87          DCW   @400038@      TRW    BLOCK,TRS 2 FM 1   TRANSLATE         6  5597                      35
293  2 88          DCW   @0&    @      ULST   DELETE- UNKNOWN                      6  5603                      35
294  2 89          DCW   @931108@      W      IO,WRITE DISK      WRITE A LINE      6  5609                      35
295  2 90          DCW   @041115@      WCP    IO, WR TYPE FR OP2 WR CONS PRNTR     6  5615                      35
296  2 91          DCW   @041115@      WCPW   IO, WR TYPE FR OP2 WR TYPE           6  5621                      36
297  2 92          DCW   @051118@      WD     IO,WRITE DISK      WR DISK           6  5627                      36
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SEQ PG LIN  LABEL  OP    OPERANDS                                       SFX CT  LOCN  INSTRUCTION TYPE  CARD

298  2 93          DCW   @051118@      WDC   IO,WRITE DISK      WR DISK CHECK     6  5633                   36
299  2 94          DCW   @051118@      WDCO  IO, WR DISK        WR DISK           6  5639                   36
300  2 95          DCW   @051118@      WDCOW IO, WR DISK        WR DISK           6  5645                   36
301  2 96          DCW   @051118@      WDCW  IO,WRITE DISK      WR DISK-WM        6  5651                   36
302  2 97          DCW   @051118@      WDT   IO,WRITE DISK      WR DISK-FULL      6  5657                   37
303  2 98          DCW   @051118@      WDTA  IO, WR DISK        WR DISK           6  5663                   37
304  2 99          DCW   @051118@      WDTAW IO, WR DISK        WR DISK           6  5669                   37
305  3 00          DCW   @051118@      WDTR  IO, WR DISK        WR DISK           6  5675                   37
306  3 01          DCW   @051118@      WDTRW IO, WR DISK        WR DISK           6  5681                   37
307  3 02          DCW   @051118@      WDTW  IO,WRITE DISK      WR DISK-FL&WM     6  5687                   37
308  3 03          DCW   @051118@      WDW   IO-WR DISK                           6  5693                   38
309  3 04          DCW   @121108@      WM    IO,PRINT A LINE    WR WM             6  5699                   38
310  3 05          DCW   @101112@      WP    IO,WRITE & PUNCH   WR & PUNCH        6  5705                   38
311  3 06          DCW   @101111@      WR    IO,WRITE & READ    WR AND READ       6  5711                   38
312  3 07          DCW   @121110@      WRF   IO,WR,READ & PUNCH WR,RD,& PNCH      6  5717                   38
313  3 08          DCW   @101110@      WRP   IO,WR,READ & PUNCH WR,RD,& PNCH      6  5723                   38
314  3 09          DCW   @021108@      WS    IO, PRNT A LINE    WR AND SUPPR      6  5729                   39
315  3 10          DCW   @021102@      WT    IO,WR TPE OP1-OP2  WR TAPE           6  5735                   39
316  3 11          DCW   @021102@      WTB   IO,WR TPE OP1-OP2  WR TAPE BIN       6  5741                   39
317  3 12          DCW   @021103@      WTM   IO,WR TPE MRK ON2  WR TAPE MARK      6  5747                   39
318  3 13          DCW   @021102@      WTW   IO,WR TPE OP1-OP2  WR TAPE& WM       6  5753                   39
319  3 14          DCW   @0&    @      XFR   DELETE-UNKNOWN     PM- XFR           6  5759                   39
320  3 15          DCW   @300036@      ZA    BLOCK,ADD 2 TO 1   ZERO AND ADD      6  5765                   40
321  3 16          DCW   @300037@      ZS    BLOCK,SUB 2 FROM 1 ZERO AND SUBT     6  5771                   40
322  3 17   LOW    EQU   OPTABL-5            FOR PASS 1 DICTIONARIES                 4500
323  3 18   START  EQU   813                 START ADDRESS                           0813
324  3 19   *
325  3 20   HIGH   EQU   *&1                 HIGH POSITION FOR $ADD CARD             5772
326  3 21          END   5000                                                             / |0| 080         41
309  3 04          DCW   @121108@      WM    IO,PRINT A LINE    WR WM             6  5699                   38        *****
310  3 05          DCW   @101112@      WP    IO,WRITE & PUNCH   WR & PUNCH        6  5705                   38
311  3 06          DCW   @101111@      WR    IO,WRITE & READ    WR AND READ       6  5711                   38
312  3 07          DCW   @121110@      WRF   IO,WR,READ & PUNCH WR,RD,& PNCH      6  5717                   38
313  3 08          DCW   @101110@      WRP   IO,WR,READ & PUNCH WR,RD,& PNCH      6  5723                   38
314  3 09          DCW   @021108@      WS    IO, PRNT A LINE    WR AND SUPPR      6  5729                   39
315  3 10          DCW   @021102@      WT    IO,WR TPE OP1-OP2  WR TAPE           6  5735                   39
316  3 11          DCW   @021102@      WTB   IO,WR TPE OP1-OP2  WR TAPE BIN       6  5741                   39
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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                             1             4CHRC
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?          2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040          3

                          1410/7010 COMMENT DICTIONARY PHASE1 FLOWCHART             4CHRC             PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    00   000    JOB   1410/7010 COMMENT DICTIONARY PHASE1 FLOWCHART
 102    01          CTL   440
 103    02          DCW   @$ADD     @         CARDS COMMON TO ALL DICTIONARIES     9  0341                        4
 104    03          DSA   LOW                 --REQUIRED TO                        3  0344  50|                   4
 105    04          DSA   START               --GENERATE THE APPROPRIATE           3  0347  813                   4
 106    05          DSA   HIGH                --$ADD CARD                          3  0350  H7Y                   4
 107    06          DCW   @032365@            DATE CARD                            6  0356                        4
 108    07          ORG   4500                                                           4500
 109    08   OPTABL DCW   @300085@      A      BLOCK,ADD         ADD               6  4505                        5
 110    09          DCW   @02V001@      B      GOTO,UNCOND BRANCHUNCON. BRANCH     6  4511                        5
 111    10          DCW   @024050@      BA     DECID,IS IND ON   BR ANY CHL IN     6  4517                        5
 112    11          DCW   @0-3016@      BASE   PREDF,IBM MACRO   LL CTL CARD       6  4523                        5
 113    12          DCW   @024063@      BAV    DECID,ARITH OFL   ARITHM OVRFLO     6  4529                        5
 114    13          DCW   @024066@      BB     DECID,COLM BNRY   COLMN BINARY      6  4535                        5
 115    14          DCW   @U14051@      BBE    DECID,BIT EQUAL   BIT EQUAL         6  4541                        6
 116    15          DCW   @024059@      BCAF   DECID,INDICAT ON  AMT INDIC ON      6  4547                        6
 117    16          DCW   @024059@      BCAN   DECID,INDICAT ON  AMT # IND ON      6  4553                        6
 118    17          DCW   @024064@      BCB    DECID,UNIT BUSY   I/O UNIT BUSY     6  4559                        6
 119    18          DCW   @024059@      BCDC   DECID,INDICAT ON  DOCUM SPC IND     6  4565                        6
 120    19          DCW   @U14052@      BCE    DECID,CHAR EQUAL  CHARACT EQUAL     6  4571                        6
 121    20          DCW   @024059@      BCLR   DECID,INDICAT ON  LATE READ IND     6  4577                        7
 122    21          DCW   @024059@      BCNR   DECID,RD NOT READYREAD NOT REDY     6  4583                        7
 123    22          DCW   @024059@      BCPC   DECID,INDICAT ON  PPOC CTL FLD      6  4589                        7
 124    23          DCW   @024059@      BCRC   DECID,INDICAT ON  READ CHK IND      6  4595                        7
 125    24          DCW   @024059@      BCTR   DECID,INDICAT ON  TRANS RUTE IN     6  4601                        7
 126    25          DCW   @024061@      BCV    DECID,CARR OFLOW  CARAGE OVRFLO     6  4607                        7
 127    26          DCW   @0-3016@      BCWR   PREDF,                              6  4613                        8
 128    27          DCW   @024061@      BC9    DECID,CHAN 9      CARR CHL 9        6  4619                        8
 129    28          DCW   @024069@      BDV    DECID,DEVIDE OFL  DIVIDE OVRFLO     6  4625                        8
 130    29          DCW   @024053@      BE     DECID,BRANCH EQUALBRANCH EQUAL      6  4631                        8
 131    30          DCW   @024070@      BEF    DECID,END OF FILE END OF FILE       6  4637                        8
 132    31          DCW   @122147@      BEPA   BLOCK,CTL MOD,OP1 SET PRIR ALRT     6  4643                        8
 133    32          DCW   @024071@      BER    DECID,READ ERROR  READ ERROR        6  4649                        9
 134    33          DCW   @014072@      BEX    DECID,INDICAT ON  PLURAL INDICT     6  4655                        9
 135    34          DCW   @024054@      BH     DECID,BRANCH HIGH BRANCH HIGH       6  4661                        9
 136    35          DCW   @024065@      BIPR   DECID,INDICAT ON  INQUIRY REQST     6  4667                        9
 137    36          DCW   @024055@      BL     DECID,BRANCH LOW  BRANCH LOW        6  4673                        9
 138    37          DCW   @024060@      BNQ    DECID,INDICAT ON  INQUIRY REQUS     6  4679                        9
 139    38          DCW   @024062@      BNR    DECID,INDICAT ON  UNIT NOT REDY     6  4685                       10
 140    39          DCW   @024075@      BNT    DECID,INDICAT ON  UNIT NO TRANS     6  4691                       10
 141    40          DCW   @024067@      BOL    DECID,INDICAT ON  OLAP IN PROCS     6  4697                       10
 142    41          DCW   @0-3016@      BOOL   PREDF,IBM MACRO   IBM P/MACRO       6  4703                       10
 143    42          DCW   @024074@      BOPR   DECID,INDICAT ON  OLAP COMPLETE     6  4709                       10
 144    43          DCW   @024068@      BOQ    DECID,INDICAT ON  OUTQUIRY BRNH     6  4715                       10
 145    44          DCW   @024073@      BPCB   DECID,INDICAT ON  CARRIAGE BUSY     6  4721                       11
 146    45          DCW   @0-3016@      BPI    PREDF,GEN BR INS  GEN BR INS        6  4727                       11
 147    46          DCW   @024068@      BQPR   DECID,INDICAT ON  OUTQUIRY          6  4733                       11
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SEQ PG LIN  LABEL  OP    OPERANDS                                       SFX CT  LOCN  INSTRUCTION TYPE  CARD

148    47          DCW   @024076@      BRC    DECID,INDICAT ON  READBACK CHCK     6  4739                      11
149    48          DCW   @031100@      BSP    I/O, UNIT -OP1    BACKSPACE TAP     6  4745                      11
150    49          DCW   @024074@      BSPR   DECID,INDICAT ON  SEEK PRIR RQS     6  4751                      11
151    50          DCW   @024056@      BU     DECID,INDICAT ON  BRANCH UNEQAL     6  4757                      12
152    51          DCW   @024074@      BUPR   DECID,INDICAT ON  SELCTD I/O UN     6  4763                      12
153    52          DCW   @U24057@      BW     DECID,INDICAT ON  BRCH ON WMARK     6  4769                      12
154    53          DCW   @024077@      BWL    DECID,INDICAT ON  WRNG LNGH REC     6  4775                      12
155    54          DCW   @U54058@      BWZ    DECID,WM OR ZONE  WM OR ZONE        6  4781                      12
156    55          DCW   @024078@      BXO    DECID,EXP OFLOW   EXPONENT OVFL     6  4787                      12
157    56          DCW   @122148@      BXPA   BLOCK,CTL MOD OP1 PRIR ALRT MOD     6  4793                      13
158    57          DCW   @024074@      BXPR   DECID,INDICAT ON  ATTENTION         6  4799                      13
159    58          DCW   @024079@      BXU    DECID,EXP UNDFLOW EXPON UNRFLOW     6  4805                      13
160    59          DCW   @024080@      BZ     DECID,ZERO BALANC ZERO BALANCE      6  4811                      13
161    60          DCW   @U54058@      BZN    DECID,ZONE BITS   ZONE BITS         6  4817                      13
162    61          DCW   @000101@      C      TRANS,COMPARE     COMPAR A TO B     6  4823                      13
163    62          DCW   @0-Y012@      CALL   SUBTR,IBM MACRO   LL CNTRL CARD     6  4829                      14
164    63          DCW   @0-Y012@      CALLN  SUBTR,IBM MACRO   IBM MACRO         6  4835                      14
165    64          DCW   @0-Y012@      CALLP  SUBTR,IBM MACRO   IBM MACRO         6  4841                      14
166    65          DCW   @001101@      CC     I/O,CARRIAGE CTL  CARRIAGE CTRL     6  4847                      14
167    66          DCW   @0-3016@      CHKPT  PREDF,IBM MACRO   WR CHCKPT REC     6  4853                      14
168    67          DCW   @0-3016@      CLIP   PREDF,IBM MACRO   IBM MACRO         6  4859                      14
169    68          DCW   @0-1110@      CLOSD  I/O,CLOSE MACRO   CLS DUMP TAPE     6  4865                      15
170    69          DCW   @0-1102@      CLOSE  I/O,IOCS MACRO    IOCS MACRO        6  4871                      15
171    70          DCW   @0-3016@      COMN   PREDF,IBM MACRO   IBM MACRO         6  4877                      15
172    71          DCW   @0-3016@      COMP   PREDF,COMPARE MACRIBM P/MACRO       6  4883                      15
173    72          DCW   @0-3016@      CONGO  PREDF,IBM MACRO   IBM MACRO         6  4889                      15
174    73          DCW   @0-3016@      CONSL  PREDF,IBM MACRO   CONSOLE OPERT     6  4895                      15
175    74          DCW   @200081@      CS     BLOCK,CLEAR STOR  CLEAR STORAGE     6  4901                      16
176    75          DCW   @0Y    @      CTL    NO ACTION-DELETE  PROSR CTL CRD     6  4907                      16
177    76          DCW   @031103@      CU     I/O,CONTROL UNIT  CNTRL UNIT        6  4913                      16
178    77          DCW   @000091@      CW     BLOCK,RESET,OP1   CLEAR WM          6  4919                      16
179    78          DCW   @300087@      D      BLOCK,DEVIDE      DIVIDE            6  4925                      16
180    79          DCW   @0&    @      DA     NO ACTION-DELETE  DEFINE AREA       6  4931                      16
181    80          DCW   @0&    @      DAV    NO ACTION-DELETE  DFIN AR COMON     6  4937                      17
182    81          DCW   @0&    @      DC     NO ACTION-DELETE  DFIN CNST         6  4943                      17
183    82          DCW   @021137@      DCR    I/O,MAG CHR RDR   DNGAG CHR RDR     6  4949                      17
184    83          DCW   @0&    @      DCW    NO ACTION-DELETE  DFIN CNST WM      6  4955                      17
185    84          DCW   @0-Y012@      DCWF   SUBTR,ADCON       ADDCON 4 SUBR     6  4961                      17
186    85          DCW   @0-3016@      DCWS   PREDF,GO TO SUBR  BRCH TO SUBRT     6  4967                      17
187    86          DCW   @0&    @      DEFIN  NO ACTION-DELETE                    6  4973                      18
188    87          DCW   @0-3016@      DEVDF   PREDF,IBM MACRO  IBM MACRO         6  4979                      18
189    88          DCW   @0&    @      DIOCS  NO ACTION-DELETE                    6  4985                      18
190    89          DCW   @0-3016@      DISGO  PREDF,IBM MACRO   IBM MACRO         6  4991                      18
191    90          DCW   @0&    @      DS     NO ACTION-DELETE  DEFINE SYMBOL     6  4997                      18
192    91          DCW   @0-3016@      DSORT  PREDF,IBM MACRO   IBM MACRO         6  5003                      18
193    92          DCW   @0&    @      DTEF   NO ACTION-DELETE                    6  5009                      19
194    93          DCW   @0&    @      DTF    NO ACTION-DELETE                    6  5015                      19
195    94          DCW   @0-3016@      DUMP   PREDF,IBM MACRO   IBM MACRO         6  5021                      19
196    95          DCW   @0-3016@      DUNIT  PREDF,IBM MACRO   IBM MACRO         6  5027                      19
197    96          DCW   @021136@      ECR    I/O,ENGAG CHR RDR ENGAGE CHR RD     6  5033                      19
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

198    97          DCW   @0Y    @      EJECT  NO ACTION DELETE  ASSMBLY CTLCD     6  5039                      19
199    98          DCW   @0&    @      END    NO ACTION DELETE  CONTROL CARD      6  5045                      20
200    99          DCW   @0-3016@      ENDLD  PREDF,IBM MACRO   IBM MACRO         6  5051                      20
201  1 00          DCW   @0-3016@      ENTDR  PREDF,MNOM        IBM MACRO         6  5057                      20
202  1 01          DCW   @0-3016@      ENTRY  PREDF,IBM MACRO   IBM MACRO         6  5063                      20
203  1 02          DCW   @0Y    @      EQU    NO ACTION-DELETE  EQUATE            6  5069                      20
204  1 03          DCW   @0-3016@      EX     PREDF,EXECUTE     EXECUTE           6  5075                      20
205  1 04          DCW   @0-3016@      EXTDR  PREDF,IBM MACRO   IBM MACRO         6  5081                      21
206  1 05          DCW   @020210@      FA     BLOCK,FLOAT ADD   FLOATING ADD      6  5087                      21
207  1 06          DCW   @020210@      FD     BLOCK,FLOAT DEVID FLOAT DEVIDE      6  5093                      21
208  1 07          DCW   @0-3016@      FEORL  PREDF,FORC EOR    FORCE ENDREEL     6  5099                      21
209  1 08          DCW   @020210@      FM     BLOCK,FLOAT MLTPY FLOAT MULTPLY     6  5105                      21
210  1 09          DCW   @020210@      FRA    BLOCK,FLOAT RSADD FLOAT RES ADD     6  5111                      21
211  1 10          DCW   @020210@      FS     BLOCK,FLOAT SUBTR FLOAT SUBTR       6  5117                      22
212  1 11          DCW   @0-3016@      FSEQP  PREDF,MNOM        IBM MACRO         6  5123                      22
213  1 12          DCW   @020210@      FST    BLOCK,FLOAT STORE FLOAT STORE       6  5129                      22
214  1 13          DCW   @0-1102@      GET    I/O,IBM MACRO     IBM MACRO         6  5135                      22
215  1 14          DCW   @0-1102@      GETS   I/O,1301  MACRO   GET 1301 MCRO     6  5141                      22
216  1 15          DCW   @10S000@      H      WAIT,HALT         HALT              6  5147                      22
217  1 16          DCW   @0-3016@      HA     PREDF,IBM MACRO   IBM MACRO         6  5153                      23
218  1 17          DCW   @031100@      HBSF   I/O,BACKSPACE FIL BACKSPAC FILE     6  5159                      23
219  1 18          DCW   @0&    @      HBSR   NO ACTION-DELETE  BACKSPACE         6  5165                      23
220  1 19          DCW   @0&    @      HCCR   NO ACTION-DELETE  CHNG CRTG&RWD     6  5171                      23
221  1 20          DCW   @0&    @      HCHC   NO ACTION-DELETE  CHNG CRTRIGE      6  5177                      23
222  1 21          DCW   @0-3016@      HCLN   PREDF,                              6  5183                      23
223  1 22          DCW   @0&    @      HEADR  NO ACTION DELETE  CONTROL CARD      6  5189                      24
224  1 23          DCW   @0&    @      HECF   NO ACTION-DELETE  EROR CORC OFF     6  5195                      24
225  1 24          DCW   @0&    @      HEOS   NO ACTION-DELETE  END OF SEQUNC     6  5201                      24
226  1 25          DCW   @0Y    @      HEPM   NO ACTION-DELETE  HYPR TAPE         6  5207                      24
227  1 26          DCW   @0&    @      HERG   NO ACTION-DELETE  ERASE LONG GP     6  5213                      24
228  1 27          DCW   @0&    @      HFCB   NO ACTION-DELETE  FIX CHCK BITS     6  5219                      24
229  1 28          DCW   @0&    @      HFPN   NO ACTION-DELETE  FIL PRTCT ON      6  5225                      25
230  1 29          DCW   @0&    @      HICE   NO ACTION-DELETE  INTRUPT CR ER     6  5231                      25
231  1 30          DCW   @0&    @      HNOP   NO ACTION-DELETE  NO OPERATION      6  5237                      25
232  1 31          DCW   @0-3016@      HRLF   PREDF,                              6  5243                      25
233  1 32          DCW   @0-3016@      HRLN   PREDF,                              6  5249                      25
234  1 33          DCW   @0&    @      HRUN   NO ACTION-DELETE  RWIND & UNLOD     6  5255                      25
235  1 34          DCW   @0&    @      HRWD   NO ACTION-DELETE  REWIND            6  5261                      26
236  1 35          DCW   @0&    @      HSBR   NO ACTION-DELETE  SLCT BACKWRD      6  5267                      26
237  1 36          DCW   @0&    @      HSEL   NO ACTION-DELETE  SELECT            6  5273                      26
238  1 37          DCW   @0&    @      HSKF   NO ACTION-DELETE  SPACE FILE FR     6  5279                      26
239  1 38          DCW   @0&    @      HSKR   NO ACTION-DELETE  SPACE OVR REC     6  5285                      26
240  1 39          DCW   @0-3016@      HSPM   PREDF,                              6  5291                      26
241  1 40          DCW   @0&    @      HSPN   NO ACTION-DELETE                    6  5297                      27
242  1 41          DCW   @0&    @      HUNL   NO ACTION-DELETE  UNLOAD CRTRIG     6  5303                      27
243  1 42          DCW   @0&    @      HUPM   NO ACTION-DELETE  HYPR TAPE         6  5309                      27
244  1 43          DCW   @0&    @      HWCF   NO ACTION-DELETE  WR CLOCK FAST     6  5315                      27
245  1 44          DCW   @0&    @      HWCS   NO ACTION-DELETE  WR CLOCK SLOW     6  5321                      27
246  1 45          DCW   @0-3016@      HWLR   PREDF,                              6  5327                      27
247  1 46          DCW   @0&    @      HWTM   NO ACTION-DELETE  WR TAPE MARK      6  5333                      28
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  1 47          DCW   @0-3016@      INCLD  PREDF,IBM MACRO   IBM MACRO          6  5339                     28
249  1 48          DCW   @0-3016@      INPUT  PREDF,IBM MACRO   IBM MACRO          6  5345                     28
250  1 49          DCW   @0-1100@      IOBSP  I/O,BACKSPACE,OP1 BACKSPACE          6  5351                     28
251  1 50          DCW   @0-3016@      IOCTL  PREDF,IBM MACRO   IBM MACRO          6  5357                     28
252  1 51          DCW   @0-3016@      IORD   PREDF,                               6  5363                     28
253  1 52          DCW   @0-1119@      IORWD  I/O,REWIND,OP1    REWIND             6  5369                     29
254  1 53          DCW   @0-1119@      IORWU  I/O,UNLOAD,OP1    UNLOAD             6  5375                     29
255  1 54          DCW   @0-3016@      IOSYS  PREDF,IBM MACRO   IBM MACRO          6  5381                     29
256  1 55          DCW   @0-1118@      IOWTM  I/O,WT TAPE MK,OP1WTAPE MK           6  5387                     29
257  1 56          DCW   @0-3016@      JID    PREDF, MNOM       TEST & BRANCH      6  5393                     29
258  1 57          DCW   @0Y    @      JOB    NO ACTION-DELETE  CONTROL CARD       6  5399                     29
259  1 58          DCW   @0-3016@      LDDCP  PREDF,IBM MACRO   IBM MACRO          6  5405                     30
260  1 59          DCW   @0-3016@      LDPTC  PREDF,IBM MACRO   IBM MACRO          6  5411                     30
261  1 60          DCW   @020101@      LE     BLOCK,LOOK EQ     LOOKUP EQUAL       6  5417                     30
262  1 61          DCW   @020101@      LEH    BLOCK,LOOK HI &EQ LOOK-EQ & HI       6  5423                     30
263  1 62          DCW   @0-3016@      LEVDR  PREDF,IBM MACRO   IBM MACRO          6  5429                     30
264  1 63          DCW   @0-3016@      LEVRT  PREDF,IBM MACRO   IBM MACRO          6  5435                     30
265  1 64          DCW   @020101@      LH     BLOCK,LOOK HI     LOOKUP HIGH        6  5441                     31
266  1 65          DCW   @0-3016@      LINK   PREDF,IBM MACRO   IBM MACRO          6  5447                     31
267  1 66          DCW   @020101@      LL     BLOCK,LOOK LOW    LOOKUP LOW         6  5453                     31
268  1 67          DCW   @020101@      LLE    BLOCK,LOOK LOW&EQ LOOK-LOW & EQ      6  5459                     31
269  1 68          DCW   @020101@      LLH    BLOCK,LOOK LOW&HI LOOK-LOW & HI      6  5465                     31
270  1 69          DCW   @0Y    @      LOAD   NO ACTION-DELETE  CONTROL CARD       6  5471                     31
271  1 70          DCW   @0Y    @      LTORG  NO ACTION-DELETE  LITERAL ORG        6  5477                     32
272  1 71          DCW   @T31141@      LU     I/O,LOAD UNIT     LOAD UNIT          6  5483                     32
273  1 72          DCW   @300088@      M      BLOCK,MULTIPLY    MULTIPLY           6  5489                     32
274  1 73          DCW   @0-3016@      MATH   PREDF, MNOM       IBM P/MACRO        6  5495                     32
275  1 74          DCW   @400082@      MCE    BLOCK,7OVE & EDIT MOVE & EDIT        6  5501                     32
276  1 75          DCW   @400082@      MCS    BLOCK,MOVE,OP1    MOVE-SUP ZERO      6  5507                     32
277  1 76          DCW   @0-3016@      MEND   PREDF, MNOM       IBM P/MACRO        6  5513                     33
278  1 77          DCW   @450082@      MLC    BLOCK,MOVE,OP1    MOVE LEFT          6  5519                     33
279  1 78          DCW   @450082@      MLCA   BLOCK,MOVE,OP1    MOVE LEFT          6  5525                     33
280  1 79          DCW   @450082@      MLCB   BLOCK,MOVE,OP1    MOVE LEFT          6  5531                     33
281  1 80          DCW   @450082@      MLCS   BLOCK,MOVE,OP1    MOVE LEFT          6  5537                     33
282  1 81          DCW   @450082@      MLCW   BLOCK,MOVE,OP1    MOVE LEFT          6  5543                     33
283  1 82          DCW   @450082@      MLCWA  BLOCK,MOVE,OP1    MOVE LEFT          6  5549                     34
284  1 83          DCW   @450082@      MLCWB  BLOCK,MOVEOP1     MOVE LEFT          6  5555                     34
285  1 84          DCW   @450082@      MLCWS  BLOCK,MOVE,OP1    MOVE LEFT          6  5561                     34
286  1 85          DCW   @450082@      MLN    BLOCK,MOVE,OP1    MOVE LEFT NUM      6  5567                     34
287  1 86          DCW   @450082@      MLNA   BLOCK,MOVE,OP1    MOVE LEFT NUM      6  5573                     34
288  1 87          DCW   @450082@      MLNB   BLOCK,MOVE,OP1    MOVE LEFT          6  5579                     34
289  1 88          DCW   @450082@      MLNS   BLOCK,MOVE,OP1    MOVE LEFT          6  5585                     35
290  1 89          DCW   @450082@      MLNW   BLOCK,MOVE,OP1    MOVE LEFT          6  5591                     35
291  1 90          DCW   @450082@      MLNWA  BLOCK,MOVE,OP1    MOVE LEFT NUM      6  5597                     35
292  1 91          DCW   @450082@      MLNWB  BLOCK,MOVE,OP1    MOVE LEFT          6  5603                     35
293  1 92          DCW   @450082@      MLNWS  BLOCK,MOVE,OP1    MOVE LEFT          6  5609                     35
294  1 93          DCW   @450082@      MLW    BLOCK,MOVE,OP1    MOVE LEFT          6  5615                     35
295  1 94          DCW   @450082@      MLWA   BLOCK,MOVE,OP1    MOVE LEFT          6  5621                     36
296  1 95          DCW   @450082@      MLWB   BLOCK,MOVE,OP1    MOVE LEFT          6  5627                     36
297  1 96          DCW   @450082@      MLWS   BLOCK,MOVE,OP1    MOVE LEFT          6  5633                     36
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

298  1 97          DCW   @450082@      MLZ    BLOCK,MOVE,OP1    MOVE LEFT ZON     6  5639                     36
299  1 98          DCW   @450082@      MLZA   BLOCK,MOVE,OP1    MOVE LEFT         6  5645                     36
300  1 99          DCW   @450082@      MLZB   BLOCK,MOVE,OP1    MOVE LEFT         6  5651                     36
301  2 00          DCW   @450082@      MLZS   BLOCK,MOVE,OP1    MOVE LEFT         6  5657                     37
302  2 01          DCW   @450082@      MLZW   BLOCK,MOVE,OP1    MOVE LEFT         6  5663                     37
303  2 02          DCW   @450082@      MLZWA  BLOCK,MOVE,OP1    MOVE LEFT ZON     6  5669                     37
304  2 03          DCW   @450082@      MLZWB  BLOCK,MOVE,OP1    MOVE LEFT         6  5675                     37
305  2 04          DCW   @450082@      MLZWS  BLOCK,MOVE,OP1    MOVE LEFT         6  5681                     37
306  2 05          DCW   @450082@      MRC    BLOCK,MOVE,OP1    MOVE RIGHT        6  5687                     37
307  2 06          DCW   @450082@      MRCG   BLOCK,MOVE,OP1    MOVE RIGHT        6  5693                     38
308  2 07          DCW   @450082@      MRCM   BLOCK,MOVE,OP1    MOVE RIGHT        6  5699                     38
309  2 08          DCW   @450082@      MRCR   BLOCK,MOVE,OP1    MOVE RIGHT        6  5705                     38
310  2 09          DCW   @450082@      MRCW   BLOCK,MOVE,OP1    MOVE RIGHT        6  5711                     38
311  2 10          DCW   @450082@      MRCWG  BLOCK,MOVE,OP1    MOVE RIGHT        6  5717                     38
312  2 11          DCW   @450082@      MRCWM  BLOCK,MOVE,OP1    MOVE RIGHT        6  5723                     38
313  2 12          DCW   @450082@      MRCWR  BLOCK,MOVE,OP1    MOVE RIGHT        6  5729                     39
314  2 13          DCW   @450082@      MRN    BLOCK,MOVE,OP1    MOVE RIGHT-NM     6  5735                     39
315  2 14          DCW   @450082@      MRNG   BLOCK,MOVE,OP1    MOVE RIGHT        6  5741                     39
316  2 15          DCW   @450082@      MRNM   BLOCK,MOVE,OP1    MOVE RIGHT        6  5747                     39
317  2 16          DCW   @450082@      MRNR   BLOCK,MOVE,OP1    MOVE RIGHT        6  5753                     39
318  2 17          DCW   @450082@      MRNW   BLOCK,MOVE,OP1    MOVE RIGHT-NM     6  5759                     39
319  2 18          DCW   @450082@      MRNWG  BLOCK,MOVE,OP1    MOVE RIGHT        6  5765                     40
320  2 19          DCW   @450082@      MRNWM  BLOCK,MOVE,OP1    MOVE RIGHT        6  5771                     40
321  2 20          DCW   @450082@      MRNWR  BLOCK,MOVE,OP1    MOVE RIGHT        6  5777                     40
322  2 21          DCW   @450082@      MRW    BLOCK,MOVE,OP1    MOVE RIGHT-ZN     6  5783                     40
323  2 22          DCW   @450082@      MRWG   BLOCK,MOVE,OP1    MOVE RIGHT        6  5789                     40
324  2 23          DCW   @450082@      MRWM   BLOCK,MOVE,OP1    MOVE RIGHT        6  5795                     40
325  2 24          DCW   @450082@      MRWR   BLOCK,MOVE,OP1    MOVE RIGHT        6  5801                     41
326  2 25          DCW   @450082@      MRZ    BLOCK,MOVE,OP1    MOVE RIGHT-ZN     6  5807                     41
327  2 26          DCW   @450082@      MRZG   BLOCK,MOVE,OP1    MOVE RIGHT        6  5813                     41
328  2 27          DCW   @450082@      MRZM   BLOCK,MOVE,OP1    MOVE RIGHT        6  5819                     41
329  2 28          DCW   @450082@      MRZR   BLOCK,MOVE,OP1    MOVE RIGHT        6  5825                     41
330  2 29          DCW   @450082@      MRZW   BLOCK,MOVE,OP1    MOVE RIGHT        6  5831                     41
331  2 30          DCW   @450082@      MRZWG  BLOCK,MOVE,OP1    MOVE RIGHT        6  5837                     42
332  2 31          DCW   @450082@      MRZWM  BLOCK,MOVE,OP1    MOVE RIGHT        6  5843                     42
333  2 32          DCW   @450082@      MRZWR  BLOCK,MOVE,OP1    MOVE RIGHT        6  5849                     42
334  2 33          DCW   @T31141@      MU     I/O,MOVE UNIT,OP1 MOVE UNIT         6  5855                     42
335  2 34          DCW   @0-3016@      MVRSA  PREDF,MOVE,OP1    MV REC TO STK     6  5861                     42
336  2 35          DCW   @0-3016@      NOP    PREDF, NO OP      NO OP             6  5867                     42
337  2 36          DCW   @0-3016@      NOPWM  PREDF,NO OPR      NOP W/WDMARK      6  5873                     43
338  2 37          DCW   @0Y    @      NOTE   NO ACTION-DELETE  FOR COMMENTS      6  5879                     43
339  2 38          DCW   @0-1102@      OPEN   I/O, OP1, OP2, OP3 IOCS MACRO       6  5885                     43
340  2 39          DCW   @0Y    @      ORG                      ASSMBY CNTRL      6  5891                     43
341  2 40          DCW   @041105@      P      I/O, PUNCH CARD   PUNCH A CARD      6  5897                     43
342  2 41          DCW   @0-3016@      PAUSE  PREDF,IBM MACRO   IBM MACRO         6  5903                     43
343  2 42          DCW   @021105@      PB     I/O, PUNCH BINARY PUNCH BINARY      6  5909                     44
344  2 43          DCW   @021105@      PB1O   I/O, PUNCH BINARY PUNCH BINARY      6  5915                     44
345  2 44          DCW   @021105@      PB2O   I/O, PUNCH BINARY PUNCH BINARY      6  5921                     44
346  2 45          DCW   @021105@      PB3O   I/O, PUNCH BINARY PUNCH BINARY      6  5927                     44
347  2 46          DCW   @021105@      PB4O   I/O, PUNCH BINARY PUNCH BINARY      6  5933                     44
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SEQ	PG	LIN	LABEL	OP	OPERANDS				SFX	CT	LOCN	INSTRUCTION TYPE	CARD
348	2	47		DCW	@0-3016@	PHASE	PREDF,IBM MACRO	IBM MACRO		6	5939		44
349	2	48		DCW	@0-3016@	PRSEQ	PREDF,IBM MACRO	IBM MACRO		6	5945		45
350	2	49		DCW	@0-3016@	PRTCT	PREDF,IBM MACRO	IBM MACRO		6	5951		45
351	2	50		DCW	@041106@	PSC	I/O, DISK,OP1	PREV SEEK CM		6	5957		45
352	2	51		DCW	@041106@	PSCO	I/O, DISK,OP1	PREV SEEK CM		6	5963		45
353	2	52		DCW	@0Y @	PST	NO ACTION-DELETE	ASSMBY CNTRL		6	5969		45
354	2	53		DCW	@0-1125@	PSTAC	I/O,STACK SEL OP1	SEL PNCH STK		6	5975		45
355	2	54		DCW	@0-1102@	PUT	I/O	IOCS MACRO		6	5981		46
356	2	55		DCW	@0-1102@	PUTS	PREDF, MNOM	IOCS MACRO		6	5987		46
357	2	56		DCW	@041105@	P1O	I/O,PUNCH CARD	PUNCH A CARD		6	5993		46
358	2	57		DCW	@041105@	P1W	I/O,PUNCH CARD	PUNCH A CARD		6	5999		46
359	2	58		DCW	@041105@	P1WO	I/O,PUNCH CARD	PUNCH A CARD		6	6005		46
360	2	59		DCW	@041105@	P2O	I/O,PUNCH CARD	PUNCH A CARD		6	6011		46
361	2	60		DCW	@041105@	P2W	I/O,PUNCH CARD	PUNCH A CARD		6	6017		47
362	2	61		DCW	@041105@	P2WO	I/O,PUNCH CARD	PUNCH A CARD		6	6023		47
363	2	62		DCW	@041105@	P3O	I/O,PUNCH CARD	PUNCH A CARD		6	6029		47
364	2	63		DCW	@041105@	P3W	I/O,PUNCH CARD	PUNCH A CARD		6	6035		47
365	2	64		DCW	@041105@	P3WO	I/O,PUNCH CARD	PUNCH A CARD		6	6041		47
366	2	65		DCW	@041105@	P4O	I/O,PUNCH CARD	PUNCH A CARD		6	6047		47
367	2	66		DCW	@041105@	P4W	I/O,PUNCH CARD	PUNCH A CARD		6	6053		48
368	2	67		DCW	@041105@	P4WO	I/O,PUNCH CARD	PUNCH A CARD		6	6059		48
369	2	68		DCW	@041107@	R	I/O,READ A CARD	READ CARD		6	6065		48
370	2	69		DCW	@021139@	RCP	I/O,CONS CTL, OP1	RD CONS PRNTR		6	6071		48
371	2	70		DCW	@021139@	RCPO	I/O,CONS CTL, OP1	WITH OVERLAP		6	6077		48
372	2	71		DCW	@021139@	RCPW	I/O,CONS CTL, OP1	WITH WDMARKS		6	6083		48
373	2	72		DCW	@021139@	RCPWO	I/O,CONS CTL, OP1	BOTH		6	6089		49
374	2	73		DCW	@041138@	RCR	I/O,CTL MG CHR RD	RD MAG CH RDR		6	6095		49
375	2	74		DCW	@041138@	RCRO	I/O,CTL MG CHR RD	WITH OVERLAP		6	6101		49
376	2	75		DCW	@041138@	RCRW	I/O,CTL MG CHR RD	WITH WDMARKS		6	6107		49
377	2	76		DCW	@041138@	RCRWO	I/O,CTL MG CHR RD	BOTH		6	6113		49
378	2	77		DCW	@041109@	RCY	I/O,RD DISK,OP1&2	RD CYLINDER		6	6119		49
379	2	78		DCW	@041109@	RCYG	I/O,RD DISK,OP1&2	TO END OF CYL		6	6125		50
380	2	79		DCW	@041109@	RCYGW	I/O,RD DISK,OP1&2	W/WD&GPMARKD		6	6131		50
381	2	80		DCW	@041109@	RCYO	I/O,RD DISK,OP1&2	WITH OVERLAP		6	6137		50
382	2	81		DCW	@041109@	RCYW	I/O,RD DISK,OP1&2	WITH WDMARKS		6	6143		50
383	2	82		DCW	@041109@	RCYWO	I/O,RD DISK,OP1&2	BOTH		6	6149		50
384	2	83		DCW	@041109@	RD	I/O,RD DISK,OP1&2	READ DISK		6	6155		50
385	2	84		DCW	@041109@	RDG	I/O,RD DISK,OP1&2	READ DISK		6	6161		51
386	2	85		DCW	@041109@	RDGW	I/O,RD DISK,OP1&2	READ DISK		6	6167		51
387	2	86		DCW	@0-3016@	RDLIN	PREDF, MNOM	RD LABEL INFO		6	6173		51
388	2	87		DCW	@041109@	RDO	I/O,RD DISK,OP1&2	READ DISK		6	6179		51
389	2	88		DCW	@041109@	RDT	I/O,RD DISK,OP1&2	READ DISK		6	6185		51
390	2	89		DCW	@041109@	RDTG	I/O,RD DISK,OP1&2	READ DISK		6	6191		51
391	2	90		DCW	@041109@	RDTGW	I/O,RD DISK,OP1&2	READ DISK		6	6197		52
392	2	91		DCW	@041109@	RDTO	I/O,RD DISK,OP1&2	READ DISK		6	6203		52
393	2	92		DCW	@041109@	RDTW	I/O,RD DISK,OP1&2	READ DISK		6	6209		52
394	2	93		DCW	@041109@	RDTWO	I/O,RD DISK,OP1&2	READ DISK		6	6215		52
395	2	94		DCW	@041109@	RDV	I/O,RD DISK,OP1&2	READ DISK		6	6221		52
396	2	95		DCW	@041109@	RDVG	I/O,RD DISK,OP1&2	READ DISK		6	6227		52
397	2	96		DCW	@041109@	RDVGW	I/O,RD DISK,OP1&2	READ DISK		6	6233		53

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SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

398  2 97          DCW   @041109@      RDVO   I/O,RD DISK,OP1&2 READ DISK          6  6239                     53
399  2 98          DCW   @041109@      RDVW   I/O,RD DISK,OP1&2 READ DISK          6  6245                     53
400  2 99          DCW   @041109@      RDVWO  I/O,RD DISK,OP1&2 READ DISK          6  6251                     53
401  3 00          DCW   @041109@      RDW    I/O,RD DISK,OP1&2 READ DISK          6  6257                     53
402  3 01          DCW   @041109@      RDWO   I/O,RD DISK,OP1&2 READ DISK          6  6263                     53
403  3 02          DCW   @0-3016@      REA    PREDF,                               6  6269                     54
404  3 03          DCW   @0-3016@      READ   PREDF, IBM MACRO  IBM MACRO          6  6275                     54
405  3 04          DCW   @0-3016@      REC    PREDF,IBM MACRO   IBM MACRO          6  6281                     54
406  3 05          DCW   @041145@      REL    I/O, CONTROL DISK RELEASE DISK       6  6287                     54
407  3 06          DCW   @041145@      RELO   I/O, CONTROL DISK RELEASE DISK       6  6293                     54
408  3 07          DCW   @0-3016@      RELSE  PREDF, MNOM       RELESE BLOCK       6  6299                     54
409  3 08          DCW   @0Y    @      RESEQ  I/O, CONTROL DISK CONTROL CARD       6  6305                     55
410  3 09          DCW   @041109@      RFT    I/O,RD DISK,OP1&2 READ DISK          6  6311                     55
411  3 10          DCW   @041109@      RFTG   I/O,RD DISK,OP1&2 READ DISK          6  6317                     55
412  3 11          DCW   @041109@      RFTGW  I/O,RD DISK,OP1&2 READ DISK          6  6323                     55
413  3 12          DCW   @041109@      RFTO   I/O,RD DISK,OP1&2 READ DISK          6  6329                     55
414  3 13          DCW   @041109@      RFTW   I/O,RD DISK,OP1&2 READ DISK          6  6335                     55
415  3 14          DCW   @041109@      RFTWO  I/O,RD DISK,OP1&2 READ DISK          6  6341                     56
416  3 15          DCW   @041109@      RHA    I/O,RD DISK,OP1&2 READ DISK          6  6347                     56
417  3 16          DCW   @041109@      RHAG   I/O,RD DISK,OP1&2 READ DISK          6  6353                     56
418  3 17          DCW   @041109@      RHAGW  I/O,RD DISK,OP1&2 READ DISK          6  6359                     56
419  3 18          DCW   @041109@      RHAO   I/O,RD DISK,OP1&2 READ DISK          6  6365                     56
420  3 19          DCW   @041109@      RHAW   I/O,RD DISK,OP1&2 READ DISK          6  6371                     56
421  3 20          DCW   @041109@      RHAWO  I/O,RD DISK,OP1&2 READ DISK          6  6377                     57
422  3 21          DCW   @041111@      RL     I/O,RD TELE,OP1&2 READ TELEGRAP      6  6383                     57
423  3 22          DCW   @041111@      RLO    I/O,RD TELE,OP1&2 READ TELEGRAP      6  6389                     57
424  3 23          DCW   @041111@      RLW    I/O,RD TELEGRAPH  RD TELE            6  6395                     57
425  3 24          DCW   @041111@      RLWO   I/O,RD TELEGRAPH  RD TELE            6  6401                     57
426  3 25          DCW   @041113@      RPT    I/O,RD P/TP,OP1&2 RD PAPER TAPE      6  6407                     57
427  3 26          DCW   @041113@      RPTO   I/O,RD P/TP,OP1&2 RD PAPER TAPE      6  6413                     58
428  3 27          DCW   @041113@      RPTW   I/O,RD P/TP,OP1&2 RD PAPER TAPE      6  6419                     58
429  3 28          DCW   @041113@      RPTWO  I/O,RD P/TP,OP1&2 RD PAPER TAPE      6  6425                     58
430  3 29          DCW   @041114@      RQ     I/O,INQ REQ,OP1&2 READ INQUIRY       6  6431                     58
431  3 30          DCW   @041114@      RQO    I/O,INQ REQ,OP1&2 RD OUTQUIRY        6  6437                     58
432  3 31          DCW   @041114@      RQW    I/O,INQ REQ,OP1&2 WITH WDMARKS       6  6443                     58
433  3 32          DCW   @041114@      RQWO   I/O,INQ REQ,OP1&2 WITH OVERLAP       6  6449                     59
434  3 33          DCW   @021116@      RSCPU  I/O,REST STAT,OP1 REST CPU ST I      6  6455                     59
435  3 34          DCW   @0-3016@      RSV    PREDF,IBM MACRO   IBM MACRO          6  6461                     59
436  3 35          DCW   @041117@      RT     I/O,RD TAPE,OP1&2 READ TAPE          6  6467                     59
437  3 36          DCW   @0-1134@      RTAPE  I/O,RD TAPE MACRO RD TP MCARO        6  6473                     59
438  3 37          DCW   @041117@      RTB    I/O,RD TAPE,OP1&2 & BINARY           6  6479                     59
439  3 38          DCW   @041117@      RTBG   I/O,RD TAPE,OP1&2 TO IRG/END CR      6  6485                     60
440  3 39          DCW   @041117@      RTBGW  I/O,RD TAPE,OP1&2 WITH WDMARKS       6  6491                     60
441  3 40          DCW   @041117@      RTBO   I/O,RD TAPE,OP1&2 WITH OVERLAP       6  6497                     60
442  3 41          DCW   @041117@      RTBW   I/O,RD TAPE,OP1&2 WITH WDMARKS       6  6503                     60
443  3 42          DCW   @041117@      RTBWO  I/O,RD TAPE,OP1&2 BOTH               6  6509                     60
444  3 43          DCW   @041117@      RTD    I/O,RD TAPE,OP1&2 RD DATA TRANS      6  6515                     60
445  3 44          DCW   @041117@      RTDO   I/O,RD TAPE,OP1&2 WITH OVERLAP       6  6521                     61
446  3 45          DCW   @041117@      RTDW   I/O,RD TAPE,OP1&2 WITH WDMARKS       6  6527                     61
447  3 46          DCW   @041117@      RTDWO  I/O,RD TAPE,OP1&2 BOTH               6  6533                     61
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

448  3 47          DCW   @041117@      RTG    I/O,RD TAPE,OP1&2 TO IRS/END CR     6  6539                    61
449  3 48          DCW   @041117@      RTGW   I/O,RD TAPE,OP1&2 WITH WDMARKS      6  6545                    61
450  3 49          DCW   @0-1132@      RTLBL  I/O,RD LABEL,OP1  RD LABEL          6  6551                    61
451  3 50          DCW   @041117@      RTO    I/O,RD TAPE,OP1&2 RD TP-OVERLAP     6  6557                    62
452  3 51          DCW   @041117@      RTR    I/O,RD DISK,OP1&2 RD DISK ADD       6  6563                    62
453  3 52          DCW   @041117@      RTRG   I/O,RD DISK,OP1&2 TO END TRACK      6  6569                    62
454  3 53          DCW   @041117@      RTRGW  I/O,RD DISK,OP1&2 WITH WDMARKS      6  6575                    62
455  3 54          DCW   @041117@      RTRO   I/O,RD DISK,OP1&2 RD DISK           6  6581                    62
456  3 55          DCW   @041117@      RTRW   I/O,RD TAPE,OP1&2 WITH WDMARKS      6  6587                    62
457  3 56          DCW   @041117@      RTRWO  I/O,RD TAPE,OP1&2 BOTH              6  6593                    63
458  3 57          DCW   @041117@      RTW    I/O,RD TAPE,OP1&2 RD TP-WDMARKS     6  6599                    63
459  3 58          DCW   @041117@      RTWO   I/O,RD TAPE,OP1&2 AND OVERLAP       6  6605                    63
460  3 59          DCW   @0Y    @      RUN    NO ACTION-DELETE  CONTROL CARD      6  6611                    63
461  3 60          DCW   @041119@      RWD    I/O, RWIND TP OP1 REWIND TAPE       6  6617                    63
462  3 61          DCW   @041143@      RWU    I/O, RWIND TP OP1 AND UNLOAD        6  6623                    63
463  3 62          DCW   @041107@      R1O    I/O, READ A CARD  STACKER SELCT     6  6629                    64
464  3 63          DCW   @041107@      R1W    I/O, READ A CARD  STACKER SELCT     6  6635                    64
465  3 64          DCW   @041107@      R1WO   I/O, READ A CARD  STACKER SELCT     6  6641                    64
466  3 65          DCW   @041107@      R2O    I/O, READ A CARD  STACKER SELCT     6  6647                    64
467  3 66          DCW   @041107@      R2W    I/O, READ A CARD  STACKER SELCT     6  6653                    64
468  3 67          DCW   @041107@      R2WO   I/O, READ A CARD  STACKER SELCT     6  6659                    64
469  3 68          DCW   @041107@      R3O    I/O, READ A CARD  STACKER SELCT     6  6665                    65
470  3 69          DCW   @041107@      R3W    I/O, READ A CARD  STACKER SELCT     6  6671                    65
471  3 70          DCW   @041107@      R3WO   I/O, READ A CARD  STACKER SELCT     6  6677                    65
472  3 71          DCW   @041107@      R4O    I/O, READ A CARD  STACKER SELCT     6  6683                    65
473  3 72          DCW   @041107@      R4W    I/O, READ A CARD  STACKER SELCT     6  6689                    65
474  3 73          DCW   @041107@      R4WO   I/O, READ A CARD  STACKER SELCT     6  6695                    65
475  3 74          DCW   @300086@      S      BLOCK,SUBTRACT    SUBTRACT          6  6701                    66
476  3 75          DCW   @041146@      SAI    I/O,SET ACC INOP  SET ACC INOPT     6  6707                    66
477  3 76          DCW   @041146@      SAIO   I/O,SET ACC INOP  WITH OVERLAP      6  6713                    66
478  3 77          DCW   @022149@      SAR    MODIFY ADDRESS    STORE REGISTE     6  6719                    66
479  3 78          DCW   @522149@      SBR    MODIFY, MODFY ADD STORE ADD         6  6725                    66
480  3 79          DCW   @041120@      SCK    I/O CONTROL OP1   CTL HYPERTAPE     6  6731                    66
481  3 80          DCW   @041120@      SCKO   I/O CONTROL OP1   WITH OVERLAP      6  6737                    67
482  3 81          DCW   @041120@      SCL    I/O CONTROL OP1   CTL HYPERTAPE     6  6743                    67
483  3 82          DCW   @041120@      SCLO   I/O CONTROL OP1   WITH WDMK&OVL     6  6749                    67
484  3 83          DCW   @041120@      SCM    I/O CONTROL OP1   CTL HYPERTAPE     6  6755                    67
485  3 84          DCW   @041120@      SCMO   I/O CONTROL OP1   WITH OVERLAP      6  6761                    67
486  3 85          DCW   @020089@      SCNL   BLOCK, SCAN  OP1  SCAN LEFT         6  6767                    67
487  3 86          DCW   @020089@      SCNLA  BLOCK,SCAN OP1    SCAN LEFT         6  6773                    68
488  3 87          DCW   @420089@      SCNLB  BLOCK, SCAN OP1   LEFT THRU BWM     6  6779                    68
489  3 88          DCW   @020089@      SCNLS  BLOCK,SCAN OP1    SCAN LEFT         6  6785                    68
490  3 89          DCW   @020089@      SCNR   BLOCK,SCAN OP1    SCAN RIGHT        6  6791                    68
491  3 90          DCW   @020089@      SCNRG  BLOCK,SCAN OP1    SCAN RIGHT        6  6797                    68
492  3 91          DCW   @020089@      SCNRM  BLOCK, SCAN OP1   RGHT THRU GWM     6  6803                    68
493  3 92          DCW   @020089@      SCNRR  BLOCK, SCAN OP1   RGHT THRU A|      6  6809                    69
494  3 93          DCW   @020089@      SCNRS  BLOCK,SCAN OP1    SCAN RIGHT        6  6815                    69
495  3 94          DCW   @041109@      SD     I/O,DSK OP1 FR 2  SEEK DISK         6  6821                    69
496  3 95          DCW   @041121@      SDE    I/O,DSK OP1 FR 2  SCAN DSK-EQ       6  6827                    69
497  3 96          DCW   @041121@      SDEO   I/O,DSK OP1 FR 2  WITH OVERLAP      6  6833                    69
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

498  3 97          DCW   @041121@      SDEW   I/O,DSK OP1 FR 2  WITH WDMARKS      6  6839                        69
499  3 98          DCW   @041121@      SDEWO  I/O,DSK OP1 FR 2  BOTH              6  6845                        70
500  3 99          DCW   @041121@      SDH    I/O,DSK OP1 FR 2  SCN DSK-HI/EQ     6  6851                        70
501  4 00          DCW   @041121@      SDHO   I/O,DSK OP1 FR 2  WITH OVERLAP      6  6857                        70
502  4 01          DCW   @041121@      SDHW   I/O,DSK OP1 FR 2  WITH WDMARKS      6  6863                        70
503  4 02          DCW   @041121@      SDHWO  I/O,DSK OP1 FR 2  BOTH              6  6869                        70
504  4 03          DCW   @041121@      SDL    I/O,DSK OP1 FR 2  SCN DSK-LO/EQ     6  6875                        70
505  4 04          DCW   @041121@      SDLO   I/O,DSK OP1 FR 2  WITH OVERLAP      6  6881                        71
506  4 05          DCW   @041121@      SDLW   I/O,DSK OP1 FR 2  WITH WDMARKS      6  6887                        71
507  4 06          DCW   @041121@      SDLWO  I/O,DSK OP1 FR 2  BOTH              6  6893                        71
508  4 07          DCW   @041106@      SDO    I/O,CONTROL DISK  SK DSK OVERLP     6  6899                        71
509  4 08          DCW   @022149@      SER    MODIFY,MODFY ADD  STORE ADD         6  6905                        71
510  4 09          DCW   @041122@      SFA    I/O,STR ADD,OP1&2 STOR FILE ADD     6  6911                        71
511  4 10          DCW   @041122@      SFAO   I/O,STR ADD,OP1&2 WITH OVERLAP      6  6917                        72
512  4 11          DCW   @041122@      SFAW   I/O,STR ADD,OP1&2 WITH WDMARKS      6  6923                        72
513  4 12          DCW   @041122@      SFAWO  I/O,STR ADD,OP1&2 BOTH              6  6929                        72
514  4 13          DCW   @022149@      SFR    MODIFY ADDRESS    STORE ADD         6  6935                        72
515  4 14          DCW   @0Y    @      SFX    NO ACTION-DELETE  CONTROL CARD      6  6941                        72
516  4 15          DCW   @0-1101@      SKIP   I/O,CARRIAGE CTL  CARR CTL MACR     6  6947                        72
517  4 16          DCW   @041123@      SKP    I/O,SKP/BLK,OP1&2 ERASE FORWARD     6  6953                        73
518  4 17          DCW   @0-3016@      SNAP   PREDF,IBM MACRO   IBM MACRO         6  6959                        73
519  4 18          DCW   @0-3016@      SPEND  I/O,IBM MACRO     IBM MACRO         6  6965                        73
520  4 19          DCW   @011131@      SR     I/O, STR STATUS   STORE STATUS      6  6971                        73
521  4 20          DCW   @0-3016@      SRDO   PREDF,                              6  6977                        73
522  4 21          DCW   @041124@      SRK    I/O,RD DEVI,OP1&2 READ DEVICE       6  6983                        73
523  4 22          DCW   @041124@      SRKG   I/O,RD DEVI,OP1&2 READ DEVICE       6  6989                        74
524  4 23          DCW   @041124@      SRKO   I/O,RD DEVI,OP1&2 READ DEVICE       6  6995                        74
525  4 24          DCW   @041124@      SRL    I/O,RD DEVI,OP1&2 READ DEVICE       6  7001                        74
526  4 25          DCW   @041124@      SRLG   I/O,RD DEVI,OP1&2 READ DEVICE       6  7007                        74
527  4 26          DCW   @041124@      SRLO   I/O,RD DEVI,OP1&2 READ DEVICE       6  7013                        74
528  4 27          DCW   @041124@      SRM    I/O,RD DEVI,OP1&2 READ DEVICE       6  7019                        74
529  4 28          DCW   @041124@      SRMG   I/O,RD DEVI,OP1&2 READ DEVICE       6  7025                        75
530  4 29          DCW   @041124@      SRMO   I/O,RD DEVI,OP1&2 READ DEVICE       6  7031                        75
531  4 30          DCW   @011125@      SS     I/O,STK SEL       STCK MAG CHR      6  7037                        75
532  4 31          DCW   @011125@      SSF    I/O,STK SEL,OP1   STCK SLCT & R     6  7043                        75
533  4 32          DCW   @041126@      SSK    I/O,SENS DEVIC,1&2SENSE DEVICE      6  7049                        75
534  4 33          DCW   @041126@      SSKO   I/O,SENS DEVIC,1&2SENSE DEVICE      6  7055                        75
535  4 34          DCW   @041126@      SSL    I/O,SENS DEVIC,1&2SENSE DEVICE      6  7061                        76
536  4 35          DCW   @041126@      SSLO   I/O,SENS DEVIC,1&2SENSE DEVICE      6  7067                        76
537  4 36          DCW   @041126@      SSM    I/O,SENS DEVIC,1&2SENSE DEVICE      6  7073                        76
538  4 37          DCW   @041126@      SSMO   I/O,SENS DEVIC,1&2SENSE DEVICE      6  7079                        76
539  4 38          DCW   @0-1125@      STACK  I/O,STACK SEL MACRSS MACRO          6  7085                        76
540  4 39          DCW   @011131@      STATS  I/O,STORE STATUS  STORE STATUS      6  7091                        76
541  4 40          DCW   @041127@      STC    I/O,STR TM CLOCK  STR TIME CLK      6  7097                        77
542  4 41          DCW   @021131@      STCPU  I/O,SET STATUS OP1 STR CPU STAT     6  7103                        77
543  4 42          DCW   @0-3016@      STD    PREDF,IBM MACRO   IBM MACRO         6  7109                        77
544  4 43          DCW   @0-3016@      STDIO  PREDF,UBM MACRO   IBM MACRO         6  7115                        77
545  4 44          DCW   @000090@      SW     BLOCK, SET OP1    SET WM            6  7121                        77
546  4 45          DCW   @041128@      SWK    I/O,WT DEVI, OP1&2 WRITE DEVICE     6  7127                        77
547  4 46          DCW   @041128@      SWKE   I/O,WT DEVI, OP1& WRITE DEVICE      6  7133                        78
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

548  4 47          DCW   @041128@      SWKO   I/O,WT DEVI, OP1& WRITE DEVICE      6  7139                    78
549  4 48          DCW   @041128@      SWL    I/O,WT DEVI,OP1&2 WRITE DEVICE      6  7145                    78
550  4 49          DCW   @041128@      SWLE   I/O,WT DEVI,OP1&2 WRITE DEVICE      6  7151                    78
551  4 50          DCW   @041128@      SWLO   I/O, WT DEVI, OP1, & OP2            6  7157                    78
552  4 51          DCW   @041128@      SWM    I/O,WT DEVI,OP1&2 WRITE DEVICE      6  7163                    78
553  4 52          DCW   @041128@      SWME   I/O,WT DEVI,OP1&2 WRITE DEVICE      6  7169                    79
554  4 53          DCW   @041128@      SWMO   I/O,WT DEVI,OP1&2 WRITE DEVICE      6  7175                    79
555  4 54          DCW   @0-3016@      TITLE  PREDF,IBM MACRO   IBM MACRO         6  7181                    79
556  4 55          DCW   @0-3016@      TPDIR  PREDF, IBM MACRO  IBM MACRO         6  7187                    79
557  4 56          DCW   @0-3016@      UNCTL  PREDF,IBM MACRO   IBM MACRO         6  7193                    79
558  4 57          DCW   @041129@      W      I/O,WRITE A LINE  WRITE LINE        6  7199                    79
559  4 58          DCW   @0-3016@      WAITS  PREDF, MNOM       IBM MACRO         6  7205                    80
560  4 59          DCW   @041140@      WCP    I/O,CONS CTL,OP1  WT CONS PRTR      6  7211                    80
561  4 60          DCW   @041140@      WCPO   I/O,CONS CTL,OP1  WITH OVERLAP      6  7217                    80
562  4 61          DCW   @041140@      WCPW   I/O,CONS CTL,OP1  WITH WDMARKS      6  7223                    80
563  4 62          DCW   @041140@      WCPWO  I/O,CONS CTL,OP1  BOTH              6  7229                    80
564  4 63          DCW   @041110@      WCY    I/O,WT DISK,OP1&2 WT CYLINDER       6  7235                    80
565  4 64          DCW   @041110@      WCYE   I/O,WT DISK,OP1&2 TO END            6  7241                    81
566  4 65          DCW   @041110@      WCYEW  I/O,WT DISK,OP1&2 WITH WDMARKS      6  7247                    81
567  4 66          DCW   @041110@      WCYO   I/O,WT DISK,OP1&2 WITH OVERLAP      6  7253                    81
568  4 67          DCW   @041110@      WCYW   I/O,WT DISK,OP1&2 WITH WDMARKS      6  7259                    81
569  4 68          DCW   @041110@      WCYWO  I/O,WT DISK,OP1&2 BOTH              6  7265                    81
570  4 69          DCW   @041110@      WD     I/O,WT DISK,OP1&2 WRITE DISK        6  7271                    81
571  4 70          DCW   @041110@      WDC    I/O,WT DISK,OP1&2 WRITE DISK        6  7277                    82
572  4 71          DCW   @041110@      WDCE   I/O,WT DISK,OP1&2 WRITE DISK        6  7283                    82
573  4 72          DCW   @041110@      WDCEW  I/O,WT DISK,OP1&2 WRITE DISK        6  7289                    82
574  4 73          DCW   @041110@      WDCO   I/O,WT DISK,OP1&2 WRITE DISK        6  7295                    82
575  4 74          DCW   @041110@      WDCW   I/O,WT DISK,OP1&2 WRITE DISK        6  7301                    82
576  4 75          DCW   @041110@      WDCWO  I/O,WT DISK,OP1&2 WRITE DISK        6  7307                    82
577  4 76          DCW   @041110@      WDE    I/O,WT DISK,OP1&2 WRITE DISK        6  7313                    83
578  4 77          DCW   @041110@      WDEW   I/O,WT DISK,OP1&2 WRITE DISK        6  7319                    83
579  4 78          DCW   @041110@      WDO    I/O,WT DISK,OP1&2 WRITE DISK        6  7325                    83
580  4 79          DCW   @041110@      WDT    I/O,WT DISK,OP1&2 WRITE DISK        6  7331                    83
581  4 80          DCW   @041110@      WDTE   I/O,WT DISK,OP1&2 WRITE DISK        6  7337                    83
582  4 81          DCW   @041110@      WDTEW  I/O,WT DISK,OP1&2 WRITE DISK        6  7343                    83
583  4 82          DCW   @041110@      WDTO   I/O,WT DISK,OP1&2 WRITE DISK        6  7349                    84
584  4 83          DCW   @041110@      WDTV   I/O,WT DISK,OP1&2 WRITE DISK        6  7355                    84
585  4 84          DCW   @041110@      WDTW   I/O,WT DISK,OP1&2 WRITE DISK        6  7361                    84
586  4 85          DCW   @041110@      WDTWO  I/O,WT DISK,OP1&2 WRITE DISK        6  7367                    84
587  4 86          DCW   @041110@      WDV    I/O,WT DISK,OP1&2 WTIRE DISK        6  7373                    84
588  4 87          DCW   @041110@      WDVE   I/O,WT DISK,OP1&2 WRITE DISK        6  7379                    84
589  4 88          DCW   @041110@      WDVEW  I/O,WT DISK,OP1&2 WRITE DISK        6  7385                    85
590  4 89          DCW   @041110@      WDVO   I/O,WT DISK,OP1&2 WRITE DISK        6  7391                    85
591  4 90          DCW   @041110@      WDVW   I/O,WT DISK,OP1&2 WRITE DISK        6  7397                    85
592  4 91          DCW   @041110@      WDVWO  I/O,WT DISK,OP1&2 WRITE DISK        6  7403                    85
593  4 92          DCW   @041110@      WDW    I/O,WT DISK,OP1&2 WRITE DISK        6  7409                    85
594  4 93          DCW   @041110@      WDWO   I/O,WT DISK,OP1&2 WRITE DISK        6  7415                    85
595  4 94          DCW   @041110@      WFO    I/O,WT DISK,OP1&2 WRITE DISK        6  7421                    86
596  4 95          DCW   @041110@      WFOE   I/O,WT DISK,OP1&2 WRITE DISK        6  7427                    86
597  4 96          DCW   @041110@      WFOO   I/O,WT DISK,OP1&2 WRITE DISK        6  7433                    86
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SEQ	PG	LIN	LABEL	OP	OPERANDS				SFX	CT	LOCN	INSTRUCTION TYPE	CARD
598	4	97		DCW	@041110@	WFT	I/O,WT DISK,OP1&2	WRITE DISK		6	7439		86
599	4	98		DCW	@041110@	WFTE	I/O,WT DISK,OP1&2	WRITE DISK		6	7445		86
600	4	99		DCW	@041110@	WFTEW	I/O,WT DISK,OP1&2	WRITE DISK		6	7451		86
601	5	00		DCW	@041110@	WFTO	I/O,WT DISK,OP1&2	WRITE DISK		6	7457		87
602	5	01		DCW	@041110@	WFTW	I/O,WT DISK,OP1&2	WRITE DISK		6	7463		87
603	5	02		DCW	@041110@	WFTWO	I/O,WT DISK,OP1&2	WRITE DISK		6	7469		87
604	5	03		DCW	@041110@	WHA	I/O,WT DISK,OP1&2	WRITE DISK		6	7475		87
605	5	04		DCW	@041110@	WHAE	I/O,WT DISK,OP1&2	WRITE DISK		6	7481		87
606	5	05		DCW	@041110@	WHAEW	I/O,WT DISK,OP1&2	WRITE DISK		6	7487		87
607	5	06		DCW	@041110@	WHAO	I/O,WT DISK,OP1&2	WRITE DISK		6	7493		88
608	5	07		DCW	@041110@	WHAW	I/O,WT DISK,OP1&2	WRITE DISK		6	7499		88
609	5	08		DCW	@041110@	WHAWO	I/O,WT DISK,OP1&2	WRITE DISK		6	7505		88
610	5	09		DCW	@041112@	WL	I/O,WT TELE,OP1&2	WT TELEGRAPH		6	7511		88
611	5	10		DCW	@041112@	WLO	I/O,WT TELE,OP1&2	WT TELEGRAPH		6	7517		88
612	5	11		DCW	@041112@	WLW	I/O, MNON, OP1,2	WT TELEGRAPH		6	7523		88
613	5	12		DCW	@041112@	WLWO	I/O, MNON, OP1,2	WT TELEGRAPH		6	7529		89
614	5	13		DCW	@041129@	WM	I/O, MNON, OP1	PRINT WITH WM		6	7535		89
615	5	14		DCW	@041129@	WMO	I/O, MNON, OP1	PRINT WITH WM		6	7541		89
616	5	15		DCW	@0-3016@	WMZ	PREDF,			6	7547		89
617	5	16		DCW	@0-3016@	WM2	PREDF,			6	7553		89
618	5	17		DCW	@041115@	WQ	I/O,INQ REQ OP1&2	WT INQ RESP		6	7559		89
619	5	18		DCW	@041115@	WQO	I/O,INQ REQ OP1&2	WT INQ RESP		6	7565		90
620	5	19		DCW	@041115@	WQW	I/O,INQ REQ OP1&2	WT INQ RESP		6	7571		90
621	5	20		DCW	@041115@	WQWO	I/O,INQ REQ OP1&2	WT INQ RESP		6	7577		90
622	5	21		DCW	@0-1010@	WRITE	I/O,IBM MACRO	IBM MACRO		6	7583		90
623	5	22		DCW	@041118@	WT	I/O,WT TAPE,OP1&2	WRITE TAPE		6	7589		90
624	5	23		DCW	@0-1135@	WTAPE	I/O,WT TAPE MACRO	WT TP MACRO		6	7595		90
625	5	24		DCW	@041118@	WTB	I/O,WT TAPE,OP1&2	BINARY		6	7601		91
626	5	25		DCW	@041118@	WTBE	I/O,WT TAPE,OP1&2	TO END CORE		6	7607		91
627	5	26		DCW	@041118@	WTBEW	I/O,WT TAPE,OP1&2	WITH WDMARKS		6	7613		91
628	5	27		DCW	@041118@	WTBO	I/O,WT TAPE,OP1&2	WITH OVERLAP		6	7619		91
629	5	28		DCW	@041118@	WTBW	I/O,WT TAPE,OP1&2	WITH WDMARKS		6	7625		91
630	5	29		DCW	@041118@	WTBWO	I/O,WD TAPE,OP1&2	WRITE TAPE BI		6	7631		91
631	5	30		DCW	@041118@	WTD	I/O,WD TAPE,OP1&2	WT DATA TRANS		6	7637		92
632	5	31		DCW	@041118@	WTDO	I/O,WD TAPE,OP1&2	WITH OVERLAP		6	7643		92
633	5	32		DCW	@041118@	WTDW	I/O,WD TAPE,OP1&2	WITH WDMARKS		6	7649		92
634	5	33		DCW	@041118@	WTDWO	I/O,WD TAPE,OP1&2	BOTH		6	7655		92
635	5	34		DCW	@041118@	WTE	I/O,WD TAPE,OP1&2	WT TAPE-END		6	7661		92
636	5	35		DCW	@041118@	WTEW	I/O,WD TAPE,OP1&2	WITH WDMARKS		6	7667		92
637	5	36		DCW	@0-1133@	WTLBL	I/O,WT LABEL	WR TAPE LABEL		6	7673		93
638	5	37		DCW	@041130@	WTM	I/O,WT TPMARK,OP1	WT TAPE MARK		6	7679		93
639	5	38		DCW	@041130@	WTMO	I/O,WT DISK,OP1	WT DISK		6	7685		93
640	5	39		DCW	@041130@	WTO	I/O,WT TPMARK,OP1	WT TAPE-OVLAP		6	7691		93
641	5	40		DCW	@041110@	WTR	I/O,WT DISK,OP1	WT TRACK REC		6	7697		93
642	5	41		DCW	@041110@	WTRE	I/O,WT DISK,OP1	TO END		6	7703		93
643	5	42		DCW	@041110@	WTREW	I/O,WT DISK,OP1	WITH WDMARKS		6	7709		94
644	5	43		DCW	@041110@	WTRO	I/O,WT DISK,OP1	WITH OVERLAP		6	7715		94
645	5	44		DCW	@041110@	WTRW	I/O,WRITE DISP OP1	DISK W/WMS		6	7721		94
646	5	45		DCW	@041110@	WTRWO	I/O,WT DISK,OP1	BOTH		6	7727		94
647	5	46		DCW	@041110@	WTW	I/O,WT DISK,OP1	WT TRACK W/WM		6	7733		94

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SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

648  5 47          DCW   @041110@      WTWO   I/O,WT DISK,OP1   WITH OVERLAP      6  7739                    94
649  5 48          DCW   @041129@      W1M    I/O, MNON, OP1    PRINT A LINE      6  7745                    95
650  5 49          DCW   @041129@      W1MO   I/O, MNON, OP1    PRINT A LINE      6  7751                    95
651  5 50          DCW   @041129@      W1O    I/O, MNON, OP1    PRINT A LINE      6  7757                    95
652  5 51          DCW   @041129@      W1W    I/O, MNON, OP1    PRINT A LINE      6  7763                    95
653  5 52          DCW   @041129@      W1WO   I/O, MNON, OP1    PRINT A LINE      6  7769                    95
654  5 53          DCW   @041129@      W2M    I/O, MNON, OP1    PRINT A LINE      6  7775                    95
655  5 54          DCW   @041129@      W2MO   I/O, MNON, OP1    PRINT A LINE      6  7781                    96
656  5 55          DCW   @041129@      W2O    I/O, MNON, OP1    PRINT A LINE      6  7787                    96
657  5 56          DCW   @041129@      W2W    I/O, MNON, OP1    PRINT A LINE      6  7793                    96
658  5 57          DCW   @041129@      W2WO   I/O, MNON, OP1    PRINT A LINE      6  7799                    96
659  5 58          DCW   @041129@      W3M    I/O, MNON, OP1    PRINT A LINE      6  7805                    96
660  5 59          DCW   @041129@      W3MO   I/O, MNON, OP1    PRINT A LINE      6  7811                    96
661  5 60          DCW   @041129@      W3O    I/O, MNON, OP1    PRINT A LINE      6  7817                    97
662  5 61          DCW   @041129@      W3W    I/O, MNON, OP1    PRINT A LINE      6  7823                    97
663  5 62          DCW   @041129@      W3WO   I/O, MNON, OP1    PRINT A LINE      6  7829                    97
664  5 63          DCW   @041129@      W4M    I/O, MNON, OP1    PRINT A LINE      6  7835                    97
665  5 64          DCW   @041129@      W4MO   I/O, MNON, OP1    PRINT A LINE      6  7841                    97
666  5 65          DCW   @041129@      W4O    I/O, MNON, OP1    PRINT A LINE      6  7847                    97
667  5 66          DCW   @041129@      W4W    I/O, MNON, OP1    PRINT A LINE      6  7853                    98
668  5 67          DCW   @041129@      W4WO   I/O, MNON, OP1    PRINT A LINE      6  7859                    98
669  5 68          DCW   @0Y    @      XFR    NO ACTION-DELETE                    6  7865                    98
670  5 69          DCW   @300083@      ZA     BLOCK,ZERO & ADD  ZERO & ADD        6  7871                    98
671  5 70          DCW   @300084@      ZS     BLOCK, ZERO & SUBTZERO & SUB        6  7877                    98
672  5 71   LOW   EQU   OPTABL-5            FOR PASS 1 DICTIONARIES                 4500
673  5 72   START EQU   813                 START ADDRESS                           0813
674  5 73   HIGH  EQU   *&1                 HIGH POSITION FOR $ADD CARD             7878
675  5 74          END   START                                                         / 813 080          99
```


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658  5 57          DCW   @041129@      W2WO   I/O, MNON, OP1    PRINT A LINE      6  7799                    96           *****
659  5 58          DCW   @041129@      W3M    I/O, MNON, OP1    PRINT A LINE      6  7805                    96
660  5 59          DCW   @041129@      W3MO   I/O, MNON, OP1    PRINT A LINE      6  7811                    96
661  5 60          DCW   @041129@      W3O    I/O, MNON, OP1    PRINT A LINE      6  7817                    97
662  5 61          DCW   @041129@      W3W    I/O, MNON, OP1    PRINT A LINE      6  7823                    97
663  5 62          DCW   @041129@      W3WO   I/O, MNON, OP1    PRINT A LINE      6  7829                    97
664  5 63          DCW   @041129@      W4M    I/O, MNON, OP1    PRINT A LINE      6  7835                    97
665  5 64          DCW   @041129@      W4MO   I/O, MNON, OP1    PRINT A LINE      6  7841                    97
666  5 65          DCW   @041129@      W4O    I/O, MNON, OP1    PRINT A LINE      6  7847                    97
667  5 66          DCW   @041129@      W4W    I/O, MNON, OP1    PRINT A LINE      6  7853                    98
668  5 67          DCW   @041129@      W4WO   I/O, MNON, OP1    PRINT A LINE      6  7859                    98
669  5 68          DCW   @0Y    @      XFR    NO ACTION-DELETE                    6  7865                    98
670  5 69          DCW   @300083@      ZA     BLOCK,ZERO & ADD  ZERO & ADD        6  7871                    98
671  5 70          DCW   @300084@      ZS     BLOCK, ZERO & SUBTZERO & SUB        6  7877                    98
672  5 71   LOW   EQU   OPTABL-5            FOR PASS 1 DICTIONARIES                 4500
673  5 72   START EQU   813                 START ADDRESS                           0813
```

```
CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                    1           4CHRD
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?  2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040  3

                          1620/1710 DICTIONARY - PASS 1                        4CHRD           PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    10   000    JOB   1620/1710 DICTIONARY - PASS 1
 102    20          CTL   440
 103    30          DCW   @$ADD     @         CARDS COMMON TO ALL DICTIONARIES     9  0341                    4
 104    40          DSA   LOW                 --REQUIRED TO                        3  0344  50|               4
 105    50          DSA   START               --GENERATE THE APPROPRIATE           3  0347  813               4
 106    60          DSA   HIGH                --$ADD CARD                          3  0350  Z2Y               4
 107    70          DCW   @040565@           ASSEMBLY DATE                         6  0356                    4
 108    80   0      ORG   4500                                                              4500
 109    90   OPTABL DCW   @090025@      A    BLOCK FOR ADD                         6  4505                    5
 110  1 00          DCW   @090025@      AM   BLOCK FOR ADD M                       6  4511                    5
 111  1 10          DCW   @090310@      ANDF  BLOCK,EDIT OP1     AND TO FIELD      6  4517                    5
 112  1 20          DCW   @09V001@      B     GOTO OP1           UNCOND BR         6  4523                    5
 113  1 30          DCW   @094074@      BA     BR  ANY DATA CHECK                  6  4529                    5
 114  1 40          DCW   @094038@      BANS DECID,YES,OP1    BR BAND A NSEL       6  4535                    5
 115  1 50          DCW   @09U000@      BB    EXIT               UNCOND RTN BR     6  4541                    6
 116  1 60          DCW   @094040@      BBAS DECID,YES,OP1    BR BAND A SEL        6  4547                    6
 117  1 70          DCW   @094041@      BBBS DECID,YES,OP1    BR BAND B SEL        6  4553                    6
 118  1 80          DCW   @094039@      BBNS DECID,YES,OP1    BR BAND B NSEL       6  4559                    6
 119  1 90          DCW   @094048@      BBT  DECID,YES,OP1    BR BITS EQUAL        6  4565                    6
 120  2 00          DCW   @0-U000@      BB2   EXIT               UNCOND RTN BR     6  4571                    6
 121  2 10          DCW   @094154@      BCB    SIOC-1710                           6  4577                    7
 122  2 20          DCW   @094055@      BCH9      BR ON CH 9                       6  4583                    7
 123  2 30          DCW   @094149@      BCNB   SIOC-1710                           6  4589                    7
 124  2 40          DCW   @094055@      BCOV      BR ON CARRIAGE OVERFLOW          6  4595                    7
 125  2 50          DCW   @094046@      BCX  DECID,YES,OP1    BR COND M XR         6  4601                    7
 126  2 60          DCW   @094046@      BCXM DECID,YES,OP1    BR COND M XR M       6  4607                    7
 127  2 70          DCW   @094030@      BC1  DECID,YES,OP1    BR CONSOLE 1         6  4613                    8
 128  2 80          DCW   @094031@      BC2  DECID,YES,OP1    BR CONSOLE 2         6  4619                    8
 129  2 90          DCW   @094032@      BC3  DECID,YES,OP1    BR CONSOLE 3         6  4625                    8
 130  3 00          DCW   @094033@      BC4  DECID,YES,OP1    BR CONSOLE 4         6  4631                    8
 131  3 10          DCW   @094057@      BD    DECID,YES,OP1      BR ON DIGIT       6  4637                    8
 132  3 20          DCW   @094064@      BR ON EQUAL COMPARE                        6  4643                    8
 133  3 30          DCW   @094043@      BEBS DECID,YES,OP1    BR ANY BAND SEL      6  4649                    9
 134  3 40          DCW   @094062@      BH   BR HIGH                               6  4655                    9
 135  3 50          DCW   @094050@      BI    DECID,YES,OP1      BR ON INDICTR     6  4661                    9
 136  3 60          DCW   @094148@      BIR    SIOC-1710                           6  4667                    9
 137  3 70          DCW   @091109@      BKTY  I/O                BACKSPACE TPW     6  4673                    9
 138  3 80          DCW   @094066@      BL   BR LOW COMPARE                        6  4679                    9
 139  3 90          DCW   @094058@      BLC   DECID,YES,OP1      BR LAST CARD      6  4685                   10
 140  4 00          DCW   @692133@      BLX   MODFY,AND DO       BR AND LOAD       6  4691                   10
 141  4 10          DCW   @692133@      BLXM  MODFY,AND DO       BR & LOAD IMM     6  4697                   10
 142  4 20          DCW   @094147@      BMC    SIOC-1710                           6  4703                   10
 143  4 30          DCW   @094047@      BMK  DECID,YES,OP1    BR MASK EQUAL        6  4709                   10
 144  4 40          DCW   @094072@      BN     BR ON NEGATIVE INDICATOR            6  4715                   10
 145  4 50          DCW   @094075@      BNA    BR NOT ANY DATA CHECK               6  4721                   11
 146  4 60          DCW   @094042@      BNBS DECID,YES,OP1    BR NO BAND SEL       6  4727                   11
 147  4 70          DCW   @094034@      BNC1 DECID,YES,OP1    BR NO CONSOLE        6  4733                   11
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

148  4 80          DCW   @094035@      BNC2 DECID,YES,OP1    BR NO CONSOLE        6  4739                      11
149  4 90          DCW   @094036@      BNC3 DECID,YES,OP1    BR NO CONSOLE        6  4745                      11
150  5 00          DCW   @094037@      BNC4 DECID,YES,OP1    BR NO CONSOLE        6  4751                      11
151  5 10          DCW   @094065@      BNE  BR NOT EQUAL COMPARE                  6  4757                      12
152  5 20          DCW   @094052@      BNF   DECID,YES,OP1      BR NO FLAG        6  4763                      12
153  5 30          DCW   @094060@      BNG    BR NO GROUP MARK                    6  4769                      12
154  5 40          DCW   @094063@      BNH  BR NO HIGH COMPARE                    6  4775                      12
155  5 50          DCW   @094053@      BNI   DECID,YES,OP1      BR NO INDICTR     6  4781                      12
156  5 60          DCW   @094153@      BNIR   SIOC-1710                           6  4787                      12
157  5 70          DCW   @094067@      BNL    BR NOT LOW                          6  4793                      13
158  5 80          DCW   @094059@      BNLC  DECID,YES,OP1      BR NO LAST CD     6  4799                      13
159  5 90          DCW   @094152@      BNMC   SIOC-1710                           6  4805                      13
160  6 00          DCW   @094073@      BNN    BR NOT NEGATIVE                     6  4811                      13
161  6 10          DCW   @094150@      BNOR   SIOC-1710                           6  4817                      13
162  6 20          DCW   @094069@      BNP    BR ON NEGATIVE INDICATOR            6  4823                      13
163  6 30          DCW   @094061@      BNR   DECID,YES,OP1      BR NO RECRDMK     6  4829                      14
164  6 40          DCW   @094151@      BNRE   SIOC-1710                           6  4835                      14
165  6 50          DCW   @094045@      BNV  DECID,YES,OP1    BR NO OFLOW          6  4841                      14
166  6 60          DCW   @094045@      BNXV DECID,YES,OP1    BR NO EXP OFLOW      6  4847                      14
167  6 70          DCW   @094071@      BNZ    BR NOT ZERO                         6  4853                      14
168  6 80          DCW   @092135@      BO    MODFY -SIOC        BR OUT MODE       6  4859                      14
169  6 90          DCW   @092135@      BOLD  MODFY -SIOC        BR OUT & LOAD     6  4865                      15
170  7 00          DCW   @094145@      BOR    SIOC-1710 INDICATOR TEST            6  4871                      15
171  7 10          DCW   @094068@      BP     BR ON POSTIVE INDICATOR             6  4877                      15
172  7 20          DCW   @094146@      BRE    SIOC-1710                           6  4883                      15
173  7 30          DCW   @692126@      BS    MODFY- BR AND DO   BR & SELECT       6  4889                      15
174  7 40          DCW   @692129@      BSBA  MODFY- BR AND DO   BR & SELECT A     6  4895                      15
175  7 50          DCW   @692130@      BSBB  MODFY- BR AND DO   BR & SELECT B     6  4901                      16
176  7 60          DCW   @692127@      BSIA  MODFY- BR AND DO   BR & SEL IA       6  4907                      16
177  7 70          DCW   @692128@      BSNI  MODFY- BR AND DO   BR & SEL NOIA     6  4913                      16
178  7 80          DCW   @692131@      BSNX  MODFY- BR AND DO   BR & SEL NO X     6  4919                      16
179  7 90          DCW   @692134@      BSX   MODFY- BR AND DO   BR & STORE        6  4925                      16
180  8 00          DCW   @09Y122@      BT                                         6  4931                      16
181  8 10          DCW   @09Y122@      BTA                                        6  4937                      17
182  8 20          DCW   @09Y122@      BTAM                                       6  4943                      17
183  8 30          DCW   @09Y122@      BTFL                                       6  4949                      17
184  8 40          DCW   @09Y122@      BTFS                                       6  4955                      17
185  8 50          DCW   @09Y122@      BTM                                        6  4961                      17
186  8 60          DCW   @094044@      BV   DECID,YES,OP1    BR OVERFLOW          6  4967                      17
187  8 70          DCW   @692132@      BX    MODFY AND DO       BR & MODFY XR     6  4973                      18
188  8 80          DCW   @692132@      BXM   MODFY AND DO       BR & MODFY IM     6  4979                      18
189  8 90          DCW   @094044@      BXV  DECID,YES,OP1    BR EX OFLOW          6  4985                      18
190  9 00          DCW   @094063@      BZ   BR ZERO                               6  4991                      18
191  9 10          DCW   @09V001@      B7    GOTO OP1           UNCOND BR         6  4997                      18
192  9 20          DCW   @090101@      C      COMPARE,TRANSPARENT                 6  5003                      18
193  9 30          DCW   @09Y012@      CALL  SUBRT,OP1,SEQ.     IO MACRO          6  5009                      19
194  9 40          DCW   @091105@      CDGN  IO,READ DISK       DISK READ         6  5015                      19
195  9 50          DCW   @091105@      CDN   IO,READ DISK       DISK READ         6  5021                      19
196  9 60          DCW   @090610@      CF    BLOCK,RESET        CLEAR FLAG        6  5027                      19
197  9 70          DCW   @090101@      CM     COMPARE,TRANSPARENT                 6  5033                      19
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

198  9 80          DCW   @090310@      CPLF  BLOCK,EDIT OP1     COMPLEMENT        6  5039                  19
199  9 90          DCW   @091105@      CTGN  IO,READ DISK       DISK READ         6  5045                  20
200 10 00          DCW   @091105@      CTN   IO,READ DISK       DISK READ         6  5051                  20
201 10 10          DCW   @090028@      D    BLOCK FOR DIVIDE                      6  5057                  20
202 10 20          DCW   @0&    @      DAC   DELETE -UNKNOWN    AREA DEF.         6  5063                  20
203 10 30          DCW   @0&    @      DAS   DELETE -UNKNOWN    AREA DEF.         6  5069                  20
204 10 40          DCW   @0&    @      DC    DELETE -UNKNOWN    AREA DEF.         6  5075                  20
205 10 50          DCW   @0&    @      DCA   DELETE-UNKNOWN     AREA DEF.         6  5081                  21
206 10 60          DCW   @0&    @      DCN   DELETE-UNKNOWN     AREA DEF.         6  5087                  21
207 10 70          DCW   @0&    @      DD    DELETE-UNKNOWN     AREA DEF.         6  5093                  21
208 10 80          DCW   @0&    @      DDA   DELETE -UNKNOWN    AREA DEF.         6  5099                  21
209 10 90          DCW   @0&    @      DDW   DELETE-UNKNOWN     AREA DEF.         6  5105                  21
210 11 00          DCW   @0&    @      DEND  DELETE -UNKNOWN    AREA DEF.         6  5111                  21
211 11 10          DCW   @0&    @      DGM   DELETE -UNKNOWN    AREA DEF.         6  5117                  22
212 11 20          DCW   @090028@      DIV    BLOCK DIVIDE                        6  5123                  22
213 11 30          DCW   @090028@      DM   BLOCK FOR DIVIDE IMMED                6  5129                  22
214 11 40          DCW   @0&    @      DMES  DELETE -UNKNOWN    AREA DEF.         6  5135                  22
215 11 50          DCW   @091107@      DN    IO,WRITE NUMERIC   DUMP NUMERIC      6  5141                  22
216 11 60          DCW   @0&    @      DNB   DELETE -UNKNOWN    AREA DEF          6  5147                  22
217 11 70          DCW   @091108@      DNCD  IO,WRITE CARD      DUMP NUM CARD     6  5153                  23
218 11 80          DCW   @091107@      DNPT  IO,WRITE PAPER TP  DUMP NUM PT       6  5159                  23
219 11 90          DCW   @091106@      DNTY  IO,WRITE TYPEWRTR  DUMP NUM TYPE     6  5165                  23
220 12 00          DCW   @0&    @      DORG  DELETE -UNKNOWN    AREA DEF          6  5171                  23
221 12 10          DCW   @0&    @      DOT   DELETE -UNKNOWN    AREA DEF          6  5177                  23
222 12 20          DCW   @0&    @      DPTA  DELETE-UNKNOWN     AREA DEF.         6  5183                  23
223 12 30          DCW   @0&    @      DPTN  DELETE-UNKNOWN     AREA DEF.         6  5189                  24
224 12 40          DCW   @0&    @      DS    DELETE -UNKNOWN    AREA DEF          6  5195                  24
225 12 50          DCW   @0&    @      DSA   DELETE -UNKNOWN    AREA DEF          6  5201                  24
226 12 60          DCW   @0&    @      DSAC  DELETE -UNKNOWN    AREA DEF          6  5207                  24
227 12 70          DCW   @0&    @      DSB   DELETE -UNKNOWN    AREA DEF          6  5213                  24
228 12 80          DCW   @0&    @      DSC   DELETE -UNKNOWN    AREA DEF          6  5219                  24
229 12 90          DCW   @0&    @      DSS   DELETE -UNKNOWN    AREA DEF          6  5225                  25
230 13 00          DCW   @0&    @      DTA   DELETE-UNKNOWN     AREA DEF.         6  5231                  25
231 13 10          DCW   @0&    @      DTN   DELETE-UNKNOWN     AREA DEF.         6  5237                  25
232 13 20          DCW   @090310@      DTO   BLOCK,EDIT OP1     DEC TO OCTAL      6  5243                  25
233 13 30          DCW   @0&    @      DVLC  DELETE -UNKNOWN    AREA DEF          6  5249                  25
234 13 40          DCW   @090310@      EORF  BLOCK,EDIT OP1     EXCLUSIVE OR      6  5255                  25
235 13 50          DCW   @090025@      FA     BLOCK, FLOATING ADD                 6  5261                  26
236 13 60          DCW   @090025@      FADD   BLOCK, FLOATING ADD                 6  5267                  26
237 13 70          DCW   @09Y013@      FATN  SUBRT,BCDOP,RESULT1  ARCTANGENT      6  5273                  26
238 13 80          DCW   @09Y013@      FCOS  SUBRT,BCDOP,RESULT1  COSINE          6  5279                  26
239 13 90          DCW   @090028@      FD     BLOCK, FLOATING DIVIDE              6  5285                  26
240 14 00          DCW   @090028@      FDIV  BLOCK,COMPUTE OP1  FLOAT DIVIDE      6  5291                  26
241 14 10          DCW   @09Y013@      FEX   SUBRT,BCDOP,RES1   FLOAT EXP         6  5297                  27
242 14 20          DCW   @09Y013@      FEXT  SUBRT,BCDOP,RES1   FLOAT EXP         6  5303                  27
243 14 30          DCW   @09Y013@      FLN   SUBRT,BCDOP,RES1   FLOAT LOG         6  5309                  27
244 14 40          DCW   @09Y013@      FLOG  SUBRT,BCDOP,RES1   FLOAT LOG         6  5315                  27
245 14 50          DCW   @090027@      FM     BLOCK   FLOATING MULTIPLY           6  5321                  27
246 14 60          DCW   @090027@      FMUL   BLOCK   FLOATING MULTIPLY           6  5327                  27
247 14 70          DCW   @090026@      FS     FS      FLOATING SUBTRACT           6  5333                  28
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

248 14 80          DCW   @09Y013@      FSIN  SUBRT,BCDOP,RES1   FLOAT SINE        6  5339                      28
249 14 90          DCW   @090310@      FSL   BLOCK,EDIT OP1     SHIFT LEFT        6  5345                      28
250 15 00          DCW   @090310@      FSLS  BLOCK,EDIT OP1     SHIFT LEFT        6  5351                      28
251 15 10          DCW   @09Y013@      FSQR  SUBRT,BCDOP,RES1   FLOAT SQ ROOT     6  5357                      28
252 15 20          DCW   @090310@      FSR   BLOCK,EDIT OP1     SHIFT RIGHT       6  5363                      28
253 15 30          DCW   @090310@      FSRS  BLOCK,EDIT OP1     SHIFT RIGHT       6  5369                      29
254 15 40          DCW   @090026@      FSUB   BLOCK,DIVDE                         6  5375                      29
255 15 50          DCW   @091120@      GET   IO,READ FROM 1     GET MACRO         6  5381                      29
256 15 60          DCW   @09S000@      H     WAIT               HALT              6  5387                      29
257 15 70          DCW   @0&    @      HEAD  DELETE- UNKNOWN    SUFFIX            6  5393                      29
258 15 80          DCW   @091109@      IXTY  IO,CONTROL TYPEWTR INDEX TYPEWTR     6  5399                      29
259 15 90          DCW   @091119@      K     IO,CONTROL UNIT    CONTROL           6  5405                      30
260 16 010         DCW   @090029@      LDM  MOVE OP 2 TO OP1                      6  5411                      30
261 16 010         DCW   @090029@      LD   MOVE OP 2 TO OP1                      6  5417                      30
262 16 20          DCW   @090027@      M    BLOCK FOR MULTIPY                     6  5423                      30
263 16 30          DCW   @092125@      MA    MODFY,MODFY OP1    MODFY ADDRESS     6  5429                      30
264 16 40          DCW   @090310@      MF    BLOCK,EDIT OP1     MOVE FLAG         6  5435                      30
265 16 50          DCW   @092135@      MK    MODFY,MODFY MODE   MASK -SIOC        6  5441                      31
266 16 60          DCW   @090027@      MM   BLOCK FOR MULTIPY IMM                 6  5447                      31
267 16 700         DCW   @093123@      NOP    PREDF NO OPERATION                  6  5453                      31
268 16 80          DCW   @090310@      ORF   BLOCK,EDIT OP1     OR TO FIELD       6  5459                      31
269 16 90          DCW   @090310@      OTD   BLOCK,EDIT OP1     OCTAL TO DEC      6  5465                      31
270 17 00          DCW   @091111@      PRA   IO,WRITE PRINTER   PRINT ALPHA       6  5471                      31
271 17 10          DCW   @091111@      PRAS  IO,WRITE PRINTER   PRINT ALPHA       6  5477                      32
272 17 20          DCW   @091111@      PRD   IO,WRITE PRINTER   PRINT DUMP        6  5483                      32
273 17 30          DCW   @091111@      PRDS  IO,WRITE PRINTER   PRINT DUMP        6  5489                      32
274 17 40          DCW   @091111@      PRN   IO,WRITE PRINTER   PRINT NUMERIC     6  5495                      32
275 17 50          DCW   @091111@      PRNS  IO,WRITE PRINTER   PRINT NUMERIC     6  5501                      32
276 17 60          DCW   @091121@      PUT   IO,WRITE FROM OP1  IO MACRO          6  5507                      32
277 17 70          DCW   @091100@      RA    IO,READ FROM 2INTO1READ ALPHA        6  5513                      33
278 17 80          DCW   @091104@      RACD  IO,READ CARD INTO 1READ ALP CARD     6  5519                      33
279 17 90          DCW   @091117@      RAIC  IO,READ CHAN FROM1 READ CH.-SIOC     6  5525                      33
280 18 00          DCW   @091103@      RAPT  IO,READ PPRTP INTO1READ PPR TAPE     6  5531                      33
281 18 10          DCW   @091102@      RATY  IO,READ TYPE INTO1 READ TYPEWRTR     6  5537                      33
282 18 20          DCW   @091103@      RBPT  IO,READ PPRTP INTO1READ PPR TAPE     6  5543                      33
283 18 30          DCW   @091109@      RCTY  IO,CONTROL TYPEWTR RETURN CARRGE     6  5549                      34
284 18 40          DCW   @091105@      RDGN  IO,READ DISK FROM1 READ DISK         6  5555                      34
285 18 50          DCW   @091105@      RDN   IO,READ DISK FROM1 READ DISK         6  5561                      34
286 18 60          DCW   @091100@      RN    IO,READ FROM2 NTO1 READ NUMERIC      6  5567                      34
287 18 70          DCW   @091104@      RNCD  IO,READ CARD INTO1 READ NUM CARD     6  5573                      34
288 18 80          DCW   @091117@      RNIC  IO,READ CHAN FROM1 READ CH.-SIOC     6  5579                      34
289 18 90          DCW   @091103@      RNPT  IO,READ PPRTP INTO1READ NUM PTPE     6  5585                      35
290 19 00          DCW   @091102@      RNTY  IO,READ TYPE INTO1 READ NUM TYPE     6  5591                      35
291 19 10          DCW   @0-0410@      RSTR  BLOCK,MOVE TO OP1  RESTORE MACRO     6  5597                      35
292 19 20          DCW   @091105@      RTGN  BLCK,READ DISK FRM1READ DISK         6  5603                      35
293 19 30          DCW   @091105@      RTN   BLCK,READ DISK FRM1READ DISK         6  5609                      35
294 19 40          DCW   @090026@      S    BLOCK FOR SUBTRACT                    6  5615                      35
295 19 50          DCW   @091115@      SA    IO,CONTROL CHANNEL SELECT CHANNL     6  5621                      36
296 19 60          DCW   @091115@      SACO  IO,CONTROL CHANNEL SELECT CHANNL     6  5627                      36
297 19 70          DCW   @091115@      SAO   IO,CONTROL CHANNEL SELECT CHANNL     6  5633                      36
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

298 19 80          DCW   @091115@      SAOS  IO,CONTROL CHANNEL SELECT CHANNL     6  5639                      36
299 19 90          DCW   @0-0410@      SAVE  BLOCK,MOVE TO OP1  SAVE MACRO        6  5645                      36
300 20 00          DCW   @091112@      SEEK  IO,CTL DISK FROM1  SEEK MACRO        6  5651                      36
301 20 10          DCW   @0&    @      SEND  DELETE,KNOWN       SPECIAL END       6  5657                      37
302 20 20          DCW   @090510@      SF    BLOCK,SET OP1      SET FLAG          6  5663                      37
303 20 30          DCW   @091112@      SK    IO,CTL DISK FROM1  DISK SEEK         6  5669                      37
304 20 40          DCW   @091110@      SKAP  IO,CTL PRINTER     PRINTER SKIP      6  5675                      37
305 20 50          DCW   @091110@      SKIP  IO,CTL PRINTER     PRINTER SKIP      6  5681                      37
306 20 60          DCW   @091116@      SLAD  IO,SEL INTO1-READ  SELECT READ       6  5687                      37
307 20 70          DCW   @091116@      SLAR  IO,SEL INTO1-READ  SELECT READ       6  5693                      38
308 20 80          DCW   @091116@      SLCB  IO,SEL INTO1-READ  SELECT READ       6  5699                      38
309 20 90          DCW   @091114@      SLIC  IO,SEL CHAN FROM2  SELECT READ       6  5705                      38
310 21 00          DCW   @091116@      SLME  IO,SEL INTO1-READ  SELECT READ       6  5711                      38
311 21 10          DCW   @091116@      SLRN  IO,SEL INTO1-READ  SELECT READ       6  5717                      38
312 21 20          DCW   @091116@      SLTA  IO,SEL INTO1-READ  SELECT READ       6  5723                      38
313 21 30          DCW   @091116@      SLTC  IO,SEL INTO1-READ  SELECT READ       6  5729                      39
314 21 40          DCW   @090026@      SM   BLOCK FOR SUBTRACT IMM                6  5735                      39
315 21 50          DCW   @091110@      SPAP  IO,CTL PRINTER     PRINTER SPACE     6  5741                      39
316 21 60          DCW   @091110@      SPIM  IO,CTL PRINTER     PRINTER SPACE     6  5747                      39
317 21 70          DCW   @091109@      SPTY  IO,CTL TYPEWRTR    SPACE TYPEWTR     6  5753                      39
318 21 80          DCW   @091109@      TBTY  IO,CTL TYPEWRTR    TAB TYPEWTR       6  5759                      39
319 21 90          DCW   @0&    @      TCD   DELETE- KNOWN      TR CTL & LOAD     6  5765                      40
320 22 00          DCW   @090029@      TD    BLOCK,MOVE TO OP1  TRANSMT DIGIT     6  5771                      40
321 22 10          DCW   @090029@      TDM   BLOCK,MOVE TO OP1  TRS DIGIT IMM     6  5777                      40
322 22 20          DCW   @090029@      TF    BLOCK,MOVE TO OP1  TRNSMT FIELD      6  5783                      40
323 22 30          DCW   @090029@      TFL   BLOCK,MOVE TO OP1  TRNS FL FIELD     6  5789                      40
324 22 40          DCW   @090029@      TFLS  BLOCK,MOVE TO OP1  TRNS FL FIELD     6  5795                      40
325 22 50          DCW   @090029@      TFM   BLOCK,MOVE TO OP1  TRNS FIELD IM     6  5801                      41
326 22 60          DCW   @090029@      TNF   BLOCK,MOVE TO OP1  TRNS NUM FILL     6  5807                      41
327 22 70          DCW   @090029@      TNS   BLOCK,MOVE TO OP1  TRNS NUM STRP     6  5813                      41
328 22 80          DCW   @090029@      TR    BLOCK,MOVE TO OP1  TRNS RECORD       6  5819                      41
329 22 90          DCW   @0&    @      TRA   DELETE -KNOWN      TRANSFER          6  5825                      41
330 23 00          DCW   @090029@      TRNM  BLOCK,MOVE TO OP1  TRNS REC NORM     6  5831                      41
331 23 10          DCW   @092135@      UMK   MODFY,MODFY MODE   UNMASK-SIOC       6  5837                      42
332 23 20          DCW   @091101@      WA    IO,WRITE ON2 FROM1 WR ALPHA          6  5843                      42
333 23 30          DCW   @091108@      WACD  IO,WRITE CARD FRM1 WR ALPHA CARD     6  5849                      42
334 23 40          DCW   @091118@      WAOC  IO,WR CHAN FROM 1  WR CHAN-SIOC      6  5855                      42
335 23 50          DCW   @091107@      WAPT  IO,WR PPRTP FROM1  WR PPR TAPE       6  5861                      42
336 23 60          DCW   @091106@      WATY  IO,WR TYPE FROM1   WR ALPHA TYPE     6  5867                      42
337 23 70          DCW   @091107@      WBPT  IO,WR PPRTP FROM1  WR PPR TAPE       6  5873                      43
338 23 80          DCW   @091113@      WDGN  IO,WR DISK FROM 1  WR DISK           6  5879                      43
339 23 90          DCW   @091113@      WDN   IO,WR DISK FROM 1  WR DISK           6  5885                      43
340 24 00          DCW   @091101@      WN    IO,WR ON2 FROM 1   WR NUMERIC        6  5891                      43
341 24 10          DCW   @091108@      WNCD  IO,WR CARD FROM 1  WR NUM CARD       6  5897                      43
342 24 20          DCW   @091118@      WNOC  IO,WR CHAN FROM 1  WR CHAN-SIOC      6  5903                      43
343 24 30          DCW   @091107@      WNPT  IO,WR PPR TP FROM1 WR NUM PPRTPE     6  5909                      44
344 24 40          DCW   @091106@      WNTY  IO,WR TYPE FROM1   WR NUM TYPE       6  5915                      44
345 24 50          DCW   @091113@      WTGN  IO,WR DISK FROM 1  WR DISK           6  5921                      44
346 24 60          DCW   @091113@      WTN   IO,WR DISK FROM 1  WR DISK           6  5927                      44
347 24 70   LOW    EQU   OPTABL-5            FOR PASS 1 DICTIONARIES                 4500
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

348 24 80   START  EQU   813                 START ADDRESS                       0813
349 24 90   HIGH   EQU   *&1                 HIGH POSITION FOR $ADD CARD         5928
350 25 00          END   5000                                                          / |0| 080             45
336 23 60          DCW   @091106@      WATY  IO,WR TYPE FROM1   WR ALPHA TYPE     6  5867                        42                 *****
337 23 70          DCW   @091107@      WBPT  IO,WR PPRTP FROM1  WR PPR TAPE       6  5873                        43
338 23 80          DCW   @091113@      WDGN  IO,WR DISK FROM 1  WR DISK           6  5879                        43
339 23 90          DCW   @091113@      WDN   IO,WR DISK FROM 1  WR DISK           6  5885                        43
340 24 00          DCW   @091101@      WN    IO,WR ON2 FROM 1   WR NUMERIC        6  5891                        43
341 24 10          DCW   @091108@      WNCD  IO,WR CARD FROM 1  WR NUM CARD       6  5897                        43
342 24 20          DCW   @091118@      WNOC  IO,WR CHAN FROM 1  WR CHAN-SIOC      6  5903                        43
343 24 30          DCW   @091107@      WNPT  IO,WR PPR TP FROM1 WR NUM PPRTPE     6  5909                        44
344 24 40          DCW   @091106@      WNTY  IO,WR TYPE FROM1   WR NUM TYPE       6  5915                        44
345 24 50          DCW   @091113@      WTGN  IO,WR DISK FROM 1  WR DISK           6  5921                        44
346 24 60          DCW   @091113@      WTN   IO,WR DISK FROM 1  WR DISK           6  5927                        44
347 24 70   LOW    EQU   OPTABL-5            FOR PASS 1 DICTIONARIES             4500
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

348 24 80   START  EQU   813                 START ADDRESS                             0813
349 24 90   HIGH   EQU   *&1                 HIGH POSITION FOR $ADD CARD               5928
```

```
CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                    1              4CHRE
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?   2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040   3

                          705/7080  OP. CODE DICTIONARY, PASS ONE                  4CHRE             PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    010  000    JOB   705/7080  OP. CODE DICTIONARY, PASS ONE
 102    020         CTL   440
 103    030         DCW   @$ADD     @   CARDS COMMON TO ALL DICTIONARIES           9  0341                       4
 104    040         DSA   LOW           --REQUIRED TO                              3  0344  50|                  4
 105    050         DSA   START         --GENERATE THE                             3  0347  813                  4
 106    060         DSA   HIGH          --$ADD CARD                                3  0350  N5S                  4
 107    070         DCW   @042565@      DATE OF ASSEMBLY                           6  0356                       4
 108    080         ORG   4500                                                           4500
 109    090  OPTABL DCW   @090039@      AAM   BLOCK, ADD REGISTER XX TO OP1        6  4505                       5
 110    100         DCW   @4-0310@      ABSX  BLOCK,EDIT OP1     ABSOLUTE VALU     6  4511                       5
 111    110         DCW   @0&    @      ACON4 DELETE             ADD CONSTANT4     6  4517                       5
 112    120         DCW   @0&    @      ACON5 DELETE             ADD CONSTANT5     6  4523                       5
 113    130         DCW   @0&    @      ACON6 DELETE             ADD CONSTANT6     6  4529                       5
 114    140         DCW   @0&    @      ADCON DELETE             ADD CONSTANT      6  4535                       5
 115    150         DCW   @090026@      ADD   BLOCK, ADD OP1 TO REGISTER XX      6  4541                       6
 116    160         DCW   @S-0210@      ADDA  BLOCK, COMPUTE OP1 ADD ADRSS MCR    6  4547                       6
 117    170         DCW   @S-0210@      ADDX  BLOCK,COMPUTE OP1  ADD MACRO         6  4553                       6
 118    180         DCW   @0-2162@      ADITM MODFY, TABLE OP1 WITH OP2            6  4559                       6
 119    190         DCW   @090039@      ADM   BLOCK, ADD REGISTER XX TO OP1        6  4565                       6
 120    200         DCW   @0&    @      AECDS PROCESSOR CONTROL CARD               6  4571                       6
 121    210         DCW   @0&    @      AIDS  PROCESSOR CONTROL CARD               6  4577                       7
 122    220         DCW   @0-4059@      ALTNP TRANSFER ALTERNATELY                 6  4583                       7
 123    230         DCW   @0&    @      ALTSW DELETE             ALTER SWITCH      6  4589                       7
 124    240         DCW   @0-4059@      ALTTR TRANSFER ALTERNATELY                 6  4595                       7
 125    250         DCW   @0&    @      ASMBL PROCESSOR CONTROL CARD               6  4601                       7
 126    260         DCW   @0-0030@      ASU   MODFY, SET REGISTER XX TO OP1        6  4607                       7
 127    270         DCW   @0&    @      ASUS  PROCESSOR CONTROL CARD               6  4613                       8
 128    280         DCW   @0&    @      BITCD DELETE             BIT CD SWITCH     6  4619                       8
 129    290         DCW   @0-0031@      BLANK BLOCK, MOVE BLANKS TO OP1,2,3        6  4625                       8
 130    300         DCW   @090033@      BLM   BLOCK, BLANK MEMORY 5 CHARACTERS     6  4631                       8
 131    310         DCW   @090033@      BLMS  BLOCK, BLANK MEMORY SERIAL           6  4637                       8
 132    320         DCW   @091131@      BPC   I/O, BYPASS TRC                      6  4643                       8
 133    330         DCW   @091115@      BSF   I/O, BACKSPACE TAPE FILE OP1         6  4649                       9
 134    340         DCW   @091115@      BSP   I/O, BACKSPACE TAPE FILE OP1         6  4655                       9
 135    350         DCW   @0&    @      CARDS PROCESSOR CONTROL CARD               6  4661                       9
 136    360         DCW   @0-0030@      CASU  MODFY, SET REGISTER XX TO OP1        6  4667                       9
 137    370         DCW   @0&    @      CASUS PROCESSOR CONTROL CARD               6  4673                       9
 138    380         DCW   @0&    @      CDIM  PROCESSOR CONTROL CARD               6  4679                       9
 139    390         DCW   @092155@      CHR   MODFY, RESET CHANNEL INDICATORS      6  4685                      10
 140    400         DCW   @0&    @      CHRCD DELETE             CHARACTER SW      6  4691                      10
 141    410         DCW   @0-1123@      CLIP  I/O, PROCESS ALL MESSAGES            6  4697                      10
 142    420         DCW   @0-1108@      CLOSE I/O CLOSE FILE     HYPER,DISK FI     6  4703                      10
 143    430         DCW   @090106@      CMP   BLOCK, TRANSPARENT  COMPARE          6  4709                      10
 144    440         DCW   @0&    @      CMPAT PROCESSOR CONTROL CARD               6  4715                      10
 145    450         DCW   @093016@      CNO   PREDF, OPERANDS                      6  4721                      11
 146    460         DCW   @0-3179@      COMP  PREDF, COMPAR & BR COMPAR ALFANU     6  4727                      11
 147    470         DCW   @0-3179@      COMPA PREDF, COMPAR & BR COMP ADRS MCR     6  4733                      11
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

148    480         DCW   @0-3179@      COMPX PREDF, COMPAR & BR ALGE CMPAR MC      6  4739                     11
149    490         DCW   @0&    @      CON   DELETE             CONSTANT           6  4745                     11
150    500         DCW   @091100@      CRD   I/O, READ INTO OP1                    6  4751                     11
151    510         DCW   @0-0100@      CTRLA TRANSPARENT        CONTL ADDRESS      6  4757                     12
152    520         DCW   @091121@      CWR   I/O, WRITE FROM OP1                   6  4763                     12
153    530         DCW   @0&    @      DATE  PROCESSOR CONTROL CARD                6  4769                     12
154    540         DCW   @0&    @      DDF    DELETE             DEFINE FILE       6  4775                     12
155    550         DCW   @0&    @      DEBM  DELETE, DISK ORDER EIGHT BIT MOD      6  4781                     12
156    560         DCW   @0-0100@      DEC   BLOCK, TRANSPARENT                    6  4787                     12
157    570         DCW   @0-2163@      DECRA MODIFY, DECREMENT OP1 WITH OP2        6  4793                     13
158    580         DCW   @0-2163@      DECRX MODIFY, DECREMENT OP1 WITH OP2        6  4799                     13
159    590         DCW   @0&    @      DELET DELETE, REASSEMBLY CONTROL CARD       6  4805                     13
160    600         DCW   @0&    @      DIAG  DELETE, ASMBL CNTRL MACRO             6  4811                     13
161    610         DCW   @0&    @      DIAGM DELETE, ASMBL CNTRL MACRO             6  4817                     13
162    620         DCW   @S-0210@      DIMX  BLOCK,COMPUTE OP1  DIMINISH MCRO      6  4823                     13
163    630         DCW   @0&    @      DIOCS DELETE  DISK ORDER DEFIN I/O CTL      6  4829                     14
164    640         DCW   @090028@      DIV   BLOCK, DIVIDE  REGISTER BY OP1        6  4835                     14
165    650         DCW   @0&    @      DIVSG DELETE, DEFINES DIVISION SYMBOL       6  4841                     14
166    660         DCW   @S-0210@      DIVX  BLOCK, COMPUTE OP1 DEVIDE MACRO       6  4847                     14
167    670         DCW   @0-2162@      DLITM MODFY, TABLE OP1 WITH OP2             6  4853                     14
168    680         DCW   @091121@      DMP   I/O WT FROM OP1    DUMP CORE          6  4859                     14
169    690         DCW   @0&    @      DNOP  DELETE, DISK ORDER NO OPERATION       6  4865                     15
170    700         DCW   @0&    @      DREL  DELETE, DISK ORDER RELEASE            6  4871                     15
171    710         DCW   @0&    @      DSAI  DELETE, DISK ORDER SET ACC INOPE      6  4877                     15
172    720         DCW   @0&    @      DSBM  DELETE, DISK ORDER SIX BIT MODE       6  4883                     15
173    730         DCW   @0&    @      DSEK  DELETE, DISK ORDER SEEK               6  4889                     15
174    740         DCW   @4-1100@      DUMP  I/O, READ INTO OP1                    6  4895                     15
175    750         DCW   @0&    @      DUPLI PROCESSOR CONTROL CARD                6  4901                     16
176    760         DCW   @0&    @      DVCY  DELETE, DISK ORDER PREP TO VERIF      6  4907                     16
177    770         DCW   @0&    @      DVHA  DELETE, DISK ORDER PREP TO VERIF      6  4913                     16
178    780         DCW   @S-0210@      DVHX  BLOCK, COMPUT OP1  DEVID ON HALT      6  4919                     16
179    790         DCW   @0&    @      DVSR  DELETE, DISK ORDER PREP TO VERIF      6  4925                     16
180    800         DCW   @0&    @      DVTA  DELETE, DISK ORDER PREP TO VERIF      6  4931                     16
181    810         DCW   @0&    @      DVTN  DELETE, DISK ORDER PREP TO VERIF      6  4937                     17
182    820         DCW   @0&    @      DWRC  DELETE, DISK ORDER PREP TO WT CK      6  4943                     17
183    830         DCW   @0&    @      DWRF  DELETE, DISK ORDER PREP TO WRITE      6  4949                     17
184    840         DCW   @092156@      ECB   MODFY, ENABLE CMPR EN COMP BACKW      6  4955                     17
185    850         DCW   @092159@      EEM   MODIFY ALTER MACHINE OPERAT MODE      6  4961                     17
186    860         DCW   @092151@      EIA   MODFY, ENABLE INDIRECT ADDRESS        6  4967                     17
187    870         DCW   @092165@      EIM   MODFY, ALTER INTERRUPT MODE           6  4973                     18
188    880         DCW   @0&    @      EJECT DELETE             EJECT PAPER        6  4979                     18
189    890         DCW   @0&    @      END   DELETE  END OF IOCS CONTROL DECK      6  4985                     18
190    900         DCW   @0-1125@      ENDLD I/O, RELEASE 7750 LOAD STATUS         6  4991                     18
191    910         DCW   @0-Y012@      ENTDR SUBRT, ENTER DISK ROUTINE             6  4997                     18
192    920         DCW   @0-2165@      ENTIP MODFY, ALTER INTERRUPT MODE           6  5003                     18
193    930         DCW   @0-2159@      ENT80 MODFY, ALTER MACHINE OPERAT MODE      6  5009                     19
194    940         DCW   @0-1112@      EOR                      MIO-FORCE EOR      6  5015                     19
195    950         DCW   @0&    @      FORCE PROCESSOR CONTROL CARD                6  5021                     19
196    960         DCW   @0&    @      FPN   DELETE             DEFINE FLOTPT      6  5027                     19
197    970         DCW   @0-1128@      FSEQP I/O, FORCE SEQUENTIAL PROCESSING      6  5033                     19
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SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD

198    980         DCW   @091100@      FSP   I/O READ INTO OP1  FORWARD SPACE     6  5039                     19
199    990         DCW   @0-4061@      FTNOP DECID, AFTER FIRST TIME THRU         6  5045                     20
200  1 000         DCW   @0-4061@      FTNPB DECID, AFTER FIRST TIME THRU         6  5051                     20
201  1 010         DCW   @0-4060@      FTTR  DECID, FIRST TIME THRU               6  5057                     20
202  1 020         DCW   @0-4060@      FTTRB DECID, FIRST TIME THRU               6  5063                     20
203  1 030         DCW   @0-1113@      GET   I/O READ OP1 FILE  HYPER/DISK        6  5069                     20
204  1 040         DCW   @0-1113@      GETR  I/O,  READ OP1 FILE                  6  5075                     20
205  1 050         DCW   @0-1105@      GETS  I/O READ OP1 INTO OP2 HYP/DISK       6  5081                     21
206  1 060         DCW   @0&    @      HBSF  DELETE, HYPER ORDR BACKSPACE FIL     6  5087                     21
207  1 070         DCW   @0&    @      HBSR  DELETE, HYPER ORDR BACKSPACE TAP     6  5093                     21
208  1 080         DCW   @0&    @      HCCR  DELETE, HYPER ORDR CHG CART& RWD     6  5099                     21
209  1 090         DCW   @0&    @      HCHC  DELETE, HYPER ORDR CHG CARTRIDGE     6  5105                     21
210  1 100         DCW   @0&    @      HCLN  DELETE, HYPER ORDR CK LITE ON        6  5111                     21
211  1 110         DCW   @0&    @      HECF  DELETE, HYPER ORDR EROR CORR OFF     6  5117                     22
212  1 120         DCW   @0&    @      HEOS  DELETE, HYPER ORDR END OF SEQUEN     6  5123                     22
213  1 130         DCW   @0&    @      HERG  DELETE, HYPER ORDR ERAS LONG GAP     6  5129                     22
214  1 140         DCW   @0&    @      HFCB  DELETE, HYPER ORDR FIX CHCK BITS     6  5135                     22
215  1 150         DCW   @0&    @      HFPN  DELETE, HYPER ORDR FILE PRTCT ON     6  5141                     22
216  1 160         DCW   @0&    @      HIASM PROCESSOR CONTROL CARD               6  5147                     22
217  1 170         DCW   @0&    @      HICE  DELETE, HYPER ORDR INTRUPT - ERR     6  5153                     23
218  1 180         DCW   @09S000@      HLT   EXIT, WAIT            HALT INSTRCT     6  5159                     23
219  1 190         DCW   @0&    @      HLWR                        LOOP WR TO RD     6  5165                     23
220  1 200         DCW   @0&    @      HNOP  DELETE, HYPER ORDR NO OPERATION      6  5171                     23
221  1 210         DCW   @0&    @      HRLF  DELETE, HYPER ORDR RES LITE OFF      6  5177                     23
222  1 220         DCW   @0&    @      HRLN  DELETE, HYPER ORDR RES LITE ON       6  5183                     23
223  1 230         DCW   @0&    @      HRUN &DELETE, HYPER ORDR RWD&UNLD CART     6  5189                     24
224  1 240         DCW   @0&    @      HRWD  DELETE, HYPER ORDR REWIND            6  5195                     24
225  1 250         DCW   @0&    @      HSBR  DELETE, HYPER ORDR SEL/BACK READ     6  5201                     24
226  1 260         DCW   @0&    @      HSEL  DELETE, HYPER ORDR SELECT            6  5207                     24
227  1 270         DCW   @0&    @      HSKF  DELETE, HYPER ORDR SPACE FILE        6  5213                     24
228  1 280         DCW   @0&    @      HSKR  DELETE, HYPER ORDR SPACE             6  5219                     24
229  1 290         DCW   @0&    @      HTR                                        6  5225                     25
230  1 300         DCW   @0&    @      HUNL  DELETE, HYPER ORDR UNLOAD CARTRI     6  5231                     25
231  1 310         DCW   @0-1132@      HWCF  I/O, WRITE CLOCK                     6  5237                     25
232  1 320         DCW   @0-1132@      HWCS  I/O, WRITE CLOCK                     6  5243                     25
233  1 330         DCW   @0&    @      HWTM  DELETE, HYPER ORDR WRITE TAPE MK     6  5249                     25
234  1 340         DCW   @0-3180@      IFNUM PREDF, NMON         TEST NUMERIC     6  5255                     25
235  1 350         DCW   @0-3016@      IFOFF DECID, NMON         TEST SW 4 OFF    6  5261                     26
236  1 360         DCW   @0-3016@      IFON  PREDF, OPERANDS                      6  5267                     26
237  1 370         DCW   @0&    @      INCL  DELETE              INCLUD MACRO     6  5273                     26
238  1 380         DCW   @0-2164@      INCRA MODIFY INCREMENT  OP1 WITH OP2       6  5279                     26
239  1 390         DCW   @0-2164@      INCRX MODIFY INCREMENT  OP1 WITH OP2       6  5285                     26
240  1 400         DCW   @0-2160@      INITA MODFY, INITIALIZE OP1 WITH OP2       6  5291                     26
241  1 410         DCW   @0&    @      INPUT DELETE, DEFINES INPUT AS TAPE        6  5297                     27
242  1 420         DCW   @0&    @      INSER                     INSERT ASB CC    6  5303                     27
243  1 430         DCW   @0-1115@      IOBSD I/O, BACKSPACE TAPE FILE OP1         6  5309                     27
244  1 440         DCW   @0-1115@      IOBSF I/O, BACKSPACE TAPE FILE OP1         6  5315                     27
245  1 450         DCW   @0-1115@      IOBSP I/O, BACKSPACE TAPE FILE OP1         6  5321                     27
246  1 460         DCW   @0-1106@      IOCHK I/O IOCS OP ON OP1 MAKE IOHLD MC     6  5327                     27
247  1 470         DCW   @0-1108@      IOCLS I/O MNON CLOSE FIL CLOSE TRAP FI     6  5333                     28
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  1 480         DCW   @0-1126@      IOCTL I/O, SEND OP1 CONTROL ORDER          6  5339                      28
249  1 490         DCW   @0-2166@      IODCH MODFY, CHANGE MESSAGE CLASS CODE     6  5345                      28
250  1 500         DCW   @0-1116@      IODEC I/O TYPE MESSAGE   TYP MESSAGE       6  5351                      28
251  1 510         DCW   @0&    @      IODEF IOCS MACRO                           6  5357                      28
252  1 520         DCW   @0-1118@      IODMP I/O WR OP1 FROM 2  WRITE CORE        6  5363                      28
253  1 530         DCW   @091107@      IOF   I/O, TURN OFF I/O INDICATOR          6  5369                      29
254  1 540         DCW   @0-1112@      IOFER  I/O FORCE OUTPUT END OF REEL        6  5375                      29
255  1 550         DCW   @0-1119@      IOFSF I/O, SPACE FORWARD TAPE FILE OP1     6  5381                      29
256  1 560         DCW   @0-1119@      IOFSP I/O, SPACE FORWARD TAPE FILE OP1     6  5387                      29
257  1 570         DCW   @0&    @      IOFTA  DELETE             DEFINE FILE      6  5393                      29
258  1 580         DCW   @0&    @      IOFTB  DELETE             DEFINE FILE      6  5399                      29
259  1 590         DCW   @0&    @      IOFTC  DELETE             DEFINE FILE      6  5405                      30
260  1 600         DCW   @0-1113@      IOGET I/O, READ OP1 FILE                   6  5411                      30
261  1 610         DCW   @0-3016@      IOGP  PREDF, OPERANDS                      6  5417                      30
262  1 620         DCW   @0-1106@      IOHLD  I/O HOLD TAPE OP1                   6  5423                      30
263  1 630         DCW   @0&    @      IOHSK DELETE, DEFINES IOCS                 6  5429                      30
264  1 640         DCW   @0-3016@      IOIGP PREDF, OPERANDS                      6  5435                      30
265  1 650         DCW   @0-1107@      IOIOF I/O, TURN OFF I/O INDICATOR          6  5441                      31
266  1 660         DCW   @0-1120@      IOION I/O, TURN ON I/O INDICATOR           6  5447                      31
267  1 670         DCW   @0-Y012@      IOLNK SUBROUTINE CALL                      6  5453                      31
268  1 680         DCW   @0-1108@      IOMFC I/O CLOSE FILES    CLOSE-NO RWD      6  5459                      31
269  1 690         DCW   @0-1109@      IOMFO I/O OPEN FILES     IO-NEW FILE       6  5465                      31
270  1 700         DCW   @0-1110@      IOMIP I/O CHNG FUNCT OP1 CHG INPUT/OUT     6  5471                      31
271  1 710         DCW   @0-1110@      IOMOP I/O CHNG FUNCT OP1 CHG OUTPUT/IN     6  5477                      32
272  1 720         DCW   @091120@      ION   I/O, TURN ON  I/O INDICATOR          6  5483                      32
273  1 730         DCW   @0-1109@      IOOPN IOCS MACRO                           6  5489                      32
274  1 740         DCW   @0-1111@      IOPOS I/O, POSITION TAPE OP1 OP2 RECDS     6  5495                      32
275  1 750         DCW   @0-1117@      IOPUT I/O, WRITE OP1 FILE                  6  5501                      32
276  1 760         DCW   @0-1113@      IORD  I/O READ OP1 FILE  READ FILE         6  5507                      32
277  1 770         DCW   @0-1113@      IORDC I/O READ OP1 FILE                    6  5513                      33
278  1 780         DCW   @0-1105@      IORDS I/O READ OP1 INTO  OP2  SPECIAL      6  5519                      33
279  1 790         DCW   @0-1114@      IORET I/O CHNG RETURN PT ALTER IOCS RE     6  5525                      33
280  1 800         DCW   @0-1122@      IORUN I/O, REWIND TAPE FILE OP1            6  5531                      33
281  1 810         DCW   @0-1122@      IORWD I/O, REWIND TAPE FILE OP1            6  5537                      33
282  1 820         DCW   @0&    @      IOSAS DELETE, DEFINES IOCS                 6  5543                      33
283  1 830         DCW   @0&    @      IOSYS DELETE, DEFINES IOCS                 6  5549                      34
284  1 840         DCW   @0&    @      IOTA  DELETE              ASSIGN TAPES     6  5555                      34
285  1 850         DCW   @0&    @      IOTS  DELETE              ASSIGN TAPES     6  5561                      34
286  1 860         DCW   @0-1116@      IOTYP I/O TYPE MESSAGE                     6  5567                      34
287  1 870         DCW   @0-1117@      IOWR  I/O WRITE OP1 FILE                   6  5573                      34
288  1 880         DCW   @0-1117@      IOWRC I/O WRITE OP1 FILE                   6  5579                      34
289  1 890         DCW   @0-1118@      IOWRS I/O WRITE OP1 FROM OP2               6  5585                      35
290  1 900         DCW   @0&    @      LABEL PROCESSOR CONTROL CARD               6  5591                      35
291  1 910         DCW   @0&    @      LASN  DELETE             ASMBY CNTR CD     6  5597                      35
292  1 920         DCW   @090025@      LDA   BLOCK, LOAD OP1 INTO REGISTER XX     6  5603                      35
293  1 930         DCW   @0-1116@      LDDCP I/O, TYPE A MESSAGE                  6  5609                      35
294  1 940         DCW   @092159@      LEM   MODFY, ALTER MACHINE OPERAT MODE     6  5615                      35
295  1 950         DCW   @0-S000@      LEVDR EXIT,  LEAVE DISK ROUTINE            6  5621                      36
296  1 960         DCW   @0-2165@      LEVIP MODFY, ALTER INTERRUPT MODE          6  5627                      36
297  1 970         DCW   @0-1124@      LEVRT I/O, LEAVE REAL TIME ROUTINE         6  5633                      36
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

298  1 980         DCW   @0-2159@      LEV80 MODFY, ALTER MACHINE OPERAT MODE     6  5639                        36
299  1 990         DCW   @090035@      LFC   BLOCK, LOAD OP1 INTO REGISTER        6  5645                        36
300  2 000         DCW   @0&    @      LIBR  DELETE, LIBRARY UPDATE CONTROL       6  5651                        36
301  2 010         DCW   @092165@      LIM   MODFY, ALTER INTERRUPT MODE          6  5657                        37
302  2 020         DCW   @0-Y140@      LINK  SUBROUTINE LINKAGE                   6  5663                        37
303  2 030         DCW   @0-Y140@      LINKA SUBROUTINE LINKAGE                   6  5669                        37
304  2 040         DCW   @09S000@      LIP   EXIT, RETURN TO MAINLINE LOGIC       6  5675                        37
305  2 050         DCW   @0&    @      LIST  PROCESSOR CONTROL CARD               6  5681                        37
306  2 060         DCW   @0&    @      LITND DELETE             ORG STATMENT      6  5687                        37
307  2 070         DCW   @0&    @      LITOR DELETE             ORG STATMENT      6  5693                        38
308  2 080         DCW   @0&    @      LITST DELETE             ORG STATMENT      6  5699                        38
309  2 090         DCW   @092161@      LNG   MODFY, SHIFT SPC OP1 POSITIONS       6  5705                        38
310  2 100         DCW   @0-1121@      LOAD  I/O, WRITE FROM OP1                  6  5711                        38
311  2 110         DCW   @090025@      LOD   BLOCK, LOAD OP1 INTO REGISTER XX     6  5717                        38
312  2 120         DCW   @0&    @      LOGTP PROCESSOR CONTROL CARD               6  5723                        38
313  2 130         DCW   @090035@      LSB   BLOCK, LOAD OP1 INTO REGISTER        6  5729                        39
314  2 140         DCW   @0&    @      MACSU PROCESSOR CONTROL CARD               6  5735                        39
315  2 150         DCW   @0-3016@      MATH  PREDF, OPERANDS  ARITHMETIC MCRO     6  5741                        39
316  2 160         DCW   @0&    @      MODE  DELETE             ENTER OTR LNG     6  5747                        39
317  2 170         DCW   @0&    @      MODEL PROCESSOR CONTROL CARD               6  5753                        39
318  2 180         DCW   @0&    @      MODIF PROCESSOR CONTROL CARD               6  5759                        39
319  2 190         DCW   @0-0040@      MOVE  BLOCK, MOVE OP1 TO OP2               6  5765                        40
320  2 200         DCW   @0-2167@      MOVEA MODFY, MOVE ADDRESS OF OP1           6  5771                        40
321  2 210         DCW   @090034@      MPY   BLOCK, MULTIPY REGISTER BY OP1       6  5777                        40
322  2 220         DCW   @0&    @      MPYSG DELETE, DEFINES MULTIPLTN SYNBOL     6  5783                        40
323  2 230         DCW   @S-0210@      MPYX  BLOCK, COMPUTE OP1 705 MACRO         6  5789                        40
324  2 240         DCW   @0-1127@      MVRSA I/O, MOVE OP1 TO STACK AREA          6  5795                        40
325  2 250         DCW   @0-1111@      MVTP  I/O, POSITION TAPE MIO-MOVE TAPE     6  5801                        41
326  2 260         DCW   @4-0310@      NABSX BLOCK,EDIT OP1     NEG ABSL VALU     6  5807                        41
327  2 270         DCW   @0&    @      NAME  DELETE             NAME AN AREA      6  5813                        41
328  2 280         DCW   @S-0210@      NDIVX BLOCK,COMPUTE OP1  NEG DIV MACRO     6  5819                        41
329  2 290         DCW   @S-0210@      NDVHX BLOCK,COMPUTE OP1  NEG DIV & HLT     6  5825                        41
330  2 300         DCW   @S-0210@      NMPYX BLOCK,COMPUTE OP1  NEGTV MULTPLY     6  5831                        41
331  2 310         DCW   @093016@      NOP   PREDF, OPERANDS                      6  5837                        42
332  2 320         DCW   @0-2159@      NOSTP MODFY, ALTER MACHINE OPERAT MODE     6  5843                        42
333  2 330         DCW   @0&    @      NOTES PROCESSOR CONTROL CARD               6  5849                        42
334  2 340         DCW   @094052@      NTR   DECID,IS STRG ZERO NORMLZ & TRNF     6  5855                        42
335  2 350         DCW   @0&    @      ONTO  PROCESSOR CONTROL CARD               6  5861                        42
336  2 360         DCW   @0-1109@      OPEN  I/O OPEN FILES     HYPER / DISK      6  5867                        42
337  2 370         DCW   @0-1100@      PCT   IO,IOCS CONTROL                      6  5873                        43
338  2 380         DCW   @091121@      PRW   I/O, WRITE FROM OP1                  6  5879                        43
339  2 390         DCW   @091129@      PTW   I/O, READ OR WRITE & PRINT           6  5885                        43
340  2 400         DCW   @0-1117@      PUT   I/O WT OP1 FILE    HYPER / DISK      6  5891                        43
341  2 410         DCW   @0-1117@      PUTR                     DISK RANDOM       6  5897                        43
342  2 420         DCW   @0-1118@      PUTS  I/O WT OP1 FROM OP2 HYPER/DISK       6  5903                        43
343  2 430         DCW   @090025@      RAD   BLOCK, LOAD OP1 INTO REGISTER XX     6  5909                        44
344  2 440         DCW   @0-3178@      RANGE PREDF, TEST & BRCH TEST IF IN RN     6  5915                        44
345  2 450         DCW   @0&    @      RASN  DELETE             PSEUDO RELOCT     6  5921                        44
346  2 460         DCW   @0&    @      RCD   DELETE             DFINE RECORD      6  5927                        44
347  2 470         DCW   @090107@      RCV   BLOCK, TRANSPARENT  RECEIVE          6  5933                        44
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

348  2 480         DCW   @090107@      RCVS  BLOCK, TRANSPARENT  RECEIVE          6  5939                      44
349  2 490         DCW   @090107@      RCVT  BLOCK, TRANSPARENT  RECEIVE          6  5945                      45
350  2 500         DCW   @091100@      RD    I/O READ INTO OP1  READ 00           6  5951                      45
351  2 510         DCW   @0&    @      REASM PROCESSOR CONTROL CARD               6  5957                      45
352  2 520         DCW   @091100@      RMA   I/O READ INTO OP1  RD MEM ADDR       6  5963                      45
353  2 530         DCW   @091100@      RMB   I/O, READ INTO OP1                   6  5969                      45
354  2 540         DCW   @092158@      RND   MODFY, SHIFT SPC AND ROUND           6  5975                      45
355  2 550         DCW   @0-3178@      RNGEX PREDF, TEST & BRCH IN RANGE MCRO     6  5981                      46
356  2 560         DCW   @0-2162@      RPITM BLOCK, EDIT OP1    REPLAC FUNCTN     6  5987                      46
357  2 570         DCW   @0&    @      RPT   DELETE             RECORD DEFINT     6  5993                      46
358  2 580         DCW   @0&    @      RPTA                                       6  5999                      46
359  2 590         DCW   @0-3016@      RSGN  PREDF, OPERANDS                      6  6005                      46
360  2 600         DCW   @091130@      RST   I/O, RESET 760 COUNTER               6  6011                      46
361  2 610         DCW   @090025@      RSU   BLOCK, LOAD OP1 INTO REGISTER XX     6  6017                      47
362  2 620         DCW   @091100@      RTS   I/O, READ INTO OP1                   6  6023                      47
363  2 630         DCW   @091122@      RUN   I/O, REWIND TAPE FILE OP1            6  6029                      47
364  2 640         DCW   @091122@      RWD   I/O, REWIND TAPE FILE OP1            6  6035                      47
365  2 650         DCW   @091129@      RWS   I/O, READ OR WRITE & PRINT           6  6041                      47
366  2 660         DCW   @091119@      RWT   I/O, EARLY START TAPE                6  6047                      47
367  2 670         DCW   @091100@      RWW   I/O, READ INTO OP1  RD WHILE WR      6  6053                      48
368  2 680         DCW   @0&    @      SASN  DELETE             ASMBLY CTL CD     6  6059                      48
369  2 690         DCW   @092157@      SBA   MODFY, BIT AT OP1  SET BIT ALTER     6  6065                      48
370  2 700         DCW   @092157@      SBN   MODFY, BIT AT OP1  SET BIT TO 1      6  6071                      48
371  2 710         DCW   @092157@      SBR   MODFY, BIT AT OP1  SET BIT REDUN     6  6077                      48
372  2 720         DCW   @092157@      SBZ   MODFY, BIT AT OP1  SET BIT TO 0      6  6083                      48
373  2 730         DCW   @091121@      SCC   I/O, WRITE FROM OP1                  6  6089                      49
374  2 740         DCW   @091102@      SDH   I/O ALTER DENSITY  SET DNSTY HGH     6  6095                      49
375  2 750         DCW   @091102@      SDL   I/O ALTER DENSITY  SENS DEN LOW      6  6101                      49
376  2 760         DCW   @091101@      SEL   I/O, SELECT OP1     I/O DEVICE       6  6107                      49
377  2 770         DCW   @0-3176@      SERCH OP2 FOR OP1        SEARCH TABLE      6  6113                      49
378  2 780         DCW   @090030@      SET   BLOCK, SET REG XX TO OP1             6  6119                      49
379  2 790         DCW   @0-2150@      SETOF SET OFF SWITCHES OP1,2,3             6  6125                      50
380  2 800         DCW   @0-2153@      SETON SET  ON SWITCHES OP1,2,3             6  6131                      50
381  2 810         DCW   @090029@      SGN   BLOCK, LOAD ZONE OF OP1 INTO REG     6  6137                      50
382  2 820         DCW   @092161@      SHR   MODFY, SHIFT SPC OP1 POSITIONS       6  6143                      50
383  2 830         DCW   @0&    @      SIZE  PROCESSOR CONTROL CARD               6  6149                      50
384  2 840         DCW   @091119@      SKP   I/O, SPACE FORWARD TAPE FILE OP1     6  6155                      50
385  2 850         DCW   @090038@      SND   BLOCK, MOVE OP1 TO MEMORY            6  6161                      51
386  2 860         DCW   @0&    @      SOURC PROCESSOR CONTROL CARD               6  6167                      51
387  2 870         DCW   @092154@      SPC   MODFY, SET SPC TO OP1                6  6173                      51
388  2 880         DCW   @0&    @      SPEED MACRO- ASMBY CNTR  SPED OR SPACE     6  6179                      51
389  2 890         DCW   @090036@      SPR   BLOCK, STORE REGISTER XX TO OP1      6  6185                      51
390  2 900         DCW   @092152@      SRC   MODFY SET CNTR OP1 SET REC CONTR     6  6191                      51
391  2 910         DCW   @091100@      SST   I/O, READ INTO OP1                   6  6197                      52
392  2 920         DCW   @090036@      ST    BLOCK, STORE REGISTER XX INTO        6  6203                      52
393  2 930         DCW   @0-S000@      STOP  EXIT, WAIT           DEAD END HLT    6  6209                      52
394  2 940         DCW   @090027@      SUB   BLOCK, SUB OP1 FROM REGISTER XX      6  6215                      52
395  2 950         DCW   @S-0210@      SUBA  BLOCK, COMPUTE OP1 SUBTRCT ADDRS     6  6221                      52
396  2 960         DCW   @0&    @      SUBOR DELETE             ASMBLY CTL CD     6  6227                      52
397  2 970         DCW   @0&    @      SUBRO DELETE             STRT N/ST CAL     6  6233                      53
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SEQ PG LIN  LABEL  OP    OPERANDS                                 SFX CT  LOCN  INSTRUCTION TYPE  CARD

398  2 980         DCW   @S-0210@      SUBX  BLOCK,COMPUTE OP1  SUBTRCT MACRO     6  6239                  53
399  2 990         DCW   @091103@      SUP   I/O SUPPRESS OUTPT SUPP PRT/PCH      6  6245                  53
400  3 000         DCW   @094058@      SWN   DECID, IS PROGRAM SWITCH ON          6  6251                  53
401  3 010         DCW   @094058@      SWT   DECID, IS PROGRAM SWITCH ON          6  6257                  53
402  3 020         DCW   @094062@      TAA   DECID, IS CONSOLE SWITCH ON          6  6263                  53
403  3 030         DCW   @094062@      TAB   DECID, IS CONSOLE SWITCH ON          6  6269                  54
404  3 040         DCW   @0-3016@      TABLE PREDF, OPERANDS  TABLE MACRO         6  6275                  54
405  3 050         DCW   @094062@      TAC   DECID, IS CONSOLE SWITCH ON          6  6281                  54
406  3 060         DCW   @094062@      TAD   DECID, IS CONSOLE SWITCH ON          6  6287                  54
407  3 070         DCW   @094062@      TAE   DECID, IS CONSOLE SWITCH ON          6  6293                  54
408  3 080         DCW   @094062@      TAF   DECID, IS CONSOLE SWITCH ON          6  6299                  54
409  3 090         DCW   @094050@      TAR   DECID,IS IND ON    TRS AUT RESTA     6  6305                  55
410  3 100         DCW   @0&    @      TBCTL DELETE             TABLE CONTROL     6  6311                  55
411  3 110         DCW   @0-3016@      TCD   PREDF, OPERANDS                      6  6317                  55
412  3 120         DCW   @090038@      TCT   BLOCK, MOVE OP1 TO MEMORY            6  6323                  55
413  3 130         DCW   @094063@      TEC   DECID, IS CHECK INDICATOR ON         6  6329                  55
414  3 140         DCW   @0-3016@      TEST  PREDF, OPERANDS  DECISION MACRO      6  6335                  55
415  3 150         DCW   @0-3175@      TESTX PREDF, TEST & BRCH SIGN & 0 MCRO     6  6341                  56
416  3 160         DCW   @094063@      TIC   DECID, IS CHECK INDICATOR ON         6  6347                  56
417  3 170         DCW   @09V001@      TIP   GOTO, OP1 - TO INTERRUPT PROGRAM     6  6353                  56
418  3 180         DCW   @0&    @      TITLE DELETE             PAGE HEADER       6  6359                  56
419  3 190         DCW   @094063@      TMC   DECID, IS CHECK INDICATOR ON         6  6365                  56
420  3 200         DCW   @090038@      TMT   BLOCK, MOVE OP1 TO MEMORY            6  6371                  56
421  3 210         DCW   @090038@      TMTS  BLOCK, MOVE OP1 TO MEMORY            6  6377                  57
422  3 220         DCW   @094062@      TNS   DECID, IS CONSOLE SWITCH ON          6  6383                  57
423  3 230         DCW   @094063@      TOC   DECID, IS CHECK INDICATOR ON         6  6389                  57
424  3 240         DCW   @09V001@      TR    GOTO OP1           TRANSFER          6  6395                  57
425  3 250         DCW   @094063@      TRA   DECID, IS CHECK INDICATOR ON         6  6401                  57
426  3 260         DCW   @0&    @      TRANS DELETE             TRANSLATION       6  6407                  57
427  3 270         DCW   @094063@      TRC   DECID, IS CHECK INDICATOR ON         6  6413                  58
428  3 280         DCW   @094054@      TRE   DECID, EQUAL COMPAR TRANSFER EQU     6  6419                  58
429  3 290         DCW   @094066@      TRH   DECID, HIGH COMPAR TRANSFER HI       6  6425                  58
430  3 300         DCW   @0-V001@      TRIN  GOTO, OP1          TRANF INDIRCT     6  6431                  58
431  3 310         DCW   @094051@      TRP   DECID,IS STRG PLUS TRNFR IF PLUS     6  6437                  58
432  3 320         DCW   @094050@      TRR   DECID,IS IND ON    TR READY          6  6443                  58
433  3 330         DCW   @094050@      TRS   DECID,IS IND ON    TR SIGN CHECK     6  6449                  59
434  3 340         DCW   @094064@      TRZ   DECID, IS ZERO INDICATOR ON          6  6455                  59
435  3 350         DCW   @094050@      TSA   DECID,IS IND ON    TR SYNC ANY       6  6461                  59
436  3 360         DCW   @094063@      TSC   DECID, IS CHECK INDICATOR ON         6  6467                  59
437  3 370         DCW   @09Y012@      TSL   SUBRT,OP1,BKSP     TR & STO LOC      6  6473                  59
438  3 380         DCW   @094050@      TTC   DECID,IS IND ON    TR TRANS CK       6  6479                  59
439  3 390         DCW   @0-1116@      TYPE  I/O, TYPE MESSAGE  TYPE A MESAGE     6  6485                  60
440  3 400         DCW   @094065@      TZB   DECID, IS BIT ZERO                   6  6491                  60
441  3 410         DCW   @090037@      UFC   BLOCK, STORE REGISTER INTO OP1       6  6497                  60
442  3 420         DCW   @090036@      ULA   BLOCK, STORE REGISTER XX TO OP1      6  6503                  60
443  3 430         DCW   @090036@      UNL   BLOCK, STORE REGISTER XX TO OP1      6  6509                  60
444  3 440         DCW   @090037@      USB   BLOCK, STORE REGISTER INTO OP1       6  6515                  60
445  3 450         DCW   @091121@      WMC   I/O, WRITE FROM OP1                  6  6521                  61
446  3 460         DCW   @091121@      WR    I/O WT FROM OP1    WRITE 00          6  6527                  61
447  3 470         DCW   @091121@      WRE   I/O WT FROM OP1    WRITE ERASE       6  6533                  61
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SEQ PG LIN  LABEL  OP     OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

448  3 480         DCW    @091121@      WST   I/O, WRITE FROM OP1                    6  6539                      61
449  3 490         DCW    @091104@      WTM   I/O WRITE TAPE MRK WR TAPE MARK        6  6545                      61
450  3 500         DCW    @0-0032@      ZERO  BLOCK, MOVE ZEROES TO OP1,2,3          6  6551                      61
451  3 510  HIGH   EQU    *&1                                                           6552
452  3 520  LOW    EQU    OPTABL-5                                                      4500
453  3 530  START  EQU    813                                                           0813
454  3 540         END    OPTABL                                                              / 50V 080          62
440  3 400         DCW    @094065@      TZB   DECID, IS BIT ZERO                     6  6491                      60             *****
441  3 410         DCW    @090037@      UFC   BLOCK, STORE REGISTER INTO OP1         6  6497                      60
442  3 420         DCW    @090036@      ULA   BLOCK, STORE REGISTER XX TO OP1        6  6503                      60
443  3 430         DCW    @090036@      UNL   BLOCK, STORE REGISTER XX TO OP1        6  6509                      60
444  3 440         DCW    @090037@      USB   BLOCK, STORE REGISTER INTO OP1         6  6515                      60
445  3 450         DCW    @091121@      WMC   I/O, WRITE FROM OP1                    6  6521                      61
446  3 460         DCW    @091121@      WR    I/O WT FROM OP1    WRITE 00            6  6527                      61
447  3 470         DCW    @091121@      WRE   I/O WT FROM OP1    WRITE ERASE         6  6533                      61
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

448  3 480         DCW   @091121@      WST   I/O, WRITE FROM OP1                     6  6539                      61
449  3 490         DCW   @091104@      WTM   I/O WRITE TAPE MRK WR TAPE MARK         6  6545                      61
450  3 500         DCW   @0-0032@      ZERO  BLOCK, MOVE ZEROES TO OP1,2,3           6  6551                      61
451  3 510  HIGH   EQU   *&1                                                            6552
```

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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                  1             4CHRF
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?  2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040  3

                          7070/7072/7074 DICTIONARY  - PASS 1                   4CHRF           PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101  1 01   000    JOB   7070/7072/7074 DICTIONARY  - PASS 1
 102  1 02          CTL   440
 103  1 025  *              VERSION 2  LEVEL 0   JULY 25,1965
 104  1 03          DCW   @$ADD     @         CARDS COMMON TO ALL DICTIONARIES     9  0341                       4
 105  1 04          DSA   LOW                 --REQUIRED TO                        3  0344  50|                  4
 106  1 05          DSA   START               --GENERATE THE APPROPRIATE           3  0347  813                  4
 107  1 06          DSA   HIGH                --$ADD CARD                          3  0350  J4U                  4
 108  1 07          DCW   @042665@            ASSEMBLY DATE                        6  0356                       4
 109  1 08          ORG   4500                                                           4500
 110  1 09   OPTABL DCW   @090200@      A     BLOCK,COMPUTE      ADD TO AC         6  4505                       5
 111  1 10          DCW   @090200@      AA    BLOCK,COMPUTE      ADD TO LOG AC     6  4511                       5
 112  1 11          DCW   @090210@      AAS   BLOCK,COMPUTE OP1  A ABS TO STG      6  4517                       5
 113  1 12          DCW   @0-0210@      ARITH BLOCK,COMPUTE OP1  PM- ARITH         6  4523                       5
 114  1 13          DCW   @090210@      AS    BLOCK,COMPUTE OP1  ADD TO STG        6  4529                       5
 115  1 14          DCW   @092135@      ASSF  MODFY, MODFY MODE  ADDTL STG OFF     6  4535                       5
 116  1 15          DCW   @092135@      ASSN  MODFY, MODFY MODE  ADDTL STG ON      6  4541                       6
 117  1 16          DCW   @09V001@      B     GOTO OP1                             6  4547                       6
 118  1 17          DCW   @094068@      BAL   DECID,IS LTCH 2 ON BR LTCH ON        6  4553                       6
 119  1 18          DCW   @094066@      BAS   DECID,IS SW 2 ON   BR SW ON          6  4559                       6
 120  1 19          DCW   @094069@      BASS  DECID,IS SW 2 ON   BR SW ON          6  4565                       6
 121  1 20          DCW   @094067@      BCB   DECID,IS CHNL BUSY BR CH BUSY        6  4571                       6
 122  1 21          DCW   @094055@      BCX   DECID,INDX LT NON  BR COMP IND       6  4577                       7
 123  1 22          DCW   @094065@      BDCA  DECID,IS LTCH ON   BR LTCH ON        6  4583                       7
 124  1 23          DCW   @094067@      BDCB  DECID,IS CHL BUSY  BR CHNL BUSY      6  4589                       7
 125  1 24          DCW   @094065@      BDCL  DECID,IS LTCH ON   BR LTCH ON        6  4595                       7
 126  1 25          DCW   @094065@      BDL   DECID,IS LTCH ON   BR LTCH ON        6  4601                       7
 127  1 26          DCW   @094057@      BDX   DECID,RSLT NON-Z   BR DEC INDEX      6  4607                       7
 128  1 27          DCW   @094056@      BE    DECID,DOES 5 # 6   BR EQUAL          6  4613                       8
 129  1 28          DCW   @094066@      BES   DECID,IS SW 2 ON   BR SW ON          6  4619                       8
 130  1 29          DCW   @094058@      BFV   DECID,IS OV IND ON BR OV IND         6  4625                       8
 131  1 30          DCW   @094059@      BH    DECID,IS 5 LS TN 6 BR HIGH           6  4631                       8
 132  1 31          DCW   @094055@      BIX   DECID,INDX LT NON  BR INC INDEX      6  4637                       8
 133  1 32          DCW   @094060@      BL    DECID,IS 5 GR TN 6 BR LOW            6  4643                       8
 134  1 33          DCW   @09Y012@      BLX   SUBRT,OP1,SEQ      BR & LOAD XR      6  4649                       9
 135  1 34          DCW   @094053@      BM    DECID,IS AC NEG    BR MINUS AC       6  4655                       9
 136  1 35          DCW   @094065@      BQL   DECID,IS LTCH ON   BR LTCH ON        6  4661                       9
 137  1 36          DCW   @094050@      BSC   DECID,IS SGN CHNG  BR SGN CHAN       6  4667                       9
 138  1 37          DCW   @094066@      BSF   DECID,IS SW 2 ON   BR SW ON          6  4673                       9
 139  1 38          DCW   @094066@      BSN   DECID,IS SW 2 ON   BR SW ON          6  4679                       9
 140  1 39          DCW   @0-1111@      BSP   IO,BCKSP TAPE OP1  MIO-BCKSP TAP     6  4685                      10
 141  1 40          DCW   @0-1111@      BSPF  IO,BCKSP TAPE OP1  MIO-BCKSP HYP     6  4691                      10
 142  1 41          DCW   @094065@      BTL   DECID,IS LTCH ON   BR LTCH ON        6  4697                      10
 143  1 42          DCW   @094065@      BUL   DECID,IS LTCH ON   BR LTCH ON        6  4703                      10
 144  1 43          DCW   @094058@      BV    DECID,IS OV IND ON BR OV IND         6  4709                      10
 145  1 44          DCW   @094061@      BXM   DECID,IS XW OP2 -  BR XW MINUS       6  4715                      10
 146  1 45          DCW   @094062@      BXN   DECID,XR OP2 NONZ  BR X NON-ZERO     6  4721                      11
 147  1 46          DCW   @094052@      BZ    DECID,IS AC ZERO   BR ZERO AC        6  4727                      11
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SEQ PG LIN  LABEL  OP    OPERANDS                                       SFX CT  LOCN  INSTRUCTION TYPE  CARD

148  1 47          DCW   @090102@      C     TRANS-SVE AC IN 2  COMP AC&STOR      6  4733                     11
149  1 48          DCW   @090102@      CA    TRANS-SVE AC IN 2  COMP AC&STOR      6  4739                     11
150  1 49          DCW   @090101@      CD    TRANS-SAVE OP 1&2  COMP STOR&DGT     6  4745                     11
151  1 50          DCW   @0-1121@      CHPT  IO,IOCS CONTROL    MIO-WR CK REC     6  4751                     11
152  1 51          DCW   @0-1016@      CLOSE IO,CLOSE 1,2,3     MIO-CLOSE FLE     6  4757                     12
153  1 52          DCW   @0-1121@      CLSED IO, IOCS CONTROL   MIO-CLS DSK       6  4763                     12
154  1 53          DCW   @0&    @      CNTRL DELETE - UNKNOWN   MIO-REMV TAPE     6  4769                     12
155  1 54          DCW   @0&    @      CODE  DELETE-UNKNOWN     PM-DATA HEADR     6  4775                     12
156  1 55          DCW   @0-3028@      COMP  PREDF              PM-COMPARE        6  4781                     12
157  1 56          DCW   @090105@      CSA   TRANS-ALPHA IN SP2 COMP SGN ALPH     6  4787                     12
158  1 57          DCW   @090103@      CSM   TRANS-MINUS IN SP2 COMP SGN MINS     6  4793                     13
159  1 58          DCW   @090104@      CSP   TRANS-PLUS IN SP2  COMP SGN PLUS     6  4799                     13
160  1 59          DCW   @0-3010@      CYCLE PREDF,BCDOP        PM-CYCLE BR       6  4805                     13
161  1 60          DCW   @090200@      D     BLOCK,COMPUTE      DIVIDE            6  4811                     13
162  1 61          DCW   @0&    @      DA    TRANSPARENT        DATA              6  4817                     13
163  1 62          DCW   @091100@      DAR   IO,CONTRL DISK     DSK ARM REL       6  4823                     13
164  1 63          DCW   @0&    @      DC    TRANSPARENT        DATA              6  4829                     14
165  1 64          DCW   @091101@      DCAF  IO,SET LATCH OFF   DATA CH LTC-F     6  4835                     14
166  1 65          DCW   @091102@      DCAN  IO,SET LATCH ON    DATA CH LTC-N     6  4841                     14
167  1 66          DCW   @0-1121@      DCHPT IO,IOCS CONTROL    MIO-DEF CKPT      6  4847                     14
168  1 67          DCW   @091101@      DCLF  IO,SET LATCH OFF   DATA CH LTC-F     6  4853                     14
169  1 68          DCW   @091102@      DCLN  IO,SET LATCH ON    DATA CH LTC-N     6  4859                     14
170  1 69          DCW   @091103@      DCP   IO,DATA CH SELECT  CH SEL PCKD       6  4865                     15
171  1 70          DCW   @091103@      DCPR  IO,DATA CH SELECT  CH SEL PCKD       6  4871                     15
172  1 71          DCW   @091103@      DCU   IO,DATA CH SELECT  CH SEL UNPCKD     6  4877                     15
173  1 72          DCW   @091103@      DCUA  IO,DATA CH SELECT  CH SEL UNPCKD     6  4883                     15
174  1 73          DCW   @091103@      DCUR  IO,DATA CH SELECT  DATA CHANNEL      6  4889                     15
175  1 74          DCW   @0&    @      DDF   DELETE-UNKNOWN     DATA              6  4895                     15
176  1 75          DCW   @0&    @      DEBM  DELETE-UNKNOWN     DISK ORDER        6  4901                     16
177  1 76          DCW   @0-3033@      DECOD PREDF              PM- DECODE        6  4907                     16
178  1 77          DCW   @091121@      DEOR  IO, IOCS CTL       MIO-DELAY EOR     6  4913                     16
179  1 78          DCW   @0&    @      DIOCS DELETE-UNKNOWN     DEF IOCS          6  4919                     16
180  1 79          DCW   @091101@      DLF   IO,RESET LTCH OFF  DSK LTCH OFF      6  4925                     16
181  1 80          DCW   @0&    @      DLINE DELETE-UNKNOWN     DATA              6  4931                     16
182  1 81          DCW   @091102@      DLN   IO, SET LATCH ON   DSK LTCH ON       6  4937                     17
183  1 82          DCW   @0&    @      DNOP  DELETE-UNKNOWN     DISK ORDER        6  4943                     17
184  1 83          DCW   @091106@      DR    IO,RD DSK INTO OP2 DSK READ          6  4949                     17
185  1 84          DCW   @0&    @      DRDW  DELETE-UNKNOWN     DEF RDW           6  4955                     17
186  1 85          DCW   @0&    @      DREL  DELETE-UNKNOWN     DISK ORDER        6  4961                     17
187  1 86          DCW   @0&    @      DSAI  DELETE-UNKNOWN     DISK ORDER        6  4967                     17
188  1 87          DCW   @0&    @      DSBM  DELETE-UNKNOWN     DISK ORDER        6  4973                     18
189  1 88          DCW   @0&    @      DSEK  DELETE-UNKNOWN     DISK ORDER        6  4979                     18
190  1 89          DCW   @0&    @      DSW   DELETE-UNKNOWN     DATA              6  4985                     18
191  1 90          DCW   @0&    @      DTF   DELETE-UNKNOWN     DATA              6  4991                     18
192  1 91          DCW   @0&    @      DTSA  DELETE-UNKNOWN     DATA              6  4997                     18
193  1 92          DCW   @0&    @      DUF   DELETE-UNKNOWN     DATA              6  5003                     18
194  1 93          DCW   @0-3034@      DUMP  PREDF              MIO-MEM DUMP      6  5009                     19
195  1 94          DCW   @0&    @      DVCY  DELETE-UNKNOWN     DISK ORDER        6  5015                     19
196  1 95          DCW   @0&    @      DVHA  DELETE-UNKNOWN     DISK ORDER        6  5021                     19
197  1 96          DCW   @0&    @      DVSR  DELETE-UNKNOWN     DISK ORDER        6  5027                     19
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

198  1 97          DCW   @0&    @      DVTA  DELETE-UNKNOWN     DISK ORDER        6  5033                      19
199  1 98          DCW   @0&    @      DVTN  DELETE-UNKNOWN     DISK ORDER        6  5039                      19
200  1 99          DCW   @091105@      DW    IO,WR DSK FROM OP2 DSK WR            6  5045                      20
201  2 00          DCW   @0&    @      DWRC  DELETE-UNKNOWN     DISK ORDER        6  5051                      20
202  2 01          DCW   @0&    @      DWRF  DELETE-UNKNOWN     DISK ORDER        6  5057                      20
203  2 02          DCW   @090310@      EAN   BLOCK,EDIT OP1     ED ALP TO NUM     6  5063                      20
204  2 03          DCW   @0-3030@      EDMOV PREDF              PM-ED & MOVE      6  5069                      20
205  2 04          DCW   @090310@      ENA   BLOCK,EDIT OP1     ED NUM TO ALP     6  5075                      20
206  2 05          DCW   @090310@      ENB   BLOCK,EDIT OP1     ED NUM TO ALP     6  5081                      21
207  2 06          DCW   @0&    @      END   DELETE-UNKNOWN     MIO-CLOSE FLE     6  5087                      21
208  2 07          DCW   @0&    @      ENDLD DELETE - UNKNOWN   PM-END MEM LD     6  5093                      21
209  2 08          DCW   @090310@      ENS   BLOCK,EDIT OP1     ED NUM TO ALP     6  5099                      21
210  2 09          DCW   @0&    @      ENTDP DELETE - UNKNOWN                     6  5105                      21
211  2 10          DCW   @0&    @      ENTDR DELETE - UNKNOWN                     6  5111                      21
212  2 11          DCW   @0&    @      EQU   DELETE - UNKNOWN   DATA              6  5117                      22
213  2 12          DCW   @090610@      ESF   BLOCK,RESET OP1    SET EL SW OFF     6  5123                      22
214  2 13          DCW   @090510@      ESN   BLOCK,SET OP1      SET EL SW ON      6  5129                      22
215  2 14          DCW   @0-U000@      EXDP  EXIT               MIO-EX DSK RT     6  5135                      22
216  2 15          DCW   @0&    @      EXIT  DELETE- UNKNOWN    PM- END MACRO     6  5141                      22
217  2 16          DCW   @090200@      FA    BLOCK, COMPUTE     FL ADD            6  5147                      22
218  2 17          DCW   @090200@      FAA   BLOCK, COMPUTE     FL ADD ABS        6  5153                      23
219  2 18          DCW   @090200@      FAD   BLOCK, COMPUTE     FL ADD - DP       6  5159                      23
220  2 19          DCW   @090200@      FADS  BLOCK, COMPUTE     FL ADD DP&S       6  5165                      23
221  2 20          DCW   @094051@      FBU   DECID,IS UNFLO ON  BR UNFO IND       6  5171                      23
222  2 21          DCW   @094058@      FBV   DECID,IS OV IND ON BR OV IND         6  5177                      23
223  2 22          DCW   @090200@      FD    BLOCK, COMPUTE     FL DIV            6  5183                      23
224  2 23          DCW   @090200@      FDD   BLOCK, COMPUTE     FL DIV - DP       6  5189                      24
225  2 24          DCW   @091121@      FEOR  IO,IOCS CNTRL      MIO-FORCE EOR     6  5195                      24
226  2 25          DCW   @091121@      FEORN IO,IOCS CNTRL      MIO-FORCE EOR     6  5201                      24
227  2 26          DCW   @0-3010@      FILL  PREDF,BCDOP        PM-FILL STG       6  5207                      24
228  2 27          DCW   @090200@      FM    BLOCK, COMPUTE     FL MULT           6  5213                      24
229  2 28          DCW   @090300@      FR    BLOCK, EDIT        FL ROUND          6  5219                      24
230  2 29          DCW   @090200@      FS    BLOCK, COMPUTE     FL SUB            6  5225                      25
231  2 30          DCW   @090200@      FSA   BLOCK, COMPUTE     FL SUB ABS        6  5231                      25
232  2 31          DCW   @0Y    @      FSEQP DELETE - KNOWN     MIO-DSK SEQ       6  5237                      25
233  2 32          DCW   @0-1116@      FSPF  IO, FORW SP TPE 1  MIO-F SP HYP      6  5243                      25
234  2 33          DCW   @090100@      FZA   TRANSPARENT        FL ZERO & ADD     6  5249                      25
235  2 34          DCW   @093010@      GENER PREDF,BCDOP        GENER MACRO       6  5255                      25
236  2 35          DCW   @0-1124@      GET   IO,RD TPE INTO OP1 MIO-GET DATA      6  5261                      26
237  2 36          DCW   @0-1124@      GETB  IO,RD TPE INTO OP1 MIO-GET DATA      6  5267                      26
238  2 37          DCW   @0-1123@      GETD  IO,RD DSK INTO 1   MIO-DISK GET      6  5273                      26
239  2 38          DCW   @0-1123@      GETR  IO,RD DSK INTO 1   MIO-DISK GET      6  5279                      26
240  2 39          DCW   @0-1123@      GETS  IO,RD DSK INTO 1   MIO-DISK GET      6  5285                      26
241  2 40          DCW   @19S000@      HB    WAIT               HALT & BR         6  5291                      26
242  2 41          DCW   @091135@      HMFV  MODFY, MODFY MODE  HLT FIELD OVF     6  5297                      27
243  2 42          DCW   @091135@      HMSC  MODFY, MODFY MODE  HLT SGN CHNGE     6  5303                      27
244  2 43          DCW   @0&    @      HNOP  DELETE-UNKNOWN     HYP ORDER         6  5309                      27
245  2 44          DCW   @09S000@      HP    WAIT               HALT & PROC       6  5315                      27
246  2 45          DCW   @0-1121@      INTLK IO, IOCS CONTROL   MIO-PROC DAT      6  5321                      27
247  2 46          DCW   @0&    @      IOCTL DELETE- UNKNOWN    M-7750 CTRL       6  5327                      27
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SEQ PG LIN  LABEL  OP    OPERANDS                                       SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  2 47          DCW   @0&    @       IODCP DELETE- UNKNOWN    M-LD DATA CTL      6  5333                     28
249  2 48          DCW   @090410@       ITS   BLOCK,MOVE TO OP1  INT TIMER STO      6  5339                     28
250  2 49          DCW   @090700@       ITZ   BLOCK, ZERO        INT TIMER ZRO      6  5345                     28
251  2 50          DCW   @097064@       LE    DECID,LO VALU FND  LOOKUP EQUAL       6  5351                     28
252  2 51          DCW   @097054@       LEH   DECID,EQ-HI VLU    LOOKUP EQ-HI       6  5357                     28
253  2 52          DCW   @0-U000@       LEVDR EXIT               MIO-UN TRN DK      6  5363                     28
254  2 53          DCW   @0-U000@       LEVRT EXIT               LV RL TME TRN      6  5369                     29
255  2 54          DCW   @097063@       LL    DECID,EQ VALU FND  LOOKUP LOW         6  5375                     29
256  2 55          DCW   @0&    @       LOAD  DELETE- UNKNOWN    M-LOAD MEMORY      6  5381                     29
257  2 56          DCW   @0-3032@       LOGIC PREDF              PM-TR OR FLSE      6  5387                     29
258  2 57          DCW   @090200@       M     BLOCK,COMPUTE      MULTIPLY           6  5393                     29
259  2 58          DCW   @0-3010@       MDWA  PREDF,BCDOP        M-MV DATA          6  5399                     29
260  2 59          DCW   @0-3010@       MOVE  PREDF,BCDOP        PM-MOVE            6  5405                     30
261  2 60          DCW   @090310@       MSA   BLOCK,EDIT OP1     MAKE SGN ALPH      6  5411                     30
262  2 61          DCW   @090310@       MSM   BLOCK,EDIT OP1     MAKE SGN MINS      6  5417                     30
263  2 62          DCW   @090310@       MSP   BLOCK,EDIT OP1     MAKE SGN PLUS      6  5423                     30
264  2 63          DCW   @0-1127@       MVRSA IO,MOVE RECORD 1   MIO-DISK MOVE      6  5429                     30
265  2 64          DCW   @093010@       NOP   PREDF              NO OP              6  5435                     30
266  2 65          DCW   @0&    @       NOTE  DELETE - UNKNOWN   M-GEN MAC MSG      6  5441                     31
267  2 66          DCW   @0-1016@       OPEN  IO,OPEN 1,2,3                         6  5447                     31
268  2 67          DCW   @0&    @       ORDER DELETE - UNKNOWN   MACRO              6  5453                     31
269  2 68          DCW   @091128@       PC    IO,PRIORITY CTL    PRIORITY CTL       6  5459                     31
270  2 69          DCW   @091103@       PDCP  IO,DATA CH SELECT  SEL PACKED         6  5465                     31
271  2 70          DCW   @091103@       PDCPR IO,DATA CH SELECT  SEL PCK-RM         6  5471                     31
272  2 71          DCW   @091103@       PDCU  IO,DATA CH SELECT  SEL UNPCKD         6  5477                     32
273  2 72          DCW   @091103@       PDCUA IO,DATA CH SELECT  SEL UNPK- ALP      6  5483                     32
274  2 73          DCW   @091103@       PDCUR IO,DATA CH SELECT  SEL UNPK- ALP      6  5489                     32
275  2 74          DCW   @091106@       PDR   IO,RD DSK INTO OP2 DSK READ-PRTY      6  5495                     32
276  2 75          DCW   @091100@       PDS   IO,CONTRL DISK     DSK SEEK           6  5501                     32
277  2 76          DCW   @091105@       PDW   IO,WR DSK FROM OP2 DSK WR-PRTY        6  5507                     32
278  2 77          DCW   @091128@       PR    IO,PRIORITY CTL    PRIORTY RELSE      6  5513                     33
279  2 78          DCW   @091109@       PTM   IO,CONTRL TAPE OP1 TAPE MRK WR        6  5519                     33
280  2 79          DCW   @091107@       PTR   IO,RD TP 1 NTO OP2 TAPE READ          6  5525                     33
281  2 80          DCW   @091107@       PTRA  IO,RD TP 1 NTO OP2 TAPE READ          6  5531                     33
282  2 81          DCW   @091107@       PTRN  IO,RD TP 1 NTO OP2 TAPE READ          6  5537                     33
283  2 82          DCW   @091107@       PTRR  IO,RD TP 1 NTO OP2 TAPE READ          6  5543                     33
284  2 83          DCW   @091111@       PTSB  IO,BCKSP TAPE OP1  TAPE BCKSP         6  5549                     34
285  2 84          DCW   @091116@       PTSF  IO,FORW SP TAPE 1  FORW SP TAPE       6  5555                     34
286  2 85          DCW   @091109@       PTSM  IO,CTL TAPE OP1    TP SEG MK WR       6  5561                     34
287  2 86          DCW   @091108@       PTW   IO,WR TP 1 FRM OP2 TAPE WRITE         6  5567                     34
288  2 87          DCW   @091108@       PTWC  IO,WR TP 1 FRM OP2 TAPE WRITE         6  5573                     34
289  2 88          DCW   @091108@       PTWR  IO,WR TP 1 FRM OP2 TAPE WRITE         6  5579                     34
290  2 89          DCW   @091108@       PTWZ  IO,WR TP 1 FRM OP2 TAPE WRITE         6  5585                     35
291  2 90          DCW   @0-1122@       PUT   IO,WR TPE FRM OP1  MIO-PUT DATA       6  5591                     35
292  2 91          DCW   @0-1122@       PUTB  IO,WR TPE FRM OP1  MIO-PUT DATA       6  5597                     35
293  2 92          DCW   @0-1126@       PUTD  IO,WR DSK FRM OP1  MIO-DISK PUT       6  5603                     35
294  2 93          DCW   @0-1126@       PUTR  IO,WR DSK FRM OP1  MIO-DISK PUT       6  5609                     35
295  2 94          DCW   @0-1126@       PUTS  IO,WR DSK FRM OP1  MIO-DISK PUT       6  5615                     35
296  2 95          DCW   @0-1122@       PUTX  IO,WRITE TAPE OP1  MIO-PUT DATA       6  5621                     36
297  2 96          DCW   @091101@       QLF   IO,RESET LTCH OFF  TRN LTCH OFF       6  5627                     36
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SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

298  2 97          DCW   @091102@      QLN   IO, SET LTCH ON    TRN LTCH ON       6  5633                        36
299  2 98          DCW   @091118@      QR    IO,INQ RD INTO 2   INQ READ          6  5639                        36
300  2 99          DCW   @091119@      QW    IO,INQ WR FROM 2   INQ WRITE         6  5645                        36
301  3 00          DCW   @0-1121@      RDLIN IO,IOCS CONTROL    MIO-RD LAB IN     6  5651                        36
302  3 01          DCW   @0-1111@      RDSB  IO,BCKSP TAPE OP1  MIO-RD MRKS-B     6  5657                        37
303  3 02          DCW   @0-1116@      RDSF  IO,FORW SP TP OP1  MIO-RD MRKS-F     6  5663                        37
304  3 03          DCW   @091115@      RDWB  IO,DATA CH CONTRL  BRANCH            6  5669                        37
305  3 04          DCW   @091115@      RDWC  IO,DATA CH CONTRL  CONTROL           6  5675                        37
306  3 05          DCW   @091115@      RDWR  IO,DATA CH CONTRL  READ              6  5681                        37
307  3 06          DCW   @091115@      RDWRB IO,DATA CH CONTRL  READ BACKWARD     6  5687                        37
308  3 07          DCW   @091115@      RDWS  IO,DATA CH CONTRL  SENSE             6  5693                        38
309  3 08          DCW   @091115@      RDWST IO,DATA CH CONTRL  ST COMM WRD       6  5699                        38
310  3 09          DCW   @091115@      RDWW  IO,DATA CH CONTRL  WRITE             6  5705                        38
311  3 10          DCW   @0-3010@      RECYC PREDF,BCDOP        PM-RESET CYCL     6  5711                        38
312  3 11          DCW   @0&    @      REL   DELETE - UNKNOWN   DATA- DEF EQU     6  5717                        38
313  3 12          DCW   @0&    @      RELDA DELETE - UNKNOWN   DATA-DEF STG      6  5723                        38
314  3 13          DCW   @090025@      RG    BLOCK,MOVE OP1     RECORD GATHER     6  5729                        39
315  3 14          DCW   @0-3010@      RLSE  PREDF,BCDOP        RELEASE FILE      6  5735                        39
316  3 15          DCW   @090036@      RS    BLOCK,MOVE 1 TO 2  RECORD SCATTR     6  5741                        39
317  3 16          DCW   @0&    @      RSTRT DELETE - UNKNOWN   RSTRT CHCKPT      6  5747                        39
318  3 17          DCW   @0-1110@      RWD   IO,REW TAPE OP1    MIO-REW TAPE      6  5753                        39
319  3 18          DCW   @090200@      S     BLOCK, COMPUTE     SUB FRM AC        6  5759                        39
320  3 19          DCW   @090200@      SA    BLOCK, COMPUTE     SUBTR ABS         6  5765                        40
321  3 20          DCW   @0-3029@      SETSW PREDF              PM-SETSW          6  5771                        40
322  3 21          DCW   @0-3016@      SHIFT PREDF              PM-SHIFT MAC      6  5777                        40
323  3 22          DCW   @090800@      SL    BLOCK,SHIFT        SHFT LFT AC       6  5783                        40
324  3 23          DCW   @090800@      SLC   BLOCK,SHIFT        SHFT LFT & CT     6  5789                        40
325  3 24          DCW   @090800@      SLS   BLOCK,SHIFT        SHFT LFT SPLT     6  5795                        40
326  3 25          DCW   @092135@      SMFV  MODIFY MODE        SENSE FL OVFO     6  5801                        41
327  3 26          DCW   @092135@      SMSC  MODIFY MODE        SENSE SGN CG      6  5807                        41
328  3 27          DCW   @0-3035@      SNAP  PREDF              PM-SNAL MACRO     6  5813                        41
329  3 28          DCW   @090800@      SR    BLOCK,SHIFT        SHFT RGT AC       6  5819                        41
330  3 29          DCW   @090800@      SRR   BLOCK,SHIFT        SHFT RGT & RD     6  5825                        41
331  3 30          DCW   @090800@      SRS   BLOCK,SHIFT        SHFT RGT SPLT     6  5831                        41
332  3 31          DCW   @090210@      SS    BLOCK, COMPUTE OP1 SUBT FRM STOR     6  5837                        42
333  3 32          DCW   @090110@      ST    TRANS- STORE       ST AC             6  5843                        42
334  3 33          DCW   @090110@      STD   TRANS- STORE       ST DIGIT          6  5849                        42
335  3 34          DCW   @091125@      TEF   IO,SET TP EOF      TP EOF OFF        6  5855                        42
336  3 35          DCW   @091101@      TLF   IO,RESET LTCH OFF  TAPE LTCH OFF     6  5861                        42
337  3 36          DCW   @091102@      TLN   IO, SET LATCH ON   TAPE LTCH ON      6  5867                        42
338  3 37          DCW   @091109@      TM    IO,CONTRL TAPE OP1 TAPE MRK WR       6  5873                        43
339  3 38          DCW   @091107@      TR    IO,RD TP 1 NTO OP2 TAPE READ         6  5879                        43
340  3 39          DCW   @091107@      TRA   IO,RD TP 1 NTO OP2 TAPE READ         6  5885                        43
341  3 40          DCW   @091111@      TRB   IO,BCKSP TAPE OP1                    6  5891                        43
342  3 41          DCW   @091107@      TRN   IO,RD TP 1 NTO OP2 TAPE READ         6  5897                        43
343  3 42          DCW   @091107@      TRR   IO,RD TP 1 NTO OP2 TAPE READ         6  5903                        43
344  3 43          DCW   @091110@      TRU   IO,REW TAPE OP1    REW TAPE & UN     6  5909                        44
345  3 44          DCW   @091110@      TRW   IO,REW TAPE OP1    REW TAPE          6  5915                        44
346  3 45          DCW   @091111@      TSB   IO,BCKSP TAPE OP1  TAPE BCKSP        6  5921                        44
347  3 46          DCW   @090100@      TSEL  TRANSPARENT        TAPE NO-OP        6  5927                        44
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SEQ PG LIN  LABEL  OP    OPERANDS                                      SFX CT  LOCN  INSTRUCTION TYPE  CARD

348  3 47          DCW   @091116@      TSF   IO,FORW SP TAPE 1  FORW SP TAPE      6  5933                    44
349  3 48          DCW   @091109@      TSHD  IO,CONTRL TAPE OP1 SET HI DESTY      6  5939                    44
350  3 49          DCW   @091109@      TSK   IO,CONTRL TAPE OP1 TAPE SKIP         6  5945                    45
351  3 50          DCW   @091109@      TSLD  IO,CONTRL TAPE OP1 SET LO DESTY      6  5951                    45
352  3 51          DCW   @091109@      TSM   IO,CONTRL TAPE OP1 TAPE MRK WR       6  5957                    45
353  3 52          DCW   @091108@      TW    IO,WR TP 1 FRM OP2 TAPE WRITE        6  5963                    45
354  3 53          DCW   @091108@      TWC   IO,WR TP 1 FRM OP2 TAPE WRITE        6  5969                    45
355  3 54          DCW   @091108@      TWR   IO,WR TP 1 FRM OP2 TAPE WRITE        6  5975                    45
356  3 55          DCW   @091108@      TWZ   IO,WR TP 1 FRM OP2 TAPE WRITE        6  5981                    46
357  3 56          DCW   @091112@      TYP   IO,WR NTO TYP FR 2 TYPEWR WR         6  5987                    46
358  3 57          DCW   @091101@      ULF   IO,RESET LTCH OFF  UN LTCH OFF       6  5993                    46
359  3 58          DCW   @091102@      ULN   IO, SET LTCH ON    UN LTCH ON        6  5999                    46
360  3 59          DCW   @091117@      UP    IO,PNCH CRD FR 2   UR PUNCH-WR       6  6005                    46
361  3 60          DCW   @091117@      UPIV  IO,PNCH CRD FR 2   UR PUNCH-WR       6  6011                    46
362  3 61          DCW   @0&    @      UQE   DELETE - UNKNOWN   DATA              6  6017                    47
363  3 62          DCW   @091114@      UR    IO,RD CRD RDR NT 2 UNIT REC READ     6  6023                    47
364  3 63          DCW   @090100@      US    TRANSPARENT        UN REC SIGNAL     6  6029                    47
365  3 64          DCW   @091113@      UW    IO,WR OTO PRNTR-2  UNIT REC WR       6  6035                    47
366  3 65          DCW   @091113@      UWIV  IO,WR OTO PRNTR-2  UNIT REC WR       6  6041                    47
367  3 66          DCW   @0-1109@      WSM   IO,CONTROL TAPE 1  MIO-WR SEG MK     6  6047                    47
368  3 67          DCW   @0-1109@      WTM   IO,CONTROL TAPE 1  MIO-WR TP MRK     6  6053                    48
369  3 68          DCW   @090037@      XA    BLOCK,ADD 2 TO 1   X WRD ADD         6  6059                    48
370  3 69          DCW   @090025@      XL    BLOCK,LOAD OP1     X WRD LOAD        6  6065                    48
371  3 70          DCW   @090025@      XLIN  BLOCK,LOAD OP1     X WRD LOAD        6  6071                    48
372  3 71          DCW   @090038@      XS    BLOCK,SUB 2 FRM 1  X WRD SUBT        6  6077                    48
373  3 72          DCW   @090025@      XSN   BLOCK,MOVE 2 TO 1  X WRD SET         6  6083                    48
374  3 73          DCW   @090036@      XU    BLOCK,MOVE 1 TO 2  X WRD UNLOAD      6  6089                    49
375  3 74          DCW   @090025@      XZA   BLOCK,MOVE 2 TO 1  X WRD Z & ADD     6  6095                    49
376  3 75          DCW   @090025@      XZS   BLOCK,MOVE 2 TO 1  X WR  Z & SUB     6  6101                    49
377  3 76          DCW   @090100@      ZA    TRANSPARENT        ZERO & ADD        6  6107                    49
378  3 77          DCW   @090100@      ZAA   TRANSPARENT        ZERO ADD ABS      6  6113                    49
379  3 78          DCW   @0-3016@      ZERO  PREDF              PM-ZERO MAC       6  6119                    49
380  3 79          DCW   @090100@      ZS    TRANSPARENT        ZERO AND SUB      6  6125                    50
381  3 80          DCW   @090100@      ZSA   TRANSPARENT        ZRO SUBT ABS      6  6131                    50
382  3 81          DCW   @0-3031@      ZSIGN PREDF              PM-ZRO TEST       6  6137                    50
383  3 82          DCW   @090110@      ZST   TRANS- STORE       Z STG & ST AC     6  6143                    50
384  3 83   LOW    EQU   OPTABL-5            FOR PASS 1 DICTIONARIES                 4500
385  3 84   START  EQU   813                 START ADDRESS                           0813
386  3 85   HIGH   EQU   *&1                 HIGH POSITION FOR $ADD CARD             6144
387  3 86          END   OPTABL                                                            / 50V 080          51
370  3 69          DCW   @090025@      XL    BLOCK,LOAD OP1     X WRD LOAD        6  6065                    48             *****
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371  3 70          DCW   @090025@      XLIN  BLOCK,LOAD OP1     X WRD LOAD        6  6071                    48
372  3 71          DCW   @090038@      XS    BLOCK,SUB 2 FRM 1  X WRD SUBT        6  6077                    48
373  3 72          DCW   @090025@      XSN   BLOCK,MOVE 2 TO 1  X WRD SET         6  6083                    48
374  3 73          DCW   @090036@      XU    BLOCK,MOVE 1 TO 2  X WRD UNLOAD      6  6089                    49
375  3 74          DCW   @090025@      XZA   BLOCK,MOVE 2 TO 1  X WRD Z & ADD     6  6095                    49
376  3 75          DCW   @090025@      XZS   BLOCK,MOVE 2 TO 1  X WR  Z & SUB     6  6101                    49
377  3 76          DCW   @090100@      ZA    TRANSPARENT        ZERO & ADD        6  6107                    49
378  3 77          DCW   @090100@      ZAA   TRANSPARENT        ZERO ADD ABS      6  6113                    49
379  3 78          DCW   @0-3016@      ZERO  PREDF              PM-ZERO MAC       6  6119                    49
380  3 79          DCW   @090100@      ZS    TRANSPARENT        ZERO AND SUB      6  6125                    50
381  3 80          DCW   @090100@      ZSA   TRANSPARENT        ZRO SUBT ABS      6  6131                    50
382  3 81          DCW   @0-3031@      ZSIGN PREDF              PM-ZRO TEST       6  6137                    50
383  3 82          DCW   @090110@      ZST   TRANS- STORE       Z STG & ST AC     6  6143                    50
384  3 83   LOW    EQU   OPTABL-5            FOR PASS 1 DICTIONARIES                 4500
385  3 84   START  EQU   813                 START ADDRESS                           0813
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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                          1             4CHRG
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?       2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040       3

                          7040,7044,7090,7094 DICTIONARY - PASS 1                 4CHRG              PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    010  000    JOB   7040,7044,7090,7094 DICTIONARY - PASS 1
 102    020         CTL   440  1
 103    030         DCW   @$ADD     @         CARDS COMMON TO ALL DICTIONARIES     9  0341                     4
 104    040         DSA   LOW                 --REQUIRED TO                        3  0344  50|                4
 105    050         DSA   START               --GENERATE THE APPROPRIATE           3  0347  813                4
 106    060         DSA   HIGH                --$ADD CARD                          3  0350  A1|                4
 107    070         DCW   @033065@            DATE OF ASSEMBLY                     6  0356                     4
 108    080         ORG   4500                                                           4500
 109    090  OPTABL DCW   @0&    @            DELETE-UNKNOWN     PREFIX            6  4505                     5
 110    100         DCW   @0&    @      ...   DELETE-UNKNOWN     PREFIX            6  4511                     5
 111    110         DCW   @0&    @      ***   DELETE-UNKNOWN     PREFIX            6  4517                     5
 112    120         DCW   @0&    @      ABS   DELETE-UNKNOWN     MACRO             6  4523                     5
 113    130         DCW   @090200@      ACL   BLOCK,COMPUTE      ADD,CARRY LOG     6  4529                     5
 114    140         DCW   @090200@      ADD   BLOCK,COMPUTE      ADD               6  4535                     5
 115    150         DCW   @090200@      ADM   BLOCK,COMPUTE      ADD MAG           6  4541                     6
 116    160         DCW   @090800@      ALS   BLOCK,SHIFT        AC SHIFT LEFT     6  4547                     6
 117    170         DCW   @090300@      ANA   BLOCK,EDIT         AND TO AC         6  4553                     6
 118    180         DCW   @090310@      ANS   BLOCK,EDIT OP1     AND TO STOR       6  4559                     6
 119    190         DCW   @090800@      ARS   BLOCK,SHIFT        AC SHIFT RIGT     6  4565                     6
 120    200         DCW   @092131@      AXC   MODIFY,LOAD XR2    LOAD ADDR-COM     6  4571                     6
 121    210         DCW   @092131@      AXT   MODIFY,LOAD XR2    LOAD ADDR-TRU     6  4577                     7
 122    220         DCW   @0&    @      BCD   DELETE-UNKNOWN     MACRO             6  4583                     7
 123    230         DCW   @0&    @      BCI   DELETE-UNKNOWN     MACRO             6  4589                     7
 124    240         DCW   @0&    @      BEGIN DELETE-UNKNOWN     MACRO             6  4595                     7
 125    250         DCW   @0&    @      BES   DELETE-UNKNOWN     DATA              6  4601                     7
 126    260         DCW   @097061@      BFT   DECID,INDCTR 1 OFF BR IF OP1 OFF     6  4607                     7
 127    270         DCW   @097057@      BNT   DECID,INDCTR 1 ON  BR IF OP1 ON      6  4613                     8
 128    280         DCW   @0&    @      BOOL  DELETE-UNKNOWN     MACRO             6  4619                     8
 129    290         DCW   @09V001@      BRA   GOTO OP1           UNCOND BR         6  4625                     8
 130    300         DCW   @09V001@      BRN   GOTO OP1           BRANCH TXH        6  4631                     8
 131    310         DCW   @091102@      BSF   IO,BCKSPCE TP-OP1  BCKSPCE FILE      6  4637                     8
 132    320         DCW   @091102@      BSR   IO,BCKSPCE TP-OP1  BCKSPCE REC       6  4643                     8
 133    330         DCW   @0&    @      BSS   DELETE-UNKNOWN     DATA              6  4649                     9
 134    340         DCW   @091102@      BST   IO, BACKSP OP1     BACKSPACE TP      6  4655                     9
 135    350         DCW   @097069@      BTT   DECID,INDCTR OFF   BEGIN-TAPE OF     6  4661                     9
 136    360         DCW   @090100@      CAL   TRANSPARENT        CL- ADD LOG.      6  4667                     9
 137    370         DCW   @0-Y012@      CALL  SUBRT,OP1,SEQ.     SUBRT LINKAGE     6  4673                     9
 138    380         DCW   @090300@      CAQ   BLOCK,EDIT         CONV FROM MQ      6  4679                     9
 139    390         DCW   @894064@      CAS   DECID,AC LESS TN 1 COMP AC-STOR      6  4685                    10
 140    400         DCW   @894064@      CCS   DECID,AC LESS TN 1 CMP CHAR&STG      6  4691                    10
 141    410         DCW   @090100@      CHS   BLOCK, TRANSPARENT CHANGE SIGN       6  4697                    10
 142    420         DCW   @090100@      CLA   TRANSPARENT        CLEAR & ADD       6  4703                    10
 143    430         DCW   @090100@      CLM    BLOCK, TRANSPARENT CLEAR MAG        6  4709                    10
 144    440         DCW   @090100@      CLS   TRANSPARENT        CLEAR & SUBT.     6  4715                    10
 145    450         DCW   @090300@      COM   BLOCK,EDIT         COMP MAG.         6  4721                    11
 146    460         DCW   @0&    @      COMMON DELETE-UNKNOWN    DATA              6  4727                    11
 147    470         DCW   @0&    @      CONTRL DELETE-UNKNOWN    MACRO             6  4733                    11
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

148    480         DCW   @0&    @      COUNT DELETE-UNKNOWN     MACRO               6  4739                      11
149    490         DCW   @091115@      CPYD  IO,COPY 1          COPY-DISCONN        6  4745                      11
150    500         DCW   @091115@      CPYP  IO,COPY 1          COPY-PROCEED        6  4751                      11
151    510         DCW   @090300@      CRQ   BLOCK,EDIT         CONV BY MQ          6  4757                      12
152    520         DCW   @091112@      CTL   IO,CTL CHANNEL     CONTROL             6  4763                      12
153    530         DCW   @091112@      CTLR  IO,CTL CHANNEL     CTL-READ DISK       6  4769                      12
154    540         DCW   @091112@      CTLW  IO,CTL CHANNEL     CTL-DISK WRIT       6  4775                      12
155    550         DCW   @091112@      CTR   IO,CTL CHANNEL     CTL CHAN A          6  4781                      12
156    560         DCW   @090300@      CVR   BLOCK,EDIT         CONVERT BY AC       6  4787                      12
157    570         DCW   @097073@      DCT   DECID, IS C-IND OFF OVFLOW TEST        6  4793                      13
158    580         DCW   @0&    @      DEBM  DELETE - UNKNOWN   SET 8-BIT MOD       6  4799                      13
159    590         DCW   @0&    @      DEC    DELETE-UNKNOWN    DATA                6  4805                      13
160    600         DCW   @0&    @      DELETE DELETE-UNKNOWN    MACRO               6  4811                      13
161    610         DCW   @0&    @      DETAIL DELETE-UNKNOWN    MACRO               6  4817                      13
162    620         DCW   @090200@      DFAD  BLOCK,COMPUTE      FLT ADD- DP         6  4823                      13
163    630         DCW   @090200@      DFAM  BLOCK,COMPUTE      FP ADD- DP          6  4829                      14
164    640         DCW   @090200@      DFDH  BLOCK,COMPUTE      FP DIV OR HLT       6  4835                      14
165    650         DCW   @090200@      DFDP  BLOCK,COMPUTE      FP DIV & PROC       6  4841                      14
166    660         DCW   @090200@      DFMP  BLOCK,COMPUTE      FLT MULT-DP         6  4847                      14
167    670         DCW   @090200@      DFSB  BLOCK,COMPUTE      FLT SUB-DP          6  4853                      14
168    680         DCW   @090200@      DFSM  BLOCK,COMPUTE      FP SUM-DP           6  4859                      14
169    690         DCW   @0-0100@      DLD   TRANSPARENT        DOUBLE LOAD         6  4865                      15
170    700         DCW   @0&    @      DNOP  DELETE - UNKNOWN   DISK NOP            6  4871                      15
171    710         DCW   @0&    @      DREL  DELETE - UNKNOWN   DISK RELEASE        6  4877                      15
172    720         DCW   @0&    @      DSAI  DELETE - UNKNOWN   DISK-SET ACS        6  4883                      15
173    730         DCW   @0&    @      DSBM  DELETE - UNKNOWN   SET 6-BIT           6  4889                      15
174    740         DCW   @0&    @      DSEK  DELETE - UNKNOWN   DISK SEEK           6  4895                      15
175    750         DCW   @0-0110@      DST   TRANSPARENT STORE  DOUBLE STORE        6  4901                      16
176    760         DCW   @090200@      DUAM  TRANSPARENT CPUTE  UN FP AD MAG        6  4907                      16
177    770         DCW   @090200@      DUFA  TRANSPARENT CPUTE  UN FP AD MAG        6  4913                      16
178    780         DCW   @090200@      DUFM  TRANSPARENT CPUTE  UN FP MULT          6  4919                      16
179    790         DCW   @090200@      DUFS  TRANSPARENT CPUTE  UN FP SUB           6  4925                      16
180    800         DCW   @0&    @      DUP   DELETE-UNKNOWN     MACRO               6  4931                      16
181    810         DCW   @090200@      DUSM  TRANSPARENT CPUTE  UN FP SUB MAG       6  4937                      17
182    820         DCW   @0&    @      DVCY  DELETE - UNKNOWN   PREP VERIFY         6  4943                      17
183    830         DCW   @090200@      DVH   BLOCK, COMPUTE     DIV & HALT          6  4949                      17
184    840         DCW   @0&    @      DVHA  DELETE - UNKNOWN   PREP VERIFY         6  4955                      17
185    850         DCW   @090200@      DVP   BLOCK, COMPUTE     DIV & PROCEED       6  4961                      17
186    860         DCW   @0&    @      DVSR  DELETE - UNKNOWN   PREP VERIFY         6  4967                      17
187    870         DCW   @0&    @      DVTA  DELETE - UNKNOWN   PREP VERIFY         6  4973                      18
188    880         DCW   @0&    @      DVTN  DELETE - UNKNOWN   PREP VERIFY         6  4979                      18
189    890         DCW   @0&    @      DWRC  DELETE - UNKNOWN   PREP VERIFY         6  4985                      18
190    900         DCW   @0&    @      DWRF  DELETE - UNKNOWN   PREP WRITE          6  4991                      18
191    910         DCW   @092126@      ECTM  MODFY,MODFY MODE   ENT COPY TRAP       6  4997                      18
192    920         DCW   @092126@      EFTM  MODFY,MODFY MODE   ENT FL TRAP         6  5003                      18
193    930         DCW   @0&    @      EJECT DELETE-UNKNOWN     PM                  6  5009                      19
194    940         DCW   @092126@      EMTM  MODFY,MODFY MODE   ENT MULT TAG        6  5015                      19
195    950         DCW   @091112@      ENB   IO,CTL CHANNEL OP1 ENABLE              6  5021                      19
196    960         DCW   @0&    @      END   DELETE-UNKNOWN     PM-END ASSMB        6  5027                      19
197    970         DCW   @0&    @      ENDFIL DELETE-UNKNOWN    PM-WR EOF           6  5033                      19
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SEQ PG LIN  LABEL  OP    OPERANDS                                   SFX CT  LOCN  INSTRUCTION TYPE  CARD

198    980         DCW   @0&    @      ENDM   DELETE-UNKNOWN    PM-END MACRO      6  5039                   19
199    990         DCW   @0&    @      ENDQ   DELETE-UNKNOWN    PM-LIMIT QUAL     6  5045                   20
200  1 000         DCW   @0&    @      ENDUP  DELETE-UNKNOWN    PM-END UPDATE     6  5051                   20
201  1 010         DCW   @091113@      ENK   IO,INPUT OPER CTL  ENTER KEYS        6  5057                   20
202  1 020         DCW   @0&    @      ENTRY DELETE-UNKNOWN     PM-DEF ROUTNE     6  5063                   20
203  1 030         DCW   @0&    @      EQU   DELETE-UNKNOWN     PM-DATA           6  5069                   20
204  1 040         DCW   @090300@      ERA   BLOCK,EDIT         EX OR TO ACC      6  5075                   20
205  1 050         DCW   @692126@      ESNT  MODFY,MODFY MODE   ENT NULL & TR     6  5081                   21
206  1 060         DCW   @092126@      ESTM  MODFY,MODFY MODE   ENT SEL TRAP      6  5087                   21
207  1 070         DCW   @0&    @      ETC   DELETE-UNKNOWN     PM-EXT VAR        6  5093                   21
208  1 080         DCW   @092126@      ETM   MODFY,MODFY MODE   ENT TRAP MODE     6  5099                   21
209  1 090         DCW   @097069@      ETT   DECID,INDCTR OFF   EOT IND. OFF      6  5105                   21
210  1 100         DCW   @0&    @      EVEN   DELETE-UNKNOWN    PM-EVEN LOAD      6  5111                   21
211  1 110         DCW   @0&    @      EXTERN DELETE-UNKNOWN    PM-ID SYM REF     6  5117                   22
212  1 120         DCW   @090200@      FAD   BLOCK,COMPUTE      FL ADD- DP        6  5123                   22
213  1 130         DCW   @090200@      FAM   BLOCK,COMPUTE      FL ADD MAG        6  5129                   22
214  1 140         DCW   @094072@      FBU   DECID,INCTR ON     BR FL.UNFLOW      6  5135                   22
215  1 150         DCW   @094072@      FBV   DECID,INCTR ON     BR FL.OVFLOW      6  5141                   22
216  1 160         DCW   @090200@      FDH   BLOCK,COMPUTE      FL DIV OR HLT     6  5147                   22
217  1 170         DCW   @090200@      FDP   BLOCK,COMPUTE      FL DIV-PROC       6  5153                   23
218  1 180         DCW   @0&    @      FILE  DELETE-UNKNOWN     IO FILE DESC      6  5159                   23
219  1 190         DCW   @0&    @      FIVE  DELETE-UNKNOWN     PREFIX            6  5165                   23
220  1 200         DCW   @090200@      FMP   BLOCK,COMPUTE      FL  MULTIPLY      6  5171                   23
221  1 210         DCW   @0&    @      FOR   DELETE-UNKNOWN     PREFIX            6  5177                   23
222  1 220         DCW   @0&    @      FOUR  DELETE-UNKNOWN     PREFIX            6  5183                   23
223  1 230         DCW   @090300@      FRN   BLOCK,EDIT         ROUND             6  5189                   24
224  1 240         DCW   @090200@      FSB   BLOCK,COMPUTE      FL SUBTRACT       6  5195                   24
225  1 250         DCW   @090200@      FSM   BLOCK,COMPUTE      FL SUB MAG        6  5201                   24
226  1 260         DCW   @0&    @      FUL   DELETE-UNKNOWN     PM-FULL COOUT     6  5207                   24
227  1 270         DCW   @0&    @      FVE   DELETE-UNKNOWN     PREFIX            6  5213                   24
228  1 280         DCW   @0&    @      GOTO  DELETE-UNKNOWN     ASEMBLY SKIP      6  5219                   24
229  1 290         DCW   @0&    @      HBSF  DELETE - UNKNOWN   BCK FILE-HYP      6  5225                   25
230  1 300         DCW   @0&    @      HBSR  DELETE - UNKNOWN   BCK REC-HYP       6  5231                   25
231  1 310         DCW   @0&    @      HCCR  DELETE - UNKNOWN   REW HYP           6  5237                   25
232  1 320         DCW   @0&    @      HCHC  DELETE - UNKNOWN   CHNGE CRT-HYP     6  5243                   25
233  1 330         DCW   @0&    @      HCLN  DELETE - UNKNOWN   CK LI ON-HYP      6  5249                   25
234  1 340         DCW   @0&    @      HEAD  DELETE-UNKNOWN     PM-ASSIGN SYM     6  5255                   25
235  1 350         DCW   @0&    @      HECF  DELETE - UNKNOWN   ERR CORR-HYP      6  5261                   26
236  1 360         DCW   @0&    @      HED   DELETE-UNKNOWN     PM-ASSIGN SYM     6  5267                   26
237  1 370         DCW   @0&    @      HEOS  DELETE - UNKNOWN   END SEQ-HYP       6  5273                   26
238  1 380         DCW   @0&    @      HERG  DELETE - UNKNOWN   ERASE GAP-HYP     6  5279                   26
239  1 390         DCW   @0&    @      HFCB  DELETE - UNKNOWN   FIX HYPTP BIT     6  5285                   26
240  1 400         DCW   @0&    @      HFPN  DELETE - UNKNOWN   FILE PROT-HYP     6  5291                   26
241  1 410         DCW   @0&    @      HICE  DELETE - UNKNOWN   INTRPT -HYPTP     6  5297                   27
242  1 420         DCW   @0&    @      HNOP  DELETE - UNKNOWN   NO OP- HYP        6  5303                   27
243  1 430         DCW   @09S000@      HPR   WAIT               HALT & PROC       6  5309                   27
244  1 440         DCW   @0&    @      HRLF  DELETE - UNKNOWN   RES LI OFF        6  5315                   27
245  1 450         DCW   @0&    @      HRLN  DELETE - UNKNOWN   RES LI ON         6  5321                   27
246  1 460         DCW   @0&    @      HRUN  DELETE - UNKNOWN   REW-UNLOAD        6  5327                   27
247  1 470         DCW   @0&    @      HRWD  DELETE - UNKNOWN   REW               6  5333                   28
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SEQ PG LIN  LABEL  OP    OPERANDS                                     SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  1 480         DCW   @0&    @      HSBR  DELETE - UNKNOWN   BACK READ        6  5339                    28
249  1 490         DCW   @0&    @      HSEL  DELETE - UNKNOWN   SELECT           6  5345                    28
250  1 500         DCW   @0&    @      HSKF  DELETE - UNKNOWN   SPACE FILE       6  5351                    28
251  1 510         DCW   @0&    @      HSKR  DELETE - UNKNOWN   SPACE REC        6  5357                    28
252  1 520         DCW   @0&    @      HTR   DELETE-UNKNOWN     HALT & TR        6  5363                    28
253  1 530         DCW   @0&    @      HUNL  DELETE - UNKNOWN   UNLOAD CART      6  5369                    29
254  1 540         DCW   @0&    @      HWCF  DELETE - UNKNOWN   WR CLOCK FAST    6  5375                    29
255  1 550         DCW   @0&    @      HWCS  DELETE - UNKNOWN   WR CLOCK SLOW    6  5381                    29
256  1 560         DCW   @0&    @      HWLR  DELETE - UNKNOWN   LOOP WR TO RD    6  5387                    29
257  1 570         DCW   @0&    @      HWTM  DELETE - UNKNOWN   WR TM            6  5393                    29
258  1 580         DCW   @091105@      ICC   IO,CTL CHANNEL     INS CTL CNTR     6  5399                    29
259  1 590         DCW   @091112@      ICT   IO,CTL CHANNEL     INH CH TRAPS     6  5405                    30
260  1 600         DCW   @0&    @      IFEOF DELETE UNKNOWN                      6  5411                    30
261  1 610         DCW   @0&    @      IFF     DELETE-UNKNOWN   PM-COND ASMBY    6  5417                    30
262  1 620         DCW   @0&    @      IFT     DELETE-UNKNOWN   PM-COND ASMBY    6  5423                    30
263  1 630         DCW   @0&    @      IGNORE DELETE-UNKNOWN    PM-IGNORE UPD    6  5429                    30
264  1 640         DCW   @090300@      IIA   BLOCK,EDIT         INV SENSE-ACC    6  5435                    30
265  1 650         DCW   @090300@      IIB   BLOCK,EDIT         %# IIL,IIR)      6  5441                    31
266  1 660         DCW   @090300@      IIL   BLOCK,EDIT         INV SENSE-LFT    6  5447                    31
267  1 670         DCW   @090300@      IIR   BLOCK,EDIT         INV SENSE-RGT    6  5453                    31
268  1 680         DCW   @090300@      IIS   BLOCK,EDIT         INV SENSE-STG    6  5459                    31
269  1 690         DCW   @0&    @      INDEX DELETE-UNKNOWN     PM-LIST TABLE    6  5465                    31
270  1 700         DCW   @0&    @      IOCD  DELETE UNKNOWN     IO COMMAND       6  5471                    31
271  1 710         DCW   @0&    @      IOCDN DELETE UNKNOWN     IO COMMAND       6  5477                    32
272  1 720         DCW   @0&    @      IOCP  DELETE UNKNOWN     IO COMMAND       6  5483                    32
273  1 730         DCW   @0&    @      IOCPN DELETE UNKNOWN     IO COMMAND       6  5489                    32
274  1 740         DCW   @0&    @      IOCT  DELETE UNKNOWN     IO COMMAND       6  5495                    32
275  1 750         DCW   @0&    @      IOCTN DELETE UNKNOWN     IO COMMAND       6  5501                    32
276  1 760         DCW   @0&    @      IORD  DELETE UNKNOWN     IO RECORD        6  5507                    32
277  1 770         DCW   @0&    @      IORP  DELETE UNKNOWN     IO COMMAND       6  5513                    33
278  1 780         DCW   @0&    @      IORPN DELETE UNKNOWN     IO COMMAND       6  5519                    33
279  1 790         DCW   @0&    @      IORT  DELETE UNKNOWN     IO COMMAND       6  5525                    33
280  1 800         DCW   @0&    @      IORTN DELETE UNKNOWN     IO COMMAND       6  5531                    33
281  1 810         DCW   @0&    @      IOSP  DELETE UNKNOWN     IO COMMAND       6  5537                    33
282  1 820         DCW   @0&    @      IOSPN DELETE UNKNOWN     IO COMMAND       6  5543                    33
283  1 830         DCW   @0&    @      IOST  DELETE UNKNOWN     IO COMMAND       6  5549                    34
284  1 840         DCW   @0&    @      IOSTN DELETE UNKNOWN     IO COMMAND       6  5555                    34
285  1 850         DCW   @097070@      IOT   DECID,IS IO IN OFF IO IND TEST      6  5561                    34
286  1 860         DCW   @0&    @      IRP   DELETE-UNKNOWN     PM-ITERATE       6  5567                    34
287  1 870         DCW   @0&    @      KEEP  DELETE - UNKNOWN   PM-DEBUG MAC     6  5573                    34
288  1 880         DCW   @0&    @      LABEL DELETE-UNKNOWN     IO FILE ID       6  5579                    34
289  1 890         DCW   @092131@      LAC   MODFY,LOAD XR OP2  LOD ADDR COMP    6  5585                    35
290  1 900         DCW   @091112@      LAR   IO,CONTROL CHAN OP1 LOD CHN REG     6  5591                    35
291  1 910         DCW   @894064@      LAS   DECID,AC LS TN OP1 SKIP-LOG COMP    6  5597                    35
292  1 920         DCW   @0&    @      LBL   DELETE-UNKNOWN     PM-SERIAL BIN    6  5603                    35
293  1 930         DCW   @0&    @      LBOOL DELETE-UNKNOWN     PM-LFT BOOL      6  5609                    35
294  1 940         DCW   @097071@      LBT   DECID,IS BIT ON    TEST LOW BIT     6  5615                    35
295  1 950         DCW   @091112@      LCC   IO,CONTROL CHAN OP1 LOD CHN REG     6  5621                    36
296  1 960         DCW   @091112@      LCH   IO,CONTROL CHAN OP1 LOD CHN REG     6  5627                    36
297  1 970         DCW   @092131@      LDC   MODFY,LOAD XR OP2  LOD DEC COMP     6  5633                    36
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SEQ PG LIN  LABEL  OP    OPERANDS                                       SFX CT  LOCN  INSTRUCTION TYPE  CARD

298  1 980         DCW   @090100@      LDI   TRANSPARENT        SENSE IND REG     6  5639                     36
299  1 990         DCW   @0&    @      LDIR  DELETE-UNKNOWN     PM-PSN LINKGE     6  5645                     36
300  2 000         DCW   @090100@      LDQ   TRANSPARENT        MQ REG            6  5651                     36
301  2 010         DCW   @097061@      LFT   DECID,INCTR OP1OFF SKIP-LFT SSI      6  5657                     37
302  2 020         DCW   @092126@      LFTM  MODFY,MODFY MODE   LEAVE FL TRAP     6  5663                     37
303  2 030         DCW   @090800@      LGL   BLOCK,SHIFT        LOG LFT SHIFT     6  5669                     37
304  2 040         DCW   @090800@      LGR   BLOCK,SHIFT        LOG RGT SHIFT     6  5675                     37
305  2 050         DCW   @091126@      LIP   IO,MODFY MODE      LVE INTRRT        6  5681                     37
306  2 060         DCW   @691126@      LIPT  IO,MODFY MODE      LVE INT & TR      6  5687                     37
307  2 070         DCW   @0&    @      LIST  DELETE-UNKNOWN     PM-RESUME LST     6  5693                     38
308  2 080         DCW   @0&    @      LIT   DELETE-UNKNOWN     PM-SPEC LITS      6  5699                     38
309  2 090         DCW   @0&    @      LITORG DELETE UNKNOWN    PM-PSN LIT PL     6  5705                     38
310  2 100         DCW   @090800@      LLS   BLOCK,SHIFT        LNG LFT SHIFT     6  5711                     38
311  2 110         DCW   @092126@      LMTM  MODFY,MODFY MODE   LVE MULT TAG      6  5717                     38
312  2 120         DCW   @097057@      LNT   DECID,INCTR OP1 ON SKIP-LFT SSI      6  5723                     38
313  2 130         DCW   @0&    @      LOC   DELETE-UNKNOWN     PM-SET CNTR       6  5729                     39
314  2 140         DCW   @0&    @      LORG  DELETE-UNKNOWN     PM-PSN LIT PL     6  5735                     39
315  2 150         DCW   @090800@      LRS   BLOCK,SHIFT        LNG RGT SHIFT     6  5741                     39
316  2 160         DCW   @092126@      LSNM  MODFY,MODFY MODE   LVE STG NULL      6  5747                     39
317  2 170         DCW   @092126@      LTM   MODFY,MODFY MODE   LVE TRAP MODE     6  5753                     39
318  2 180         DCW   @092131@      LXA   MODFY,LOAD XR OP2  LOD ADDS STG      6  5759                     39
319  2 190         DCW   @092131@      LXD   MODFY,LOAD XR OP2  LOD DEC STG       6  5765                     40
320  2 200         DCW   @0&    @      MAC   DELETE-UNKNOWN     PM-NAME MACRO     6  5771                     40
321  2 210         DCW   @0&    @      MACRO DELETE-UNKNOWN     PM-DEF MACRO      6  5777                     40
322  2 220         DCW   @0&    @      MAX   DELETE-UNKNOWN     PM-SYM EQU        6  5783                     40
323  2 230         DCW   @0&    @      MIN   DELETE-UNKNOWN     PM-SYM EQU        6  5789                     40
324  2 240         DCW   @097068@      MIT   DECID,IS OP1 NEG   STG MINUS TST     6  5795                     40
325  2 250         DCW   @0&    @      MON   DELETE-UNKNOWN     PREFIX            6  5801                     41
326  2 260         DCW   @0&    @      MOP   DELETE-UNKNOWN     PM-NAME MACRO     6  5807                     41
327  2 270         DCW   @090200@      MPR   BLOCK-COMPUTE      MULT & ROUND      6  5813                     41
328  2 280         DCW   @090200@      MPY   BLOCK-COMPUTE      MULT              6  5819                     41
329  2 290         DCW   @097057@      MSE   DECID,INCTR OP1 ON MINUS SENSE       6  5825                     41
330  2 300         DCW   @090310@      MSM   BLOCK,EDIT OP1     MAKE SGN MNUS     6  5831                     41
331  2 310         DCW   @090310@      MSP   BLOCK,EDIT OP1     MAKE SGN PLUS     6  5837                     42
332  2 320         DCW   @0&    @      MTH   DELETE-UNKNOWN     PREFIX            6  5843                     42
333  2 330         DCW   @0&    @      MTW   DELETE-UNKNOWN     PREFIX            6  5849                     42
334  2 340         DCW   @0&    @      MZE   DELETE-UNKNOWN     PREFIX            6  5855                     42
335  2 350         DCW   @0&    @      NOCRS DELETE-UNKNOWN     PM-SUPR SYM       6  5861                     42
336  2 360         DCW   @090100@      NOP   TRANSPARENT        NO OP             6  5867                     42
337  2 370         DCW   @0-9000@      NTR   ENTER              ENTER             6  5873                     43
338  2 380         DCW   @0&    @      NULL   DELETE-UNKNOWN    PM-GEN COMM       6  5879                     43
339  2 390         DCW   @0&    @      NUMBER DELETE-UNKNOWN    PM-RESERL SYM     6  5885                     43
340  2 400         DCW   @097063@      NZT   DECID,STOR NON-ZRO SKIP-STG          6  5891                     43
341  2 410         DCW   @090300@      OAI   BLOCK,EDIT         OR AC TO INDS     6  5897                     43
342  2 420         DCW   @0&    @      OCT   DELETE-UNKNOWN     PM-GEN OCTAL      6  5903                     43
343  2 430         DCW   @097061@      OFT   DECID,INCTR OP1OFF SKIP- SSI         6  5909                     44
344  2 440         DCW   @0&    @      ONE   DELETE-UNKNOWN     PREFIX            6  5915                     44
345  2 450         DCW   @097057@      ONT   DECID,INCTR OP1 ON SKIP-SSI          6  5921                     44
346  2 460         DCW   @0&    @      OPD   DELETE-UNKNOWN     PM-DEF MACH       6  5927                     44
347  2 470         DCW   @0&    @      OPSYN DELETE-UNKNOWN     PM-DEF OP SYM     6  5933                     44
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

348  2 480         DCW   @0&    @      OPVFD DELETE-UNKNOWN     PM-DEF MACH        6  5939                     44
349  2 490         DCW   @090300@      ORA   BLOCK,EDIT         OR TO AC           6  5945                     45
350  2 500         DCW   @0&    @      ORG    DELETE-UNKNOWN    PM-SPEC LOC        6  5951                     45
351  2 510         DCW   @0&    @      ORGCRS DELETE-UNKNOWN    PM-REINST SYM      6  5957                     45
352  2 520         DCW   @090310@      ORS   BLOCK,EDIT OP1     OR TO STORAGE      6  5963                     45
353  2 530         DCW   @090300@      OSI   BLOCK,EDIT         OR STG TO IND      6  5969                     45
354  2 540         DCW   @092125@      PAC   MODFY,LOAD XR OP2  COMP AC TO XR      6  5975                     45
355  2 550         DCW   @090100@      PAI    BLOCK, TRANSPARENT AC TO SI          6  5981                     46
356  2 560         DCW   @092125@      PAX   MODFY,LOAD XR OP2  AC ADDR TO XR      6  5987                     46
357  2 570         DCW   @097071@      PBT   DECID,IS BIT ON    TEST HIGH BIT      6  5993                     46
358  2 580         DCW   @090100@      PCA   TRANSPARENT        DATA               6  5999                     46
359  2 590         DCW   @0&    @      PCC   DELETE-UNKNOWN     PM-PRINT LIST      6  6005                     46
360  2 600         DCW   @090100@      PCD   TRANSPARENT        COMP XR N DEC      6  6011                     46
361  2 610         DCW   @0&    @      PCG   DELETE-UNKNOWN     PM-CTL RELOC       6  6017                     47
362  2 620         DCW   @090300@      PCS   BLOCK, EDIT        PL CHR FR STG      6  6023                     47
363  2 630         DCW   @092125@      PDC   MODFY,LOAD XR OP2  COMP AC DEC        6  6029                     47
364  2 640         DCW   @092125@      PDX   MODFY,LOAD XR OP2  AC DEC TO XR       6  6035                     47
365  2 650         DCW   @090100@      PIA   BLOCK, TRANSPARENT SI TO AC           6  6041                     47
366  2 660         DCW   @097067@      PLT   DECID,IS OP1 POS   PLS STG TEST       6  6047                     47
367  2 670         DCW   @0&    @      PMC   DELETE-UNKNOWN     PM-PRINT MAC       6  6053                     48
368  2 680         DCW   @0&    @      PON   DELETE-UNKNOWN     PREFIX             6  6059                     48
369  2 690         DCW   @091107@      PRD   IO,CTL UNIT OP1    PREP TO READ       6  6065                     48
370  2 700         DCW   @0&    @      PRINT DELETE-UNKNOWN     PM-PRNT CD         6  6071                     48
371  2 710         DCW   @092130@      PSE   MODFY,SENSE OP1                       6  6077                     48
372  2 720         DCW   @091106@      PSL   IO,CTL SENSE LINES PRES SNS LINE      6  6083                     48
373  2 730         DCW   @0&    @      PTH   DELETE-UNKNOWN     PREFIX             6  6089                     49
374  2 740         DCW   @0&    @      PTW   DELETE-UNKNOWN     PREFIX             6  6095                     49
375  2 750         DCW   @0&    @      PUNCH DELETE-UNKNOWN     PM-RESME BIN       6  6101                     49
376  2 760         DCW   @0&    @      PURGE DELETE - UNKNOWN   PM -REM MACRO      6  6107                     49
377  2 770         DCW   @091107@      PWR   IO,CTL UNIT OP1    PREP TO WRITE      6  6113                     49
378  2 780         DCW   @090100@      PXA   TRANSPARENT        XR TO AC           6  6119                     49
379  2 790         DCW   @090100@      PXD   TRANSPARENT        XR TO AC DEC       6  6125                     50
380  2 800         DCW   @0&    @      PZE   DELETE-UNKNOWN     PREFIX             6  6131                     50
381  2 810         DCW   @0&    @      QUAL  DELETE-UNKNOWN     PM-DEF QUAL        6  6137                     50
382  2 820         DCW   @0&    @      RBOOL DELETE-UNKNOWN     PM-RGT BOOL        6  6143                     50
383  2 830         DCW   @091111@      RCD   IO,RD CARD READER  RD CD CHANNEL      6  6149                     50
384  2 840         DCW   @091112@      RCH   IO,CONTROL CHAN OP1 LOD CHN REG       6  6155                     50
385  2 850         DCW   @091112@      RCT   IO,CTL CHANNEL     REST CH TRAPS      6  6161                     51
386  2 860         DCW   @091112@      RDC   IO,CTL CHANNEL     RES DATA CHAN      6  6167                     51
387  2 870         DCW   @091107@      RDS   IO,CTL CHANNEL     RD-SELECT          6  6173                     51
388  2 880         DCW   @0&    @      REF   DELETE-UNKNOWN     PM-DEL SYM         6  6179                     51
389  2 890         DCW   @0&    @      REM   DELETE-UNKNOWN     PM-PRNT REMKS      6  6185                     51
390  2 900         DCW   @0-U001@      RETURN EXIT, OP 1        PM- RETURN         6  6191                     51
391  2 910         DCW   @091103@      REW   IO,REW TAPE OP1    REWIND             6  6197                     52
392  2 920         DCW   @0&    @      REWIND DELETE-UNKNOWN    PM-REW UP TPE      6  6203                     52
393  2 930         DCW   @097061@      RFT   DECID,IND OP1 OFF  SKIP-RGT SSI       6  6209                     52
394  2 940         DCW   @090600@      RIA   BLOCK,RESET        RES SSI            6  6215                     52
395  2 950         DCW   @090610@      RIB   BLOCK,RESET        %#RIL,RIR)         6  6221                     52
396  2 960         DCW   @091112@      RIC   IO,CTL CHANNEL     RESET CHANNEL      6  6227                     52
397  2 970         DCW   @090610@      RIL   BLOCK,RESET        RES SSI -LFT       6  6233                     53
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SEQ	PG	LIN	LABEL	OP	OPERANDS				SFX	CT	LOCN	INSTRUCTION TYPE	CARD
398	2	980		DCW	@090610@	RIR	BLOCK,RESET OP1	RES SSI- RGT		6	6239		53
399	2	990		DCW	@090610@	RIS	BLOCK,RESET	RES SSI- RGT		6	6245		53
400	3	000		DCW	@0& @	RMT	DELETE-UNKNOWN	PM-DEF REMOTE		6	6251		53
401	3	010		DCW	@090300@	RND	BLOCK,EDIT	ROUND		6	6257		53
402	3	020		DCW	@097057@	RNT	DECID,IND OP1 ON	SKIP- RGT SSI		6	6263		53
403	3	030		DCW	@092126@	RPM	MODF,MODFY MODE	REL PROT MODE		6	6269		54
404	3	040		DCW	@091110@	RPR	IO,READ PRINTER	RD PRNTR		6	6275		54
405	3	050		DCW	@090800@	RQL	BLOCK,SHIFT	ROTATE MQ LFT		6	6281		54
406	3	060		DCW	@091112@	RSC	IO,CTL CHANNEL	RES ST CHAN		6	6287		54
407	3	070		DCW	@091100@	RTB	IO, READ TAPE OP1	RD TPE-BINARY		6	6293		54
408	3	080		DCW	@091100@	RTD	IO, READ TAPE OP1	RD TPE DEC		6	6299		54
409	3	090		DCW	@097069@	RTT	DECID, IS IND OFF	REDUNDANCY		6	6305		55
410	3	100		DCW	@091103@	RUN	IO,REW TAPE OP1	REW & UNLOAD		6	6311		55
411	3	110		DCW	@090310@	SAC		ST AC CHAR		6	6317		55
412	3	120		DCW	@091117@	SAR	IO,STORE 1	DISK STORE		6	6323		55
413	3	130		DCW	@0-9000@	SAVE	ENTER	PM-GEN CODE		6	6329		55
414	3	140		DCW	@0-9000@	SAVEN	ENTER	PM-GEN CODE		6	6335		55
415	3	150		DCW	@090200@	SBM	BLOCK,COMPUTE	SUB MAG		6	6341		56
416	3	160		DCW	@092127@	SCA	MODFY,MODIFY OP1	STORE COMP		6	6347		56
417	3	170		DCW	@092127@	SCD	MODFY,MODIFY OP1	STORE COMP		6	6353		56
418	3	180		DCW	@091117@	SCH	IO,STORE 1	STORE CHANNEL		6	6359		56
419	3	190		DCW	@092126@	SDH	MODFY,MODFY MODE	SET DENS HI		6	6365		56
420	3	200		DCW	@092126@	SDL	MODFY,MODFY MODE	SET DENS LO		6	6371		56
421	3	210		DCW	@092126@	SDN	MODFY,MODFY MODE	SET DENSITY		6	6377		57
422	3	220		DCW	@091107@	SEN	CTL UNIT OP1	SENSE CHAN A		6	6383		57
423	3	230		DCW	@0& @	SET	DELETE-UNKNOWN	PM-SYM REDEF		6	6389		57
424	3	240		DCW	@0& @	SEVEN	DELETE-UNKNOWN	PREFIX		6	6395		57
425	3	250		DCW	@090510@	SIB	BLOCK,SET OP1	%#SIL,SIR)		6	6401		57
426	3	260		DCW	@090510@	SIL	BLOCK,SET OP1	SET SSI -LFT		6	6407		57
427	3	270		DCW	@090510@	SIR	BLOCK,SET OP1	SET SSI -RGT		6	6413		58
428	3	280		DCW	@0& @	SIX	DELETE-UNKNOWN	PREFIX		6	6419		58
429	3	290		DCW	@0& @	SKIPTO	DELETE-UNKNOWN	PM-SKP UPDTE		6	6425		58
430	3	300		DCW	@0& @	SKP	DELETE UNKNOWN	CONTROL LIST		6	6431		58
431	3	310		DCW	@0& @	SKPFIL	DELETE-UNKNOWN	PM-SKP TO EOF		6	6437		58
432	3	320		DCW	@092126@	SLF	MODFY,MODFY MODE	TRN OFF SNS		6	6443		58
433	3	330		DCW	@092126@	SLN	MODFY,MODFY MODE	TRN ON SNS		6	6449		59
434	3	340		DCW	@090310@	SLQ	BLOCK,EDIT OP1	STO LFT MQ		6	6455		59
435	3	350		DCW	@097057@	SLT	DECID,IND OP1 ON	TEST SNS LITS		6	6461		59
436	3	360		DCW	@090110@	SLW	TRANSPARENT-STORE	STO LOG WRD		6	6467		59
437	3	370		DCW	@091112@	SMS	IO,CTL CHANNEL	SET MODE-SEL		6	6473		59
438	3	380		DCW	@091105@	SNS	IO,CTL CHANNEL	CHAN SENSE		6	6479		59
439	3	390		DCW	@0& @	SPACE	DELETE-UNKNOWN	PM-SKIP LINE		6	6485		60
440	3	400		DCW	@0& @	SPC	DELETE UNKNOWN	CONTROL LIST		6	6491		60
441	3	410		DCW	@092126@	SPM	MODY,MODFY MODE	SET PROT MODE		6	6497		60
442	3	420		DCW	@091114@	SPR	IO,CTL PRNTR OP1	STO FOR PRINT		6	6503		60
443	3	430		DCW	@097057@	SPT	DECID,IND OP1 ON	SKIP PULSE		6	6509		60
444	3	440		DCW	@091116@	SPU	IO,CTL PUNCH OP1	SENSE PUNCH		6	6515		60
445	3	450		DCW	@091106@	SSL	IO,CTL SENSE LINES	STO SNS LIGTS		6	6521		61
446	3	460		DCW	@090100@	SSM	BLOCK, TRANSPARENT	SET SGN MINUS		6	6527		61
447	3	470		DCW	@090100@	SSP	BLOCK, TRANSPARENT	SET SGN PLUS		6	6533		61

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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

448  3 480         DCW   @0&    @      SST   DELETE-UNKNOWN     PM-INC SYM TB      6  6539                      61
449  3 490         DCW   @092127@      STA   MODIFY,MODIFY OP1   STO ADDR          6  6545                      61
450  3 500         DCW   @091105@      STC   IO,CTL CHANNEL     START CHANNEL      6  6551                      61
451  3 510         DCW   @092127@      STD   MODIFY,MODIFY OP1   STO DEC           6  6557                      62
452  3 520         DCW   @090110@      STI   TRANSPARENT STORE  STO IND REG        6  6563                      62
453  3 530         DCW   @092127@      STL   MODIFY,MODIFY OP1   STO LOC CNTR      6  6569                      62
454  3 540         DCW   @090110@      STO   TRANSPARENT-STORE  STORE              6  6575                      62
455  3 550         DCW   @092127@      STP   MODIFY,MODIFY OP1   STO PREFIX        6  6581                      62
456  3 560         DCW   @090110@      STQ   TRANSPARENT STORE  STO MQ             6  6587                      62
457  3 570         DCW   @09U001@      STR   EXIT, OP 1         STO LOC TRAP       6  6593                      63
458  3 580         DCW   @092127@      STT   MODIFY,MODIFY OP1   STO TAG           6  6599                      63
459  3 590         DCW   @090710@      STZ   TRANSPARENT STORE  STO ZERO           6  6605                      63
460  3 600         DCW   @090200@      SUB   BLOCK,COMPUTE      SUB TO REG         6  6611                      63
461  3 610         DCW   @0&    @      SVN   DELETE-UNKNOWN     PREFIX             6  6617                      63
462  3 620         DCW   @097057@      SWT   DECID,IND OP1 ON   SKP- CONS LGT      6  6623                      63
463  3 630         DCW   @092127@      SXA   MODIFY,MODIFY OP1   STO XR-ADDR       6  6629                      64
464  3 640         DCW   @092127@      SXD   MODIFY,MODIFY OP1   STO XR-DEC        6  6635                      64
465  3 650         DCW   @0&    @      SYN    DELETE-UNKNOWN    PM-SYM EQU         6  6641                      64
466  3 660         DCW   @0&    @      TAPENO DELETE-UNKNOWN    PM-SYM EQU         6  6647                      64
467  3 670         DCW   @0&    @      TCD    DELETE-UNKNOWN    PM-TR CTL          6  6653                      64
468  3 680         DCW   @79V001@      TCH   GOTO OP1           TR IN CHAN         6  6659                      64
469  3 690         DCW   @091118@      TCM   IO,CONDITION MET   TR-COND MET        6  6665                      65
470  3 700         DCW   @794056@      TCN   DECID, IS CHAN IDLE TEST CH INOP      6  6671                      65
471  3 710         DCW   @794054@      TCO   DECID, IS CHAN OPER TEST CH INOP      6  6677                      65
472  3 720         DCW   @091118@      TDC   IO, CONDITION MET  TR-DEC CNTR        6  6683                      65
473  3 730         DCW   @794075@      TDOA  DECID,IS IND ON    TR ON IO IN O      6  6689                      65
474  3 740         DCW   @794074@      TEF   DECID, IS CH-IND ON CHAN IND TES      6  6695                      65
475  3 750         DCW   @0&    @      THREE DELETE-UNKNOWN     PREFIX             6  6701                      66
476  3 760         DCW   @794076@      TIF   DECID, IS IND OFF  TR SSI OFF         6  6707                      66
477  3 770         DCW   @794077@      TIO   DECID, IS IND ON  TR SSI ON           6  6713                      66
478  3 780         DCW   @0&    @      TITLE DELETE-UNKNOWN     PM-SUSP PRNT       6  6719                      66
479  3 790         DCW   @094065@      TIX   DECID,MOD & TEST   TR XR HI &DEC      6  6725                      66
480  3 800         DCW   @794053@      TLQ   DECID,MQ LS TN AC  TR MQ LS TNAC      6  6731                      66
481  3 810         DCW   @794055@      TMI   DECID,AC MINUS     TR AC MINUS        6  6737                      67
482  3 820         DCW   @090025@      TMT   BLOCK,MOVE DATA)   TRANSMIT           6  6743                      67
483  3 830         DCW   @794073@      TNO   DECID, IS C-IND OFF OVFLOW TEST       6  6749                      67
484  3 840         DCW   @094066@      TNX   DECID,MOD & TEST   TR XR LO OR #      6  6755                      67
485  3 850         DCW   @794051@      TNZ   DECID,AC NON-ZERO  TR AC NON-Z        6  6761                      67
486  3 860         DCW   @794072@      TOV   DECID, IS C-IND ON  OVFLOW TEST       6  6767                      67
487  3 870         DCW   @794052@      TPL   DECID,AC POSITIVE  TR AC PLUS         6  6773                      68
488  3 880         DCW   @794072@      TQO   DECID,IS C-IND ON  OVFLOW TEST        6  6779                      68
489  3 890         DCW   @794058@      TQP   DECID,MQ POSITIVE  TR MQ PLUS         6  6785                      68
490  3 900         DCW   @79V001@      TRA   GOTO               UNCOND TR          6  6791                      68
491  3 910         DCW   @794074@      TRC   DECID, IS CH-IND ON CHAN IND TES      6  6797                      68
492  3 920         DCW   @692126@      TRP   MODIFY,MODFY MODE  TR & RES PRTY      6  6803                      68
493  3 930         DCW   @692126@      TRT   MODIFY, GOTO       TRA&RESTORE        6  6809                      69
494  3 940         DCW   @09Y012@      TSL   SUBRT,OP1,SEQ.     TR&ST LOC CNT      6  6815                      69
495  3 950         DCW   @09Y012@      TSX   SUBRT,OP1,SEQ.     SET INDX- TR       6  6821                      69
496  3 960         DCW   @0&    @      TTL   DELETE-UNKNOWN     PM-GEN SUBTTS      6  6827                      69
497  3 970         DCW   @79V001@      TTR   GOTO               UNCOND TR          6  6833                      69
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

498  3 980         DCW   @0&    @      TWO   DELETE-UNKNOWN     PREFIX              6  6839                     69
499  3 990         DCW   @691105@      TWT   IO-GOTO CTL CHNL   TRAP-WAIT           6  6845                     70
500  4 000         DCW   @094059@      TXH   DECID,INDEX HIGH   TR XR HI            6  6851                     70
501  4 010         DCW   @692128@      TXI   MODFY,MDY OP2 BY 1 INC XR-TR           6  6857                     70
502  4 020         DCW   @094060@      TXL   DECID,IND LO OR #  TR XR LO            6  6863                     70
503  4 030         DCW   @794050@      TZE   DECID,AC ZERO      TR AC ZERO          6  6869                     70
504  4 040         DCW   @090200@      UAM   BLOCK,COMPUTE      FL ADD MAG          6  6875                     70
505  4 050         DCW   @090200@      UFA   BLOCK,COMPUTE      FL ADD UN           6  6881                     71
506  4 060         DCW   @090200@      UFM   BLOCK,COMPUTE      FL MULT UN          6  6887                     71
507  4 070         DCW   @090200@      UFS   BLOCK,COMPUTE      FL SUB UN           6  6893                     71
508  4 080         DCW   @0&    @      UMC   DELETE-UNKNOWN     PM-WR MACRO         6  6899                     71
509  4 090         DCW   @0&    @      UNLIST DELETE-UNKNOWN    PM-SUSP LIST        6  6905                     71
510  4 100         DCW   @0&    @      UNLOAD DELETE-UNKNOWN    PM-RWD&UNLOD        6  6911                     71
511  4 110         DCW   @0&    @      UNPNCH DELETE-UNKNOWN    PM-SUSP BIN         6  6917                     72
512  4 120         DCW   @0&    @      UPDATE DELETE-UNKNOWN    PM-INIT UPDTE       6  6923                     72
513  4 130         DCW   @0&    @      USE    DELETE-UNKNOWN    PM-DEF CNTR         6  6929                     72
514  4 140         DCW   @090200@      USM   BLOCK,COMPUTE      FL SUB MAG          6  6935                     72
515  4 150         DCW   @090200@      VDH   BLOCK,COMPUTE      DIV OR HLT          6  6941                     72
516  4 160         DCW   @090200@      VDP   BLOCK,COMPUTE      DIV OR HLT          6  6947                     72
517  4 170         DCW   @0&    @      VFD   DELETE-UNKNOWN     PM-GEN BINARY       6  6953                     73
518  4 180         DCW   @090200@      VLM   BLOCK,COMPUTE      MPY VAR LNG         6  6959                     73
519  4 190         DCW   @090200@      VMA   BLOCK,COMPUTE      VRBL MULT           6  6965                     73
520  4 200         DCW   @091101@      WBT   IO, WRITE BLANK    WRITE BLANKTP       6  6971                     73
521  4 210         DCW   @091104@      WEF   IO, CTL TAPE       WR TPE EOF          6  6977                     73
522  4 220         DCW   @091109@      WPB   IO, WR PRNTER      PRNT BIN CHAN       6  6983                     73
523  4 230         DCW   @091109@      WPD   IO, WR PRNTER      PRNT DEC CHAN       6  6989                     74
524  4 240         DCW   @091109@      WPR   IO, WR PRNTER      WR PRTR CHAN        6  6995                     74
525  4 250         DCW   @091108@      WPU   IO,WR PUNCH        WR PUNCH CHAN       6  7001                     74
526  4 260         DCW   @091107@      WRS   IO,CTL UNIT OP1    WR-SELECT           6  7007                     74
527  4 270         DCW   @091101@      WT    IO,WR TPE OP1      WR TAPE             6  7013                     74
528  4 280         DCW   @091101@      WTB   IO, WR TAPE OP1    WR TPE BINCH        6  7019                     74
529  4 290         DCW   @091101@      WTD   IO, WR TAPE OP1    WR TPE DEC CH       6  7025                     75
530  4 300         DCW   @691105@      WTR   IO-GOTO CTL CHNL   WAIT-TRANSFER       6  7031                     75
531  4 310         DCW   @090100@      XCA   TRANSPARENT        EX AC & MQ          6  7037                     75
532  4 320         DCW   @090100@      XCL   TRANSPARENT        LOG EX AC&MQ        6  7043                     75
533  4 330         DCW   @092129@      XEC   MODFY,EX INSTR     EX OUT-OF-LNE       6  7049                     75
534  4 340         DCW   @0-U000@      XIT   EXIT               EXIT                6  7055                     75
535  4 350         DCW   @091115@      XMT   IO,COPY 1          CHAN TRANSMIT       6  7061                     76
536  4 360         DCW   @090100@      ZAC   TRANSPARENT        ZERO AC             6  7067                     76
537  4 370         DCW   @0&    @      ZERO  DELETE-UNKNOWN     PREFIX              6  7073                     76
538  4 380         DCW   @097062@      ZET   DECID,STOR ZERO    SKIP- STG ZRO       6  7079                     76
539  4 390         DCW   @092127@      ZSA   MODFY,MDY MODE OP1 ZRO STG ADDR        6  7085                     76
540  4 400         DCW   @092127@      ZSD   MODFY,MDY MODE OP1 ZRO STG DEC         6  7091                     76
541  4 410         DCW   @0&    @      704   DELETE-UNKNOWN     SET MODE            6  7097                     77
542  4 420         DCW   @0&    @      7090  DELETE-UNKNOWN     SET MODE            6  7103                     77
543  4 430         DCW   @0&    @      9LP   DELETE-UNKNOWN     PREFIX              6  7109                     77
544  4 440  LOW    EQU   OPTABL-5            FOR PASS 1 DICTIONARIES                   4500
545  4 450  START  EQU   813                 START ADDRESS                             0813
546  4 460  HIGH   EQU   *&1                 HIGH POSITION FOR $ADD CARD               7110
547  4 470         END   OPTABL                                                            / 50V 080        78
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530  4 300         DCW   @691105@      WTR   IO-GOTO CTL CHNL   WAIT-TRANSFER       6  7031                     75          *****
531  4 310         DCW   @090100@      XCA   TRANSPARENT        EX AC & MQ          6  7037                     75
532  4 320         DCW   @090100@      XCL   TRANSPARENT        LOG EX AC&MQ        6  7043                     75
533  4 330         DCW   @092129@      XEC   MODFY,EX INSTR     EX OUT-OF-LNE       6  7049                     75
534  4 340         DCW   @0-U000@      XIT   EXIT               EXIT                6  7055                     75
535  4 350         DCW   @091115@      XMT   IO,COPY 1          CHAN TRANSMIT       6  7061                     76
536  4 360         DCW   @090100@      ZAC   TRANSPARENT        ZERO AC             6  7067                     76
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537  4 370         DCW   @0&    @      ZERO  DELETE-UNKNOWN     PREFIX            6  7073                           76
538  4 380         DCW   @097062@      ZET   DECID,STOR ZERO    SKIP- STG ZRO     6  7079                           76
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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                                     1              4CHRH
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?                   2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040                   3

                          SYSTEM/360 DICTIONARY                                         4CHRH              PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                                 SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    010  000    JOB   SYSTEM/360 DICTIONARY
 102    020         CTL   440
 103    030  *              VERSION 2  LEVEL 0   JULY 25,1965
 104    040         DCW   @$ADD     @         CARDS COMMON TO ALL DICTIONARIES     9  0341                           4
 105    050         DSA   LOW                 --REQUIRED TO                        3  0344  50|                      4
 106    060         DSA   START               --GENERATE THE APPROPRIATE           3  0347  813                      4
 107    070         DSA   HIGH                --$ADD CARD                          3  0350  Y2W                      4
 108    080         DCW   @051765@            ASSEMBLY DATE                        6  0356                           4
 109    090         ORG   4500                                                             4500
 110    100  OPTABL DCW   @040050@      A     BLOCK,ADD 2 TO R1  ADD               6  4505                           5
 111    110         DCW   @040050@      AD    BLOCK,ADD 2 TO R1  ADD NORM LNG      6  4511                           5
 112    120         DCW   @020051@      ADR   BLOCK,ADD R2 TO R1 ADD NORM LNG      6  4517                           5
 113    130         DCW   @040050@      AE    BLOCK,ADD 2 TO R1  ADD NORM SHRT     6  4523                           5
 114    140         DCW   @020051@      AER   BLOCK,ADD R2 TO R1 ADD NORM SHRT     6  4529                           5
 115    150         DCW   @0&    @      AFILE DELET-UNKNOWN      CTL CARD          6  4535                           5
 116    160         DCW   @040050@      AH    BLOCK,ADD 2 TO R1  ADD HALF WORD     6  4541                           6
 117    170         DCW   @040050@      AL    BLOCK,ADD 2 TO R1  ADD LOGICAL       6  4547                           6
 118    180         DCW   @020051@      ALR   BLOCK,ADD R2 TO R1 ADD LOGICAL       6  4553                           6
 119    190         DCW   @0&    @      AMSSG DELET-UNKNOWN      CTL CARD          6  4559                           6
 120    200         DCW   @0&    @      AOPTN DELET-UNKNOWN      CTL CARD          6  4565                           6
 121    210         DCW   @060052@      AP    BLOCK,ADD 2 TO 1   ADD DECIMAL       6  4571                           6
 122    220         DCW   @020051@      AR    BLOCK,ADD R2 TO R1 ADD               6  4577                           7
 123    230         DCW   @040050@      AU    BLOCK,ADD 2 TO R1  ADD UNNORM SH     6  4583                           7
 124    240         DCW   @020051@      AUR   BLOCK,ADD R2 TO R1 ADD UNNORM SH     6  4589                           7
 125    250         DCW   @040050@      AW    BLOCK,ADD 2 TO R1  ADD UNNORM LN     6  4595                           7
 126    260         DCW   @0&    @      AWORK DELET-UNKNOWN      CTL CARD          6  4601                           7
 127    270         DCW   @020051@      AWR   BLOCK,ADD R2 TO R1 ADD UNNORM LN     6  4607                           7
 128    280         DCW   @04V001@      B     GOTO OP1           BRNCH             6  4613                           8
 129    290         DCW   @04Y053@      BAL   SUBRT,LINK IN 2    BRNCH AND LNK     6  4619                           8
 130    300         DCW   @02Y053@      BALR  SUBRT,LINK IN 2    BRNCH AND LNK     6  4625                           8
 131    310         DCW   @044054@      BC    DECID,IS COND 2 MT BRNCH ON COND     6  4631                           8
 132    320         DCW   @024054@      BCR   DECID,IS COND 2 MT BRNCH ON COND     6  4637                           8
 133    330         DCW   @044055@      BCT   DECID,IS RST NZRO  BRNCH ON CNT      6  4643                           8
 134    340         DCW   @024055@      BCTR  DECID,IS RST NZRO  BRNCH ON CNT      6  4649                           9
 135    350         DCW   @044136@      BE    DECID,IS COND EQ   BRNCH EQUAL       6  4655                           9
 136    360         DCW   @044135@      BH    DECID,IS COND HI   BRNCH HIGH        6  4661                           9
 137    370         DCW   @044137@      BL    DECID,IS COND LO   BRNCH LOW         6  4667                           9
 138    380         DCW   @044138@      BM    DECID,IS COND MNS  BRNCH MINUS       6  4673                           9
 139    390         DCW   @044141@      BNE   DECID,IS COND NEQ  BRNCH NOT EQ      6  4679                           9
 140    400         DCW   @044142@      BNH   DECID,IS COND NHI  BRNCH NOT HI      6  4685                          10
 141    410         DCW   @044143@      BNL   DECID,IS COND NLO  BRNCH NOT LO      6  4691                          10
 142    420         DCW   @044139@      BO    DECID,IS COND OVF  BRNCH OVERFLO     6  4697                          10
 143    430         DCW   @044140@      BP    DECID,IS COND PLS  BRNCH POSITIV     6  4703                          10
 144    440         DCW   @02V001@      BR    GOTO OP1           BRNCH             6  4709                          10
 145    450         DCW   @044056@      BXH   DECID,IS SUM GT 0  BRNCH INDX HI     6  4715                          10
 146    460         DCW   @044057@      BXLE  DECID,IS SUM LE 0  BRNCH INDX LE     6  4721                          11
 147    470         DCW   @044144@      BZ    DECID,IS COND ZRO  BRNCH ZERO        6  4727                          11
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SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD

148    480         DCW   @040092@      C     BLOCK,COMP R1 W 2  CMPAR ALGEBR      6  4733                      11
149    490         DCW   @0&    @      CCB   DELET-UNKNOWN                        6  4739                      11
150    500         DCW   @0&    @      CCW   DELETE-UNKNOWN     DFIN CHAN COM     6  4745                      11
151    510         DCW   @040092@      CD    BLOCK,COMP R1 W 2  CMPAR LONG        6  4751                      11
152    520         DCW   @020093@      CDR   BLOCK,COMP R1-R2   CMPAR LONG        6  4757                      12
153    530         DCW   @040092@      CE    BLOCK,COMP R1 W 2  CMPAR SHRT        6  4763                      12
154    540         DCW   @020093@      CER   BLOCK,COMP R1-R2   CMPAR SHRT        6  4769                      12
155    550         DCW   @040092@      CH    BLOCK,COMP R1 W 2  CMPAR HALF WD     6  4775                      12
156    560         DCW   @0-1124@      CHKPT IO,WRTE CHKPT                        6  4781                      12
157    570         DCW   @0-1134@      CHNG  IO,CHG CH ON 1     IO MACRO          6  4787                      12
158    580         DCW   @040092@      CL    BLOCK,COMP R1 W 2  CMPAR LOGICAL     6  4793                      13
159    590         DCW   @060094@      CLC   BLOCK,COMP 1 W 2   CMPAR LOGICAL     6  4799                      13
160    600         DCW   @040094@      CLI   BLOCK,COMP 1 W 2   CMPAR LOG IMD     6  4805                      13
161    610         DCW   @0-1151@      CLOSE IO,CLOSE PEC DS                      6  4811                      13
162    620         DCW   @020093@      CLR   BLOCK,COMP R1-R2   CMPAR LOGICAL     6  4817                      13
163    630         DCW   @0&    @      CNOP  DELETE-UNKNOWN     COND NO OP        6  4823                      13
164    640         DCW   @0-1133@      CNTRL IO,IO CTL 1,2      IO MACRO          6  4829                      14
165    650         DCW   @0-1118@      COMRG IO,LD COMM RGN     SUP COMM MAC      6  4835                      14
166    660         DCW   @0&    @      COPY  DELETE-UNKNOWN     INCLUDE CODE      6  4841                      14
167    670         DCW   @060094@      CP    BLOCK,COMP 1 W 2   CMPAR DECIMAL     6  4847                      14
168    680         DCW   @020093@      CR    BLOCK,COMP R1 W 2  CMPAR ALGEB       6  4853                      14
169    690         DCW   @0&    @      CSECT DELETE-UNKNOWN     CONT SECTION      6  4859                      14
170    700         DCW   @040061@      CVB   BLOCK,CONV 2 NTO 1 CONVERT TOBIN     6  4865                      15
171    710         DCW   @040027@      CVD   BLOCK,CONV 2 NTO 1 CONVERT TODEC     6  4871                      15
172    720         DCW   @040058@      D     BLOCK,DIV R1 BY 2  DIVIDE            6  4877                      15
173    730         DCW   @0&    @      DC    DELETE-UNKNOWN     DFIN CONSTANT     6  4883                      15
174    740         DCW   @040058@      DD    BLOCK,DIV R1 BY 2  DIVIDE LONG       6  4889                      15
175    750         DCW   @020059@      DDR   BLOCK,DIV R1 BY R2 DIVIDE LONG       6  4895                      15
176    760         DCW   @040058@      DE    BLOCK,DIV R1 BY 2  DIVIDE SHORT      6  4901                      16
177    770         DCW   @020059@      DER   BLOCK,DIV R1 BY R2 DIVIDE SHORT      6  4907                      16
178    780         DCW   @060060@      DP    BLOCK,DIV 1 BY 2   DIVIDE DEC        6  4913                      16
179    790         DCW   @020059@      DR    BLOCK,DIV R1 BY R2 DIVIDE            6  4919                      16
180    800         DCW   @0&    @      DROP  DELETE-UNKNOWN     DROP BASE REG     6  4925                      16
181    810         DCW   @0&    @      DS    DELETE-UNKNOWN     DFIN STORAGE      6  4931                      16
182    820         DCW   @0&    @      DSECT DELETE-UNKNOWN     DUMMY SECTION     6  4937                      17
183    830         DCW   @0&    @      DTFBG DELET-UNKNOWN      FILE DEF MAC      6  4943                      17
184    840         DCW   @0&    @      DTFDA DELET-UNKNOWN      FILE DEF MAC      6  4949                      17
185    850         DCW   @0&    @      DTFEN  DELETE-UNKNOWN    FILE DEF MAC      6  4955                      17
186    860         DCW   @0&    @      DTFIS  DELETE-UNKNOWN    FILE DEF MAC      6  4961                      17
187    870         DCW   @0&    @      DTFPH DELETE-UNKNOWN     FILE DEF MAC      6  4967                      17
188    880         DCW   @0&    @      DTFSR DELETE-UNKNOWN     FILE DEF MAC      6  4973                      18
189    890         DCW   @0-1126@      DUMP  IO,DUMP STRG       SUP COMM MAC      6  4979                      18
190    900         DCW   @060062@      ED    BLOCK,EDIT 2 NTO 1 EDIT              6  4985                      18
191    910         DCW   @060062@      EDMK  BLOCK,EDIT 2 NTO 1 EDIT AND MARK     6  4991                      18
192    920         DCW   @0&    @      EJECT DELETE-UNKNOWN     START NEW PAG     6  4997                      18
193    930         DCW   @0&    @      END   DELETE-UNKNOWN     END ASSEMBLY      6  5003                      18
194    940         DCW   @0-1121@      ENDFL IO,END FILE LD 1   DISK MACRO        6  5009                      19
195    950         DCW   @0&    @      ENTRY DELETE-UNKNOWN     DFIN ENTRY        6  5015                      19
196    960         DCW   @0-U021@      EOJ   EXIT               SUP COMM MAC      6  5021                      19
197    970         DCW   @0&    @      EQU   DELETE-UNKNOWN     EQUATE SYMBOL     6  5027                      19
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SEQ PG LIN  LABEL  OP    OPERANDS                                      SFX CT  LOCN  INSTRUCTION TYPE  CARD

198    980         DCW   @0-1123@      ESETL IO,END SET LOW 1   DISK MACRO       6  5033                     19
199    990         DCW   @042095@      EX    MODFY,EX IN AT 2   EXECUTE          6  5039                     19
200  1 000         DCW   @0-1116@      EXCP  IO,EX CH PRGM 1    SUP COMM MAC     6  5045                     20
201  1 010         DCW   @0-U023@      EXIT  IO,RTN FROM 1      SUP COMM MAC     6  5051                     20
202  1 020         DCW   @0&    @      EXTRN DELETE-UNKNOWN     DFIN EXT SYM     6  5057                     20
203  1 030         DCW   @0-1152@      FEOV  IO,FEOVOL 1                         6  5063                     20
204  1 040         DCW   @0-U022@      FETCH EXIT,OP OP1        SUP COMM MAC     6  5069                     20
205  1 050         DCW   @0-1129@      GET   IO,GET 1  2        IO MACRO         6  5075                     20
206  1 060         DCW   @020096@      HDR   BLOCK,EDIT 2 NTO 1 HALVE LONG       6  5081                     21
207  1 070         DCW   @020096@      HER   BLOCK,EDIT 2 NTO 1 HALVE SHORT      6  5087                     21
208  1 080         DCW   @041110@      HIO   IO,HALT I/O        HALT IO          6  5093                     21
209  1 090         DCW   @040097@      IC    BLOCK,EDIT 2 NTO 1 INSERT CHARAC    6  5099                     21
210  1 100         DCW   @0&    @      ICTL  DELETE-UNKNOWN     INPUT FRMT CO    6  5105                     21
211  1 110         DCW   @0&    @      ISEQ  DELETE-UNKNOWN     INPUT SEQ CHK    6  5111                     21
212  1 120         DCW   @020098@      ISK   BLOCK,EDIT 2 NTO 1 INSER STOR KY    6  5117                     22
213  1 130         DCW   @040063@      L     BLOCK,LOAD 2 TO R1 LOAD             6  5123                     22
214  1 140         DCW   @040035@      LA    BLOCK,LD ADDR 2    LOAD ADDRESS     6  5129                     22
215  1 150         DCW   @0-U022@      LBRET EXIT                                6  5135                     22
216  1 160         DCW   @020029@      LCDR  BLOCK,LD R2 TO R1  LOAD COMP LNG    6  5141                     22
217  1 170         DCW   @020029@      LCER  BLOCK,LD R2 TO R1  LOAD COMP SH     6  5147                     22
218  1 180         DCW   @020029@      LCR   BLOCK,LD R2 TO R1  LOAD COMP        6  5153                     23
219  1 190         DCW   @020063@      LD    BLOCK,LD 2 TO R1   LOAD LONG        6  5159                     23
220  1 200         DCW   @020064@      LDR   BLOCK,LD R2 TO R1  LOAD LONG        6  5165                     23
221  1 210         DCW   @020063@      LE    BLOCK,LD 2 TO R1   LOAD SHORT       6  5171                     23
222  1 220         DCW   @020064@      LER   BLOCK,LD R2 TO R1  LOAD SHORT       6  5177                     23
223  1 230         DCW   @020028@      LH    BLOCK,LD 2 TO R1   LOD HALF WORD    6  5183                     23
224  1 240         DCW   @040065@      LM    BLOCK,LD 3 TO R1   LOAD MULTIPLE    6  5189                     24
225  1 250         DCW   @020030@      LNDR  BLOCK,LD R2 TO R1  LOAD NEG LONG    6  5195                     24
226  1 260         DCW   @020030@      LNER  BLOCK,LD R2 TO R1  LOAD NEG SHRT    6  5201                     24
227  1 270         DCW   @020030@      LNR   BLOCK,LD R2 TO R1  LOAD NEGATIVE    6  5207                     24
228  1 280         DCW   @020031@      LPDR  BLOCK,LD R2 TO R1  LOD POS LONG     6  5213                     24
229  1 290         DCW   @020031@      LPER  BLOCK,LD R2 TO R1  LOD POS SHORT    6  5219                     24
230  1 300         DCW   @020031@      LPR   BLOCK,LD R2 TO R1  LOD POSITIVE     6  5225                     25
231  1 310         DCW   @040066@      LPSW  BLOCK,LD PSW W 2   LOAD PSW         6  5231                     25
232  1 320         DCW   @020064@      LR    BLOCK,LD R2 TO R1  LOAD             6  5237                     25
233  1 330         DCW   @020032@      LTDR  BLOCK,LD R2 TO R1  LOAD & TST LN    6  5243                     25
234  1 340         DCW   @020032@      LTER  BLOCK,LD R2 TO R1  LOAD & TST SH    6  5249                     25
235  1 350         DCW   @0&    @      LTORG DELETE-UNKNOWN     BEGIN LIT PL     6  5255                     25
236  1 360         DCW   @020032@      LTR   BLOCK,LD R2 TO R1  LOD AND TEST     6  5261                     26
237  1 370         DCW   @040067@      M     BLOCK,MULT R1 BY 2 MULTIPLY         6  5267                     26
238  1 380         DCW   @0&    @      MACRO DELETE-UNKNOWN     DEFIN MACRO      6  5273                     26
239  1 390         DCW   @040067@      MD    BLOCK,MULT R1 BY 2 MULTIPLY LONG    6  5279                     26
240  1 400         DCW   @020068@      MDR   BLOCK,MULT R1-R2   MULTIPLY LONG    6  5285                     26
241  1 410         DCW   @040067@      ME    BLOCK,MULT R1 BY 2 MULTIPLY SHRT    6  5291                     26
242  1 420         DCW   @0&    @      MEND  DELETE-UNKNOWN     MACRO END        6  5297                     27
243  1 430         DCW   @020068@      MER   BLOCK,MULT R1 - R2 MULTIPLY SHRT    6  5303                     27
244  1 440         DCW   @040067@      MH    BLOCK,MULT R1 BY 2 MULT HALF WRD    6  5309                     27
245  1 450         DCW   @060069@      MP    BLOCK,MULT 1 BY 2  MULT DECIMAL     6  5315                     27
246  1 460         DCW   @020068@      MR    BLOCK,MULT R1 - R2 MULTIPLY         6  5321                     27
247  1 470         DCW   @0-1117@      MSG   IO,MSG TO OPRTR    SUP COMM MAC     6  5327                     27
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  1 480         DCW   @060070@      MVC   BLOCK,MV 2 TO 1    MOVE CHARAC       6  5333                    28
249  1 490         DCW   @040070@      MVI   BLOCK,MV 2 TO 1    MOVE IMMED        6  5339                    28
250  1 500         DCW   @060070@      MVN   BLOCK,MV 2 TO 1    MOVE NUMERICS     6  5345                    28
251  1 510         DCW   @060070@      MVO   BLOCK,MV 2 TO 1    MOVE WITH OFS     6  5351                    28
252  1 520         DCW   @060070@      MVZ   BLOCK,MV 2 TO 1    MOVE ZONES        6  5357                    28
253  1 530         DCW   @040071@      N     BLOCK,LOG 2 NTO R1 AND LOGICAL       6  5363                    28
254  1 540         DCW   @060072@      NC    BLOCK,LOG 2 NTO 1  AND LOGICAL       6  5369                    29
255  1 550         DCW   @040072@      NI    BLOCK,LOG 2 NTO 1  AND LOG IMED      6  5375                    29
256  1 560         DCW   @043010@      NOP   PREDF              NOP-RX            6  5381                    29
257  1 570         DCW   @023010@      NOPR  PREDF              NOP-RR            6  5387                    29
258  1 580         DCW   @020071@      NR    BLOCK,LOG 2 NTO R1 AND LOG           6  5393                    29
259  1 590         DCW   @040073@      O     BLOCK,LOG 2 NTO R1 OR LOGICAL        6  5399                    29
260  1 600         DCW   @060074@      OC    BLOCK,LOG 2 NTO 1  OR LOGICAL        6  5405                    30
261  1 610         DCW   @040074@      OI    BLOCK,LOG 2 NTO 1  OR LOG IMMED      6  5411                    30
262  1 620         DCW   @0-1150@      OPEN  IO,OPEN SPEC DS                      6  5417                    30
263  1 630         DCW   @020073@      OR    BLOCK,LOG 2 NTO R1 OR LOGICAL        6  5423                    30
264  1 640         DCW   @0&    @      ORG   DELETE-UNKNOWN     SET LOC CNTR      6  5429                    30
265  1 650         DCW   @060025@      PACK  BLOCK,EDIT 2 NTO 1 PACK              6  5435                    30
266  1 660         DCW   @0&    @      PRINT DELETE-UNKNOWN     PRINT OPT DAT     6  5441                    31
267  1 670         DCW   @0-1133@      PRTOV IO,IO CTL 1,2      IO MACRO          6  5447                    31
268  1 680         DCW   @0&    @      PUNCH DELETE-UNKNOWN     PRGM CTL          6  5453                    31
269  1 690         DCW   @0-1130@      PUT   IO, PUT 1  2       IO MACRO          6  5459                    31
270  1 700         DCW   @041112@      RDD   IO,RD D INTO OP1   READ DIRECT       6  5465                    31
271  1 710         DCW   @0-1125@      READ  IO,READ U,2                          6  5471                    31
272  1 720         DCW   @0-1131@      RELSE IO,RELEASE 1       IO MACRO          6  5477                    32
273  1 730         DCW   @0&    @      REPRO DELETE-UNKNOWN     PRGM CTL          6  5483                    32
274  1 740         DCW   @040077@      S     BLOCK,SUB 2 FR R1  SUBTRACT          6  5489                    32
275  1 750         DCW   @040077@      SD    BLOCK,SUB 2 FR R1  SUB NORM LNG      6  5495                    32
276  1 760         DCW   @020078@      SDR   BLOCK,SUB R1 FR R2 SUB NORM LNG      6  5501                    32
277  1 770         DCW   @040077@      SE    BLOCK,SUB 2 FR R1  SUB NORM SHRT     6  5507                    32
278  1 780         DCW   @020078@      SER   BLOCK,SUB R1 FR R2 SUB NORM SHRT     6  5513                    33
279  1 790         DCW   @0-1120@      SETFL IO,ST FILE LOD 1   DISK MACRO        6  5519                    33
280  1 800         DCW   @0-1122@      SETL  IO,SET LOW 1       DISK MACRO        6  5525                    33
281  1 810         DCW   @040077@      SH    BLOCK,SUB 2 FR R1  SUB HALF WORD     6  5531                    33
282  1 820         DCW   @041111@      SIO   IO,START I/O       START IO          6  5537                    33
283  1 830         DCW   @040077@      SL    BLOCK,SUB 2 FR R1  SUB LOGICAL       6  5543                    33
284  1 840         DCW   @040080@      SLA   BLOCK,SHFT LFT R1  SHFT LF SIN A     6  5549                    34
285  1 850         DCW   @040080@      SLDA  BLOCK,SHFT LFT R1  SHFT LF DUB A     6  5555                    34
286  1 860         DCW   @040080@      SLDL  BLOCK,SHFT LFT R1  SHFT LF DUB L     6  5561                    34
287  1 870         DCW   @040080@      SLL   BLOCK,SHFT LFT R1  SHFT LF SIN L     6  5567                    34
288  1 880         DCW   @020078@      SLR   BLOCK,SUB R2 FR R1 SUB LOGICAL       6  5573                    34
289  1 890         DCW   @060079@      SP    BLOCK,SUB 2 FR 1   SUB DECIMAL       6  5579                    34
290  1 900         DCW   @0&    @      SPACE DELETE-UNKNOWN     SPACE LISTING     6  5585                    35
291  1 910         DCW   @022091@      SPM   MODFY,SET PR MSK   SET PROG MASK     6  5591                    35
292  1 920         DCW   @020078@      SR    BLOCK,SUB R1 FR R2 SUBTRACT          6  5597                    35
293  1 930         DCW   @040081@      SRA   BLOCK,SHFT RGT R1  SHFT RT SIN A     6  5603                    35
294  1 940         DCW   @040081@      SRDA  BLOCK,SHFT RGT R1  SHFT RT DUB A     6  5609                    35
295  1 950         DCW   @040081@      SRDL  BLOCK,SHFT RGT R1  SHFT RT DUB L     6  5615                    35
296  1 960         DCW   @040081@      SRL   BLOCK,SHFT RGT R1  SHFT RT SIN L     6  5621                    36
297  1 970         DCW   @022089@      SSK   MODFY,SET STR KEY  SET STOR KEY      6  5627                    36
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SEQ PG LIN  LABEL  OP    OPERANDS                                      SFX CT  LOCN  INSTRUCTION TYPE  CARD

298  1 980         DCW   @042088@      SSM   MODFY,SET SYS MASK SET SYS MASK      6  5633                    36
299  1 990         DCW   @040082@      ST    BLOCK,STO R1 AT 2  STORE             6  5639                    36
300  2 000         DCW   @0&    @      START DELETE-UNKNOWN     START ASSEMB      6  5645                    36
301  2 010         DCW   @040034@      STC   BLOCK,STO R1 AT 2  STORE CHARAC      6  5651                    36
302  2 020         DCW   @040082@      STD   BLOCK,STO R1 AT 2  STORE LONG        6  5657                    37
303  2 030         DCW   @040082@      STE   BLOCK,STO R1 AT 2  STORE SHORT       6  5663                    37
304  2 040         DCW   @040033@      STH   BLOCK,STO R1 AT 2  STORE HLF WRD     6  5669                    37
305  2 050         DCW   @040083@      STM   BLOCK,STO R1 AT 3  STORE MULT        6  5675                    37
306  2 060         DCW   @0-1119@      STXIT IO,SET EXIT         UP COMM MAC      6  5681                    37
307  2 070         DCW   @040077@      SU    BLOCK,SUB 2 FR R1  SUB UNNORM SH     6  5687                    37
308  2 080         DCW   @020078@      SUR   BLOCK,SUB R2 FR R1 SUB UNNORM SH     6  5693                    38
309  2 090         DCW   @02Y090@      SVC   SUBRT,SUP          SUPERVIS CALL     6  5699                    38
310  2 100         DCW   @040077@      SW    BLOCK,SUB 2 FR R1  SUB UNNORM LN     6  5705                    38
311  2 110         DCW   @020078@      SWR   BLOCK,SUB R2 FR R1 SUB UNNORM LN     6  5711                    38
312  2 120         DCW   @041115@      TCH   IO,TST CHNL & SET  TEST CHAN         6  5717                    38
313  2 130         DCW   @041114@      TIO   IO,TST IO OP1 & ST TEST IO           6  5723                    38
314  2 140         DCW   @0&    @      TITLE DELETE-UNKNOWN     DFIN HEADER       6  5729                    39
315  2 150         DCW   @040085@      TM    BLOCK,TEST V MSK   TEST UND MASK     6  5735                    39
316  2 160         DCW   @060086@      TR    BLOCK,TR OP1 FRM 2 TRANSLAT          6  5741                    39
317  2 170         DCW   @060086@      TRT   BLOCK,TR OP1 FRM 2 TRANS AND TST     6  5747                    39
318  2 180         DCW   @0-1132@      TRUNC IO,TRUNC 1         IO MACRO          6  5753                    39
319  2 190         DCW   @060026@      UNPK  BLOCK,EDIT 2 NT 1  UNPACK            6  5759                    39
320  2 200         DCW   @0&    @      USING DELETE-UNKNOWN     USE BASE REG      6  5765                    40
321  2 210         DCW   @0-1127@      WAIT  IO,WAIT UNT COM    IO MACRO          6  5771                    40
322  2 220         DCW   @0-1127@      WAITF IO,WAIT UNT COM    IO MACRO          6  5777                    40
323  2 230         DCW   @041113@      WRD   IO,WR D FROM OP1   WRITE DIRECT      6  5783                    40
324  2 240         DCW   @0-1128@      WRITE IO,WRITE 1,2       IO MACRO          6  5789                    40
325  2 250         DCW   @040075@      X     BLOCK,EXOR 2 NT R1 EXCLUS OR         6  5795                    40
326  2 260         DCW   @060076@      XC    BLOCK,EXOR 2 NT 1  EXCLUS OR         6  5801                    41
327  2 270         DCW   @0&    @      XFR   DELETE-UNKNOWN     PRGM CTL          6  5807                    41
328  2 280         DCW   @040076@      XI    BLOCK,EXOR 2 NT 1  EXCLUS OR IMD     6  5813                    41
329  2 290         DCW   @020075@      XR    BLOCK,EXOR 2 NT R1 EXCLUS OR         6  5819                    41
330  2 300         DCW   @060084@      ZAP   BLOCK,ZRAD 2 TO 1  ZEROADD DEC       6  5825                    41
331  2 310  LOW    EQU   OPTABL-5                                                  4500
332  2 320  START  EQU   813                                                       0813
333  2 330  HIGH   EQU   *&1                                                       5826
334  2 340         END   5000                                                            / |0| 080          42
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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                                 1                 4CHRS
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?              2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039              ,0010011040              3

                          PHASE 1, PASS 2, FLOWCHARTER                                   4CHRS               PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                                 SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    010  000    JOB   PHASE 1, PASS 2, FLOWCHARTER
 102  1 011         CTL   440  1
 103  1 012         DCW   @$ADD     @                                                    9  0341                        4
 104    020         DSA   COREND&1                                                     3  0344  812                   4
 105    040         DSA   BRANCH                                                       3  0347  813                   4
 106    050         DSA   HIGH2                                                        3  0350  01Y                   4
 107    060         DCW   @04/05/65@                                                   8  0358                        4
 108    070  *
 109    080  *                               TAPE DEFINITIONS
 110    090  IOCON2 EQU   200                   TAPE 2 FOR SYSIO CALL                     0200
 111    100  IOCON3 EQU   300                   TAPE 3 FOR SYSIO CALL                     0300
 112    110  IOCON4 EQU   400                   TAPE 4 FOR SYSIO CALL                     0400
 113    120  IOTP2  EQU   %U2                   TAPE UNIT 2                               %U2
 114    130  IOTP3  EQU   %U3                   TAPE UNIT 3                               %U3
 115    140  IOTP4  EQU   %U4                   TAPE UNIT 4                               %U4
 116    150  SYSTAP EQU   %U1                   SYSTEM TAPE UNIT 1                        %U1
 117    160  *
 118    170  *                               SYSTEM COMMUNICATION DEFINITIONS
 119    180  LCARD  EQU   1                     1-80, $CONTROL CARD INPUT AREA            0001
 120    190  *                                 81 NOT USED, MAY HAVE BLANK, RM
 121    200  MACH   EQU   82                    MACHINE CODE                              0082
 122    210  LANG   EQU   83                    LANGUAGE CODE                             0083
 123    220  SWEJEC EQU   084                  PRINT PAGE EJECT SWITCH                    0084
 124    230  *                                 85, 86 NOT ASSIGNED
 125    240  X1     EQU   89                    87-89, INDEX REGISTER 1                   0089
 126    250  *                                 90-91 NOT ASSIGNED
 127    260  X2     EQU   94                    92-94, INDEX REGISTER 2                   0094
 128    270                                     95, 96 NOT ASSIGNED
 129    280  X3     EQU   99                    97-99, INDEX REGISTER 3                   0099
 130    290                                     100 READ/PUNCH CHECK POSITION
 131    300  LPUNCH EQU   101                   101-180, PUNCH-DAJOB HEADING              0101
 132    310  *                                 181-195, USED BY SYSLNK
 133    320  LPAGE  EQU   199                   196-199, DAJOB PAGE HEADING               0199
 134    330  *                                 200 NOT ASSIGNED
 135    340  LPRINT EQU   201                   201-332, PRINT AREA                       0201
 136    350  SYSLNK EQU   400                   SYSTEM TAPE READ ROUTINE                  0400
 137    360  SYSIO  EQU   500                   READ-WRITE TAPE ROUTINE                   0500
 138    370  LINTOT EQU   659                   NUMBER OF LINES PER PAGE                  0659
 139    380  EJECT  EQU   704                   EJECT PAGE ROUTINE                        0704
 140    390  PRINT  EQU   747                   PRINT LINE ROUTINE                        0747
 141    400  READ   EQU   781                   READ CONTROL CARD ROUTINE                 0781
 142    410  PUNCH  EQU   789                   PUNCH CARD ROUTINE                        0789
 143    420  *
 144    430  SYSEND EQU   799                   LAST CHARACTER                            0799
 145    440  *
 146    450  *              SWITCHES COMMON TO ALL PHASES OF FLOWCHART
 147    460  SWLIST EQU   SYSEND&1                                                        0800
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

148    470  SWDECK EQU   SWLIST&1                                                  0801
149    480  SWNOCH EQU   SWDECK&1                                                  0802
150    490  SWNOST EQU   SWNOCH&1                                                  0803
151    500  SWCROS EQU   SWNOST&1                                                  0804
152    510  SWNOSV EQU   SWCROS&1                                                  0805
153    520  LOCADJ EQU   SWNOSV&3                                                  0808
154    530  COREND EQU   LOCADJ&3                                                  0811
155    540  SWMULT EQU   COREND&1                                                  0812
156    550         ORG   SWMULT&1                                                        0813
157    560  *              COMMON BRANCH POINT FROM SYSTEM TAPE READ, OVERLAID
158    570  *                COMMON BRANCH POINT FROM SYSTEM TAPE, OVERLAID
159    580  BRANCH B     START              GO TO INSTRUCTION AFTER READ           4  0813  B /25               5
160    590  R1TPIN DA    1X80                                                      0817   0896                5
161    600              1,1                 ***RECORD-1 SUBFIELDS***                  0817              FIELD   5
162    610  R1LNTY       11                                                        0827              SBFLD
163    620  R1LENG       12,14              IF KNOWN, LENGTH OF INSTRUCTION.          0830              FIELD   5
164    630  R1AREA       15,17              AREA CODE                              0833              FIELD   5
165    640  R1LABL       23,32              LABEL OF INSTRUCTION                   0848              FIELD   5
166    650  R1PROC       39                 PROCESSING CODE                        0855              SBFLD
167    660  R1BRTY       43                 IF A BRANCH, WHAT TYPE OF BR           0859              SBFLD
168    670  R1G1W1 DC    @ @                FOR A GMWM                             1  0897                      6
169    680  R2TPIN DA    1X80                                                      0898   0977                6
170    690              1,1                 ***RECORD-2 SUBFIELDS, SAME****        0898              FIELD   6
171    700  R2LNTY       11                                                        0908              SBFLD
172    710  R2LENG       12,14                                                     0911              FIELD   6
173    720  R2AREA       15,17                                                     0914              FIELD   6
174    730  R2LABL       23,32                                                     0929              FIELD   7
175    740  R2PROC       39                                                        0936              SBFLD
176    750  R2BRTY       43                                                        0940              SBFLD
177    760  R2OPR1       54                                                        0951              SBFLD
178    770  R2OPR2       70                                                        0967              SBFLD
179    780  R2OPR3       80                                                        0977              SBFLD
180    790  R2G2W2 DC    @ @                                                     1  0978                      8
181    800  *              SWITCHES, CONSTANTS, WORK AREAS
182    810  SWNWAR DC    #1                 DENOTES NEW AREA CODE TO LABEL         1  0979                      8
183    820  SWJOB  DC    #1                 DENOTES NEW JOB TO A LABEL             1  0980                      8
184    830  SWLOCR DC    #1                 DENOTES LOC REL ADDR OF A BR INS.      1  0981                      8
185    840  JOBOP1 DCW   #10                SAVE JOB INFORMATION FOR LABEL        10  0991                      8
186    850  JOBOP2 DCW   #10                DICTIONARY                            10  1001                      8
187    860  JOBOP3 DCW   #10                OVERFLOW                              10  1011                      8
188    870  LCTR   DCW   #3                 LOCATION COUNTER                       3  1014                      8
189    880  LGENCT DCW   #4                 GENERATED LABEL COUNT FOR PASS-2       4  1018                      9
190    890  L015E1 DCW   @ERROR. SEGMENT @                                        15  1033                      9
191    900  L029E2 DCW   @CAUSES LABEL TABLE OVERFLOW. @                          29  1062                     10
192    910  L016E3 DCW   @PLEASE RESEGMENT@                                       16  1078                     11
193    920  LDICT  DSA   P2DICT                                                  3  1081  I98                 11
194    930  L3I9I  DCW   @I9I@              MINUS ONE CORE ADDRESS                 3  1084                     11
195    940  L4ZERO DCW   @0000@             ZERO                                   4  1088                     11
196    950  L11    DCW   @1@                ONE                                    1  1089                     11
197    960  L2LOZN DCW   @)2@               LOZENGE IDENTIFIER FOR PASS-2          2  1091                     11
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

198     970  L2STAR DCW   @**@               ASTERISKS FOR ERROR PRINT            2  1093                      11
199     980  L1DOL  DCW   @$@                DOLLAR SIGN WITH WM                  1  1094                      12
200     990  L3988  DCW   @988@              1000-12# LARGEST DISPLACEMENT        3  1097                      12
201   1 000  L3SAM  DCW   @SAM@              BACKWARD DISPLACEMENT CODE           3  1100                      12
202   1 010  L20INI DCW   @                   &@                                 20  1120                      12
203   1 020  L1GM   DC    @}@                GROUP MARK                           1  1121                      12
204   1 030  L3020  DCW   @020@              DICTIONARY ENTRY LENGTH              3  1124                      12
205   1 040  ******           START. TAPES ARE REWOUND. END OF CORE IS
206   1 050  *                DETERMINED FOR DICTIONARY INITIALIZATION.
207   1 060  *                GROUP-MARK/WORD-MARKS ARE SET FOR TAPE I/O.
208   1 070  *                INITIALIZATION ENDS WITH A READ INPUT TAPE
209   1 080  ******           FOLLOWED BY NORMAL READ INPUT
210   1 090  START  RWD   IOTP4              REWIND INPUT TAPE                    5  1125  U %U4 R             12
211   1 100         RWD   IOTP2              REWIND DICTIONARY TAPE               5  1130  U %U2 R             13
212   1 110         CS    1                                                       4  1135  / 001               13
213   1 120         SBR   X3                 SAVE LAST CORE ADDRESS               4  1139  H 099               13
214   1 130         MA    L3I9I,X3           DROP X3 BY ONE                       7  1143  # |84 099           13
215   1 140         MLC   X3,COREND          SAVE END-1 %LAST WRITEABLE CELL)     7  1150  M 099 811           13
216   1 150         MLC   L1GM,0&X3          MOVE GROUP MARK TO COREND            7  1157  M /21 0?0           13
217   1 160         SW    0&X3               GET WORD MARK TO FORM GMWM           4  1164  , 0?0               13
218   1 170         MLCWA L1DOL,1            RESTORE CHARACTER 1                  7  1168  L |94 001           14
219   1 180         SW    R1G1W1,R2G2W2      SET GMWMS FOR TAPE IO                7  1175  , 897 978           14
220   1 190         B     SYSIO                                                   4  1182  B 500               14
221   1 200         DCW   &IOCON4                                                 3  1188  400                 14
222   1 210         ORG   *-2                                                             1187
223   1 220         DC    &R1TPIN            RECORD-1 AREA                        3  1189  817                 15
224   1 230         DC    @R@                                                     1  1190                      15
225   1 240  ******         P2MAIN. MAINLINE OF PASS-2. INPUT ONE RECORD,
226   1 250  *              FOLLOWED BY SUBROUTINE CALLS TO P2PRO, LCTUPD
227   1 260  ******         DLAFIN.
228   1 270  P2MAIN B     P2READ                                                  4  1191  B S27               15
229   1 280         BCE   P2JOBS,R2PROC,W    IF JOB CODE, GO INITIALIZE           8  1195  B S55 936 W         15
230   1 290         BCE   P2SEGS,R2PROC,X    IF END CODE, GO FINALIZE             8  1203  B T48 936 X         15
231   1 300         B     P2PRO              MAIN PROCESSING                      4  1211  B V57               15
232   1 310         B     LCTUPD             LOCATION COUNTER UPDATE              4  1215  B Y26               16
233   1 320         B     DLAFIN             DICTIONARY HOUSEKEEP                 4  1219  B Y60               16
234   1 330         B     P2MAIN                                                  4  1223  B /91               16
235   1 340  ******           P2READ. RECORD-1 IS MOVED TO RECORD-2, FOLLOWED
236   1 350  *                BY INPUT READ TO RECORD-1.
237   1 360  P2READ SBR   P2REAX&3           SAVE RETURN ADDRESS                  4  1227  H S54               16
238   1 370         MLC   R1G1W1,R2G2W2      MOVE RECORD-1 TO RECORD-2            7  1231  M 897 978           16
239   1 380         MLC                       COL 80 THRU 23                      1  1238  M                   16
240   1 390         MLC                       COL 22 THRU 15                      1  1239  M                   16
241   1 400         MLC                       COL 14 THRU 12                      1  1240  M                   17
242   1 410         MLC                       COL 11 THRU 1                       1  1241  M                   17
243   1 420         B     SYSIO              INPUT READ                           4  1242  B 500               17
244   1 430         DCW   &IOCON4                                                 3  1248  400                 17
245   1 440         ORG   *-2                                                             1247
246   1 450         DC    &R1TPIN                                                 3  1249  817                 18
247   1 460         DC    @R@                                                     1  1250                      18
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SEQ PG LIN  LABEL  OP    OPERANDS                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  1 470  P2REAX B     000                                              4  1251  B 000               18
249  1 480  ******           THIS CODING INITIALIZES THE DICTIONARY AND SAVES
250  1 490  *                THE $SEGMENT CARD INFORMATION IN CASE OF ERROR
251  1 500  ******
252  1 510  P2JOBS SW    SWNWAR,SWJOB       SET SWITCHES FOR PROCESSING       7  1255  , 979 980           18
253  1 520         MLC   L4ZERO,LGENCT      ZERO GENERATED LABEL COUNT        7  1262  M |88 |18           18
254  1 530         MLC   L4ZERO,LCTR        ZERO LOCATION COUNTER             7  1269  M |88 |14           18
255  1 540         MLC   L4ZERO,DCTR        ZERO DICTIONARY COUNTER           7  1276  M |88 I97           19
256  1 550         MLC   LDICT,X1           GET LOCATION OF DICT TO X1        7  1283  M |81 089           19
257  1 560  LOOP   MLCWA L20INI,19&X1       MOVE IN 19 BLANKS AND A &         7  1290  L /20 0/9           19
258  1 570         MA    L3020,X1           ADD 20 TO GET NEXT ADDRESS        7  1297  # /24 089           19
259  1 580         C     X1,COREND          COMPARE COREND TO ADDRESS         7  1304  C 089 811           19
260  1 590         BU    LOOP               IF NOT EQUAL INITIALIZE NEXT      5  1311  B S90 /             20
261  1 600         MLC   L4ZERO,X1                                            7  1316  M |88 089           20
262  1 610         MLC   R2OPR1,JOBOP1      SAVE ERROR INFORMATION            7  1323  M 951 991           20
263  1 620         MLC   R2OPR2,JOBOP2                                        7  1330  M 967 |01           20
264  1 630         MLC   R2OPR3,JOBOP3                                        7  1337  M 977 |11           20
265  1 640         B     P2MAIN             RETURN TO P2MAIN                  4  1344  B /91               20
266  1 650  ******           P2SEGS. P2SEGS WRITES EACH LABEL DICTIONARY OUT
267  1 660  *                AND DETERMINES CALL TO NEXT PASS.
268  1 670  *
269  1 680  P2SEGS MLC   X1,DCTR            SAVE POINTER TO NEXT DICT ENTRY   7  1348  M 089 I97           21
270  1 690         MLC   &DCTR&1,DPLOW                                        7  1355  M K77 K70           21
271  1 700         MLC   @080@,DPWID                                          7  1362  M K80 K73           21
272  1 710         MLC   @020@,DPNUM                                          7  1369  M K83 K67           21
273  1 720         NOP   DDUMP              CHANGE TO B FOR SNAPSHOT          4  1376  N Z92               21
274  1 730         BEF   P2SEGA             IF END OF FILE, GO TO P2SEG4      5  1380  B T97 K             21
275  1 740         SW    SWMULT             NOT, HENCE JOB IN MULTIPLE SEGS   4  1385  , 812               22
276  1 750         B     DWRITE             WRITE DICTIONARY                  4  1389  B U17               22
277  1 760         B     P2MAIN             AND RETURN TO MAINLINE PROGRAM    4  1393  B /91               22
278  1 770  P2SEGA BWZ   P2SEGB,SWMULT,1    IF ON MUST WRITE LABEL DICT       8  1397  V U09 812 1         22
279  1 780         B     P3CALL             OTHERWISE CALL PASS-3             4  1405  B V19               22
280  1 790  P2SEGB B     DWRITE             WRITE DICTIONARY                  4  1409  B U17               22
281  1 800         B     P3CALL             CALL IN PASS-3                    4  1413  B V19               22
282  1 810  DWRITE SBR   DWRITX&3           SAVE RETURN ADDRESS               4  1417  H U33               23
283  1 820         B     SYSIO              BRANCH TO CONTROLLER              4  1421  B 500               23
284  1 830         DCW   &IOCON2                                              3  1427  200                 23
285  1 840         ORG   *-2                                                         1426
286  1 850         DC    &DCTR-2                                              3  1428  I95                 24
287  1 860         DC    @W@                                                  1  1429                      24
288  1 870  DWRITX B     000                                                  4  1430  B 000               24
289  1 880  ******           DOFLOW IS CALLED IF CAPACITY OF LABEL DICTIONARY
290  1 890  *                EXCEEDED IN DICTIONARY GENERATION
291  1 900  DOFLOW MLC   L015E1,LPRINT&15                                     7  1434  M |33 216           24
292  1 910         MLC   JOBOP1,LPRINT&25   SEGMENT CARD HEADER               7  1441  M 991 226           24
293  1 920         MLC   JOBOP2,LPRINT&36   INFORMATION TO PRINT AREA         7  1448  M |01 237           24
294  1 930         MLC   JOBOP3,LPRINT&47                                     7  1455  M |11 248           25
295  1 940         MLC   L029E2,LPRINT&77                                     7  1462  M |62 278           25
296  1 950         MLC   L016E3,LPRINT&94                                     7  1469  M |78 295           25
297  1 960         B     PRINT                                                4  1476  B 747               25
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SEQ PG LIN  LABEL  OP    OPERANDS                                                 SFX CT  LOCN  INSTRUCTION TYPE  CARD

298  1 970         B     EJECT                                                         4  1480  B 704                25
299  1 980         RWD   SYSTAP             REWIND SYSTEMS TAPE                        5  1484  U %U1 R              25
300  1 990         CW    R1G1W1, R2G2W2     CLEAR GMWM OF WM                           7  1489  ) 897 978            26
301  2 000         MLC   COREND,X3          GET CORE END                               7  1496  M 811 099            26
302  2 010         MLC   L11,0&X3           AND CLEAR GMWM                             7  1503  M |89 0?0            26
303  2 020         B     SYSLNK                                                        4  1510  B 400                26
304  2 030         DCW   @1CONA@            CALL SUPERVISOR                            5  1518                       26
305  2 040  ******           P3CALL BRINGS IN PASS-3
306  2 050  *
307  2 060  P3CALL RWD   IOTP4              REWIND INPUT                               5  1519  U %U4 R              26
308  2 070         BWZ   P3CAL1,SWMULT,1    IF MULTIPLE SEGMENTS GO REWIND             8  1524  V V48 812 1          27
309  2 080  P3CAL2 CW    R1G1W1,R2G2W2      CLEAR WM IN GMWM                           7  1532  ) 897 978            27
310  2 090         B     SYSLNK             CALL PASS-3                                4  1539  B 400                27
311  2 100         DCW   @4CHRT@                                                       5  1547                       27
312  2 110  P3CAL1 RWD   IOTP2              REWIND DICTIONARY TAPE                     5  1548  U %U2 R              27
313  2 120         B     P3CAL2                                                        4  1553  B V32                27
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

314  2 130         JOB   LABEL DICTIONARY GENERATION ROUTINES
315  2 140  ******           P2PRO ENTERS LABELS TO THE LABEL DICTIONARY AND
316  2 150  *                GENERATES LABELS FOR AREAS CONTAINING BRANCHS TO
317  2 160  *                LOCATION COUNTER RELATIVE ADDRESSES WHERE THE
318  2 170  ******           AREA CONTAINS NO LABELS.
319  2 180  P2PRO  SBR   P2PROX&3                                              4  1557  H Y25               28
320  2 190         BCE   TESASW,R2LABL-9,   IS LABEL NOT PRESENT               8  1561  B V73 920           28
321  2 200         B     LABINS             LABEL IS PRESENT, INSERT TO DICT   4  1569  B X30               28
322  2 210  TESASW BWZ   LCTEST,SWNWAR,1    IF LABEL NOT YET FOUND, LCTEST     8  1573  V V85 979 1         28
323  2 220         B     P2PROX             OTHERWISE GO TO EXIT               4  1581  B Y22               28
324  2 230  LCTEST C     L3988,LCTR         TEST IF DISPLACEMENT GETTING TOO   7  1585  C |97 |14           28
325  2 240         BL    TESTBR             BIG. IF OK, DO NOT GENERATE LABEL  5  1592  B W01 T             29
326  2 250         B     LABGEN             WORST IS 1620 DISPLACEMENT 12      4  1597  B X09               29
327  2 260  ******
328  2 270  TESTBR BCE   LRTEST,R2PROC,4    IS INSTRUCTION A DECID TYPE        8  1601  B W29 936 4         29
329  2 280         BCE   LRTEST,R2PROC,V    IS INSTRUCTION A GOTO TYPE         8  1609  B W29 936 V         29
330  2 290         BWZ   TEST1,SWLOCR,1     HAVE PROCESS LOC REL BR            8  1617  V W53 981 1         29
331  2 300         B     P2PROX             OTHERWISE EXIT                     4  1625  B Y22               29
332  2 310  ******
333  2 320  LRTEST BWZ   TEST1,SWLOCR,1     HAVE PROCESSED A LOC REL BRANCH    8  1629  V W53 981 1         30
334  2 330         BCE   LORTSW,R2BRTY,L    INSTRUCTION HAVE LOC REL ADDR      8  1637  B W49 940 L         30
335  2 340         B     P2PROX             OTHERWISE EXIT                     4  1645  B Y22               30
336  2 350  LORTSW SW    SWLOCR             SET SW ON, HAVE PROCESSED LOC REL  4  1649  , 981               30
337  2 360  TEST1  BCE   LABGEN,R1PROC,X    IF NEXT IS END, GENERATE LABEL     8  1653  B X09 855 X         30
338  2 370         BWZ   COMP2,R1LNTY,K     IS NEXT INST UNKNOWN LENGTH        8  1661  V W85 827 K         31
339  2 380         C     R1AREA,R2AREA      COMPARE AREA NUMBERS               7  1669  C 833 914           31
340  2 390         BE    P2PROX             SAME, GO TO EXIT                   5  1676  B Y22 S             31
341  2 400         B     LABGEN             NO, GENERATE LABEL FOR RECORD-2    4  1681  B X09               31
342  2 410  ******
343  2 420  COMP2  C     R1AREA,R2AREA      COMPARE AREA NUMBERS               7  1685  C 833 914           31
344  2 430         BU    LABGEN             UNEQUAL, GENERATE A LABEL          5  1692  B X09 /             31
345  2 440         BCE   LABGEN,R1LABL-9,   IF NEXT HAS NO LABEL, GENERATE     8  1697  B X09 839           32
346  2 450         B     P2PROX                                                4  1705  B Y22               32
347  2 460  ******
348  2 470  LABGEN MLC   LGENCT,R2LABL-4                                       7  1709  M |18 925           32
349  2 480         MLC   L2LOZN,R2LABL-8    PUT IN )2 AS FIRST TWO CHARS       7  1716  M |91 921           32
350  2 490         A     L11,LGENCT         BUMP BY 1 FOR NEXT TIME            7  1723  A |89 |18           32
351  2 500  ******
352  2 510  LABINS BCE   DOFLOW,P2DICT&X1,}   IF GMWM, HAVE EXCEEDED DICT      8  1730  B U34 IZ8 }         33
353  2 520         MLC   R2LABL,DLABEL&X1   MOVE LABEL TO DICT LABEL           7  1738  M 929 0|X           33
354  2 530         MLC   R2AREA,DLAREA&X1   AREA NUMBER INTO DICTIONARY        7  1745  M 914 0/W           33
355  2 540         MLC   @0@,DLATYP&X1      SET DICT TYPE AS DEFINED           7  1752  M K84 0/X           33
356  2 550         BCE   SUBCHR,R2PROC,9    IS STATEMENT SUBRT ENTRANCE        8  1759  B X86 936 9         33
357  2 560  ARSWTS BWZ   ARESWT,SWNWAR,1    PROCESSING A NEW AREA              8  1767  V X97 979 1         34
358  2 570         MLC   L3SAM,DLABWD&X1    IF IN SAME AREA, SET DISP#SAM      7  1775  M /00 0/|           34
359  2 580         B     P2PROX             AND EXIT                           4  1782  B Y22               34
360  2 590  SUBCHR MLC   L11,DLATYP&X1      SET ENTRY AS SUBROUTINE            7  1786  M |89 0/X           34
361  2 600         B     ARSWTS                                                4  1793  B X67               34
362  2 610  ARESWT MLC   LCTR,DLABWD&X1     A NEW AREA, SET DISP#LCTR          7  1797  M |14 0/|           34
363  2 620         CW    SWNWAR,SWJOB       FOUND LABEL, CLEAR ALL SWITCHES    7  1804  ) 979 980           35
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

364  2 630         CW    SWLOCR                                               4  1811  ) 981                35
365  2 640         MLC   L4ZERO,LCTR        CLEAR LOCATION COUNTER            7  1815  M |88 |14            35
366  2 650  P2PROX B     000                                                  4  1822  B 000                35
367  2 660  LCTUPD SBR   LCTUPX&3           SAVE RETURN                       4  1826  H Y59                35
368  2 670         BWZ   RESLCT,R2LNTY,K    THIS INST OF UNKNOWN LENGTH       8  1830  V Y49 908 K          35
369  2 680         A     R2LENG,LCTR        ADD INSTRUCTION LENGTH TO LCTR    7  1838  A 911 |14            36
370  2 690         B     LCTUPX             EXIT                              4  1845  B Y56                36
371  2 700  RESLCT MLC   L4ZERO,LCTR        RESET LCTR                        7  1849  M |88 |14            36
372  2 710  LCTUPX B     000                                                  4  1856  B 000                36
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SEQ PG LIN  LABEL  OP    OPERANDS                                                   SFX CT  LOCN  INSTRUCTION TYPE  CARD

373  2 720         JOB   LABEL DICTIONARY UPDATE
374  2 730  ******           DLAFIN FINISHES EACH DICTIONARY ENTRY PROCESSED
375  2 740  *                IN P2PROX
376  2 750  DLAFIN SBR   DLAFIX&3                                                         4  1860  H Z91               37
377  2 760         BWZ   LFEXIT,SWJOB,1      IF ON, NO DICT ENTRY                         8  1864  V Z65 980 1         37
378  2 770         BWZ   LFEXIT,SWNWAR,1     IS TO BE PROCESSED                           8  1872  V Z65 979 1         37
379  2 780         BWZ   TESTCR,R2LNTY,K     CURRENT INST OF UNKNOWN LENGTH               8  1880  V Z32 908 K         37
380  2 790         BCE   TESTJ,R1LABL-9,     NEXT INST HAS NO LABEL                       8  1888  B Z00 839           37
381  2 800         B     UPDICT              IT HAS A LABEL, UPDATE DICT ENTRY            4  1896  B Z44               38
382  2 810  TESTJ  BCE   UPDICT,R1PROC,X     NEXT IS END, UPDATE DICT ENTRY               8  1900  B Z44 855 X         38
383  2 820         C     R1AREA,R2AREA       COMPARE AREA NUMBERS                         7  1908  C 833 914           38
384  2 830         BU    UPDICT              MUST UPDATE DICT                             5  1915  B Z44 /             38
385  2 840         BWZ   UPDICT,R1LNTY,K     MUST UPDATE DICT, NEXT UNKNOWN               8  1920  V Z44 827 K         38
386  2 850         B     LFEXIT                                                           4  1928  B Z65               38
387  2 860  TESTCR BCE   LFEXIT,R2LABL-9,    IF NO LABEL, EXIT                            8  1932  B Z65 920           39
388  2 870         B     UPDICT              MUST UPDATE DICT                             4  1940  B Z44               39
389  2 880  UPDICT MLC   LCTR,DLAFWD&X1      SET DICT DLAFW#LCTR                          7  1944  M |14 0/T           39
390  2 890         MLC   L4ZERO,LCTR         RESET LCTR                                   7  1951  M |88 |14           39
391  2 900         MA    L3020,X1            BUMP X1 FOR NEXT DICT ENTRY                  7  1958  # /24 089           39
392  2 910  LFEXIT C     R1AREA,R2AREA       COMPARE AREA NUMBERS                         7  1965  C 833 914           40
393  2 920         BE    DLAFIX              EXIT                                         5  1972  B Z88 S             40
394  2 930         SW    SWNWAR              SET SW ON FOR NEW AREA                       4  1977  , 979               40
395  2 940         MLC   L4ZERO,LCTR         CLEAR LCTR                                   7  1981  M |88 |14           40
396  2 950  DLAFIX B     000                 EXIT                                         4  1988  B 000               40
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SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD

397  2 960         JOB   SNAPSHOT ROUTINE
398  2 970  DDUMP  SBR   DPDUMX&3                                                4  1992  H K64                41
399  2 980         BIN   DPINT,D                                                 5  1996  B !05 D              41
400  2 990         B     DPDUMX                                                  4  2001  B K61                41
401  3 000  DPINT  MLC   @B@,DPFALL                                              7  2005  M K85 K40            41
402  3 010         MLC   X2,DPX2#3                                               7  2012  M 094 K88            41
403  3 020         MLC   @000@,DPCTR#3                                           7  2019  M K91 K94            41
404  3 030         MLC   DPLOW,DPLOOP&3                                          7  2026  M K70 !72            42
405  3 040         MLC   DPLOW,DPTEST&6                                          7  2033  M K70 !89            42
406  3 050         MLC   DPLOW,DPLADR#3                                          7  2040  M K70 K97            42
407  3 060         MLC   @00000@,DPTAG#5                                         7  2047  M L02 L07            42
408  3 070  DPALOP MLC   @000@,X2                                                7  2054  M K91 094            42
409  3 080         CS    332                                                     4  2061  / 332                42
410  3 090         CS    299                                                     4  2065  / 299                43
411  3 100  DPLOOP MLC   000,DPHOLD#1                                            7  2069  M 000 L08            43
412  3 110         MLC   DPHOLD,225&X2                                           7  2076  M L08 2K5            43
413  3 120  DPTEST BWZ   DPSETW,000,1                                            8  2083  V !95 000 1          43
414  3 130         B     DPSETW&4                                                4  2091  B !99                43
415  3 140  DPSETW SW    225&X2                                                  4  2095  , 2K5                43
416  3 150         MA    @001@,DPLOOP&3                                          7  2099  # L11 !72            44
417  3 160         MA    @001@,DPTEST&6                                          7  2106  # L11 !89            44
418  3 170         A     @001@,X2                                                7  2113  A L11 094            44
419  3 180         BCE   DPDOGO,DPLOOP&3,Z                                       8  2120  B J32 !72 Z          44
420  3 190         B     DPCOMP                                                  4  2128  B J55                44
421  3 200  DPDOGO BCE   DPARGH,DPLOOP&1,I                                       8  2132  B J44 !70 I          45
422  3 210         B     DPCOMP                                                  4  2140  B J55                45
423  3 220  DPARGH MLC   @N@,DPFALL                                              7  2144  M L12 K40            45
424  3 230         B     DPWRIT                                                  4  2151  B J71                45
425  3 240  DPCOMP C     X2,DPWID                                                7  2155  C 094 K73            45
426  3 250         BE    DPWRIT                                                  5  2162  B J71 S              45
427  3 260         B     DPLOOP                                                  4  2167  B !69                45
428  3 270  DPWRIT MLC   DPLOW,205                                               7  2171  M K70 205            46
429  3 280         MLC   @&@,210                                                 7  2178  M L13 210            46
430  3 290         MLC   DPTAG-1,215                                             7  2185  M L06 215            46
431  3 300         MLC   DPLADR,219                                              7  2192  M K97 219            46
432  3 310         W                                                             1  2199  2                    46
433  3 320         WM                                                            2  2200  2 )                  46
434  3 330         BCV   DPCH1                                                   5  2202  B K56 @              46
435  3 340  DPADD  A     DPWID,DPTAG-1                                           7  2207  A K73 L06            47
436  3 350         MA    DPWID,DPLADR                                            7  2214  # K73 K97            47
437  3 360         A     @001@,DPCTR                                             7  2221  A L11 K94            47
438  3 370         C     DPCTR,DPNUM                                             7  2228  C K94 K67            47
439  3 380         BE    *&5                                                     5  2235  B K44 S              47
440  3 390  DPFALL B     DPALOP                                                  4  2240  B !54                47
441  3 400         MLC   DPX2,X2                                                 7  2244  M K88 094            48
442  3 410         CCB   DPDUMX,K                                                5  2251  F K61 K              48
443  3 420  DPCH1  CCB   DPADD,1                                                 5  2256  F K07 1              48
444  3 430  DPDUMX B     000                                                     4  2261  B 000                48
445  3 440  DPNUM  DCW   @080@                                                   3  2267                       48
446  3 450  DPLOW  DCW   @001@                                                   3  2270                       48
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SEQ PG LIN  LABEL  OP    OPERANDS                                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD

447  3 460  DPWID  DCW   @100@                                                            3  2273                      48
448  3 470         LTORG *&1                                                                    2275
       270         DCW   &DCTR&1                                                          3  2277  I98         ADCON   49
                         @080@                                                            3  2280              LIT     49
                         @020@                                                            3  2283              LIT     49
                         @0@                                                              1  2284              LIT     49
                         @B@                                                              1  2285              LIT     49
       402  DPX2         #03                                                              3  2288              AREA    49
                         @000@                                                            3  2291              LIT     49
       403  DPCTR        #03                                                              3  2294              AREA    50
       406  DPLADR       #03                                                              3  2297              AREA    50
       407               @00000@                                                          5  2302              LIT     50
       407  DPTAG        #05                                                              5  2307              AREA    50
       411  DPHOLD       #01                                                              1  2308              AREA    50
                         @001@                                                            3  2311              LIT     50
                         @N@                                                              1  2312              LIT     50
                         @&@                                                              1  2313              LIT     51
449  3 480         ORG   3995                                                                   3995
450  3 490  DCTR   DCW   #3                                                               3  3997                      52
451  3 500  P2DICT DA    1X20                BEGINNING OF DICTIONARY                         3998   4017               52
452  3 510  DLABEL       1,10                                                                4007              FIELD   52
453  3 520  DLABWD       13                                                                  4010              SBFLD
454  3 530  DLAFWD       16                                                                  4013              SBFLD
455  3 540  DLAREA       19                                                                  4016              SBFLD
456  3 550  DLATYP       20                                                                  4017              SBFLD
457  3 560  HIGH2  EQU   *&1                                                                 4018
458  3 570         END   START                                                                 / /25 080               53
       403  DPCTR        #03                                                              3  2294              AREA    50              *****
       406  DPLADR       #03                                                              3  2297              AREA    50
       407               @00000@                                                          5  2302              LIT     50
       407  DPTAG        #05                                                              5  2307              AREA    50
       411  DPHOLD       #01                                                              1  2308              AREA    50
                         @001@                                                            3  2311              LIT     50
                         @N@                                                              1  2312              LIT     50
                         @&@                                                              1  2313              LIT     51
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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                     1              4CHRT
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?  2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039            ,0010011040    3

                          PASS-3 FLOWCHARTER                                      4CHRT            PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    010  000    JOB   PASS-3 FLOWCHARTER
 102    020         CTL   440  1
 103    025  *              VERSION 2  LEVEL 0   JULY 25,1965
 104    030         DCW   @$ADD     @                                               9  0341                      4
 105    040         DSA   BRANCH                                                    3  0344  813                 4
 106    050         DSA   BRANCH                                                    3  0347  813                 4
 107    060         DSA   3900                                                      3  0350  I00                 4
 108    070         DCW   @04/05/65@                                                8  0358                      4
 109    080  *
 110    090  *                            TAPE DEFINITIONS
 111    100  IOCON2 EQU   200                   TAPE 2 FOR SYSIO CALL                   0200
 112    110  IOCON3 EQU   300                   TAPE 3 FOR SYSIO CALL                   0300
 113    120  IOCON4 EQU   400                   TAPE 4 FOR SYSIO CALL                   0400
 114    130  IOTP2  EQU   %U2                   TAPE UNIT 2                             %U2
 115    140  IOTP3  EQU   %U3                   TAPE UNIT 3                             %U3
 116    150  IOTP4  EQU   %U4                   TAPE UNIT 4                             %U4
 117    160  SYSTAP EQU   %U1                   SYSTEM TAPE UNIT 1                      %U1
 118    170  *
 119    180  *                            SYSTEM COMMUNICATION DEFINITION
 120    190  LCARD  EQU   1                     1-80, $CONTROL CARD INPUT AREA          0001
 121    200  *                            81 NOT USED, MAY HAVE BLANK, RM
 122    210  MACH   EQU   82                    MACHINE CODE                            0082
 123    220  LANG   EQU   83                    LANGUAGE CODE                           0083
 124    230  SWEJEC EQU   084                 PRINT PAGE EJECT SWITCH                   0084
 125    240  *                            85, 86 NOT ASSIGNED
 126    250  X1     EQU   89                    87-89, INDEX REGISTER 1                 0089
 127    260  *                            90-91 NOT ASSIGNED
 128    270  X2     EQU   94                    92-94, INDEX REGISTER 2                 0094
 129    280                                     95, 96 NOT ASSIGNED
 130    290  X3     EQU   99                    97-99, INDEX REGISTER 3                 0099
 131    300                                     100 READ/PUNCH CHECK POSITION
 132    310  LPUNCH EQU   101                   101-180, PUNCH-DAJOB HEADING            0101
 133    320  *                            181-195, USED BY SYSLNK
 134    330  LPAGE  EQU   199                   196-199, DAJOB PAGE HEADING             0199
 135    340  *                            200 NOT ASSIGNED
 136    350  LPRINT EQU   201                   201-332, PRINT AREA                     0201
 137    360  SYSLNK EQU   400                   SYSTEM TAPE READ ROUTINE                0400
 138    370  SYSIO  EQU   500                   READ-WRITE TAPE ROUTINE                 0500
 139    380  LINTOT EQU   659                   NUMBER OF LINES PER PAGE                0659
 140    390  EJECT  EQU   704                   EJECT PAGE ROUTINE                      0704
 141    400  PRINT  EQU   747                   PRINT LINE ROUTINE                      0747
 142    410  READ   EQU   781                   READ CONTROL CARD ROUTINE               0781
 143    420  PUNCH  EQU   789                   PUNCH CARD ROUTINE                      0789
 144    430  *
 145    440  *              SWITCHES COMMON TO ALL PHASES OF FLOWCHART
 146    450  SYSEND EQU   799                                                             0799
 147    460  SWLIST EQU   SYSEND&1                                                        0800
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

148    470  SWDECK EQU   SWLIST&1                                                  0801
149    480  SWNOCH EQU   SWDECK&1                                                  0802
150    490  SWNOST EQU   SWNOCH&1                                                  0803
151    500  SWCROS EQU   SWNOST&1                                                  0804
152    510  SWNOSV EQU   SWCROS&1                                                  0805
153    520  LOCADJ EQU   SWNOSV&3                                                  0808
154    530  COREND EQU   LOCADJ&3                                                  0811
155    540  SWMULT EQU   COREND&1                                                  0812
156    550         ORG   SWMULT&1                                                        0813
157    560  BRANCH B     START                                                  4  0813  B /14               5
158    570  ******           SWITCHES, CONSTANTS, AND AREAS
159    580  GENLA  DA    1X20                                                      0817   0836                5
160    590               1,1                  GENERATED DICTIONARY ENTRY           0817             FIELD    5
161    600  ILABL        1,10                                      LABEL           0826             FIELD    5
162    610  ILABW        11,13                                     DLABW           0829             FIELD    5
163    620  ILAFW        14,16                                     DLAFW           0832             FIELD    5
164    630  ILARE        17,19                                     DLARE           0835             FIELD    5
165    640  ILTYP        20                                        DLATY           0836             SBFLD
166    650  RTREA  DA    1X80                                                      0837   0916                6
167    660               1,1                  *TAPE INPUT FIELDS                   0837             FIELD    6
168    670  RLNTY        11                   LENGTH CODE OF INSTRUCTION           0847             SBFLD
169    680  RLENG        12,14                LENGTH OF INST, IF KNOWN             0850             FIELD    6
170    690  RAREA        15,17                AREA CODE NUMBER                     0853             FIELD    6
171    700  RLABL        23,32                LABEL OF INSTRUCTION                 0868             FIELD    6
172    710  RCODE        39                   PROCESSING CODE                      0875             SBFLD
173    720  RBRAN        43                   IF A BRANCH, WHAT TYPE OF BRANCH     0879             SBFLD
174    730  ROPR1        45,54                OPERAND 1                            0890             FIELD    6
175    740  ROPSN        55,55                SIGN OF OPERAND 1                    0891             FIELD    7
176    750  RDISP        56,60                DISPLACEMENT OF OPERAND-1            0896             FIELD    7
177    760  ROPR2        61,70                OPERAND 2                            0906             FIELD    7
178    770  ROPR3        71,80                OPERAND 3                            0916             FIELD    7
179    780  P1G1W1 DC    @ @                  GROUP/MARK WITHOUT WORD/MARK      1  0917                       8
180    790  LABSV  DCW   #10                                                   10  0927                       8
181    800  AREAS  DCW   #3                   CURRENT AREA NUMBER STORE         3  0930                       8
182    810  LCTR   DCW   #3                   LOCATION COUNTER                  3  0933                       8
183    820  REGX3  DCW   #3                   SCRATCH WORK AREA                 3  0936                       8
184    830  REGY3  DCW   #3                   SCRATCH WORK AREA                 3  0939                       9
185    840  REGX5  DCW   #5                   SCRATCH WORK AREA                 5  0944                       9
186    850  F      DCW   #3                   LABEL GEN SCRATCH                 3  0947                       9
187    860  N      DCW   #3                   LABEL GEN SCRATCH                 3  0950                       9
188    870  LGENCT DCW   #5                                                     5  0955                       9
189    880  LSTOR  DCW   #10                                                   10  0965                       9
190    890  SSTOR  DCW   #1                                                     1  0966                       9
191    900  NSTOR  DCW   #5                                                     5  0971                      10
192    910  LOCAD  DCW   #3                                                     3  0974                      10
193    912  LENGSV DCW   #3                   INSTRUCTION LENGTH SAVE           3  0977                      10
194    920  JOBOP1 DCW   #10                                                   10  0987                      10
195    930  JOBOP2 DCW   #10                                                   10  0997                      10
196    940  JOBOP3 DCW   #10                                                   10  1007                      11
197    950  SWJOB  DC    #1                   ON TILL FIRST LABEL IN JOB        1  1008                      11
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SEQ PG LIN  LABEL  OP    OPERANDS                                                   SFX CT  LOCN  INSTRUCTION TYPE  CARD

198     960  SWNWAR DC    #1                  ON TILL FIRST LABEL IN AREA                1  1009                      11
199     970  SWDIC  DC    #1                  ON IF LABEL IS FOUND IN DICT               1  1010                      11
200     980  SWNOPR DC    #1                                                             1  1011                      11
201     990  SWLOCR DC    #1                  ON IF INST LOC REL ADDR BR                 1  1012                      11
202  1 000  SWT2GN DC    #1                  ON FOR TYPE2  LABEL GENERATION             1  1013                      11
203  1 010  SWT3GN DC    #1                  ON FOR TYPE3  LABEL GENERATION             1  1014                      11
204  1 020  ******           CONSTANTS
205  1 030  L3000  DCW   @000@                                                          3  1017                      11
206  1 040  L3BLK  DCW   @   @                                                          3  1020                      11
207  1 050  L53X0  DCW   @30000@                                                        5  1025                      11
208  1 060  L1V    DCW   @V@                                                            1  1026                      11
209  1 070  L1SLA  DCW   @/@                                                            1  1027                      11
210  1 080  L3020  DCW   @020@                                                          3  1030                      11
211  1 090  L5000  DCW   @00000@                                                        5  1035                      12
212  1 100  L1PLU  DCW   @&@                                                            1  1036                      12
213  1 110  L1MIN  DCW   @-@                                                            1  1037                      12
214  1 120  L1BLK  DCW   @ @                                                            1  1038                      12
215  1 130  L3020M DCW   @I8?@                                                          3  1041                      12
216  1 135  L3012  DCW   @012@                                                          3  1044                      12
217  1 140  L1LOZ  DCW   @)@                                                            1  1045                      12
218  1 150  L31    DCW   @001@                                                          3  1048                      13
219  1 160  L3SAM  DCW   @SAM@                                                          3  1051                      13
220  1 170  L1RM   DCW   @|@                 DEFINE ONE RECORD MARK                     1  1052                      13
221  1 180  L1S    DCW   @S@                                                            1  1053                      13
222  1 190  L015E1 DCW   @ERROR. SEGMENT @                                             15  1068                      13
223  1 200  L029E2 DCW   @CAUSES LABEL TABLE OVERFLOW. @                               29  1097                      14
224  1 210  L016E3 DCW   @PLEASE RESEGMENT@                                            16  1113                      15
225  1 220  ******           EQUATE LISTING
226  1 230  DCTR   EQU   3997                                                               3997
227  1 240  DLABL  EQU   4007                                                               4007
228  1 250  DLABW  EQU   4010                                                               4010
229  1 260  DLAFW  EQU   4013                                                               4013
230  1 270  DLARE  EQU   4016                                                               4016
231  1 280  DLATY  EQU   4017                                                               4017
232  1 290  ******           START. INITIALIZATION FOR PASS-3
233  1 300  DICTIN EQU   DCTR-2                                                             3995
234  1 310  *
235  1 320  START  SW    P1G1W1              SET WORD-MARK FOR GMWM                     4  1114  , 917                15
236  1 330         MLC   LOCADJ,LOCAD        SET LOCATION COUNTER ADJ FACTOR            7  1118  M 808 974            15
237  1 340  ******           P3MAIN. TAPE INPUT READ FOLLOWED BY PASS-3
238  1 350  *                PROCESSING SUBROUTINE CALLS.
239  1 360  *
240  1 370  P3MAIN B     TREAD               INPUT ONE RECORD                           4  1125  B /98                15
241  1 380         BEF   P4CALL              IF END OF FILE, CALL NEXT PASS             5  1129  B U32 K              15
242  1 390         BCE   JOBIN,RCODE,W       IF JOB CARD, INITIALIZE                    8  1134  B S15 875 W          16
243  1 400         BCE   SEGIN,RCODE,X       IF END CARD, FINALIZE                      8  1142  B S97 875 X          16
244  1 410         B     AREAC               CHECK AREA NUMBERS AGAINST DICT            4  1150  B U72                16
245  1 420         B     LABLC               CHECK LABELS TO DICT                       4  1154  B W72                16
246  1 430         B     P3PRO               PASS-3 PROCESSING                          4  1158  B Y55                16
247  1 435         MLC   RLENG,LENGSV        SAVE INSTRUCTION LENGTH                    7  1162  M 850 977            16
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  1 440         MLC   &RTREA,DPLOW                                           7  1169  M F31 F24            17
249  1 450         MLC   @100@,DPWID                                            7  1176  M F34 F27            17
250  1 460         MLC   @001@,DPNUM                                            7  1183  M F37 F21            17
251  1 470         NOP   DDUMP             CHANGE TO B FOR PASS-3 SNAPSHOT      4  1190  N C55                17
252  1 480         B     P3MAIN            RETURN                               4  1194  B /25                17
253  1 490  ******
254  1 500  TREAD  SBR   TREAX&3                                                4  1198  H S14                17
255  1 510         B     SYSIO                                                  4  1202  B 500                17
256  1 520         DCW   &IOCON4                                                3  1208  400                  18
257  1 530         ORG   *-2                                                           1207
258  1 540         DC    &RTREA                                                 3  1209  837                  19
259  1 550         DC    @R@                                                    1  1210                       19
260  1 560  TREAX  B     000                                                    4  1211  B 000                19
261  1 570  ******           JOBIN. INITIALIZE INDEX REGISTERS, LCTR, AREAS.
262  1 580  *                SAVE JOB CARD OPERANDS FOR POSSIBLE DICTIONARY
263  1 590  *                OVERFLOW ERROR MESSAGE. IF JOB IS IN MULTIPLE
264  1 600  *                SEGMENTS, READ DICTIONARY IN. JOBIN GOES DIRECTLY
265  1 610  ******           TO P3MAIN
266  1 620  JOBIN  SBR   X1,000            SET X1#0                             7  1215  H 089 000            19
267  1 630         SBR   X2                SET X2#0                             4  1222  H 094                19
268  1 640         SBR   LCTR              SET LCTR#0                           4  1226  H 933                19
269  1 650         MLC   L3BLK,AREAS       BLANK OUT AREAS                      7  1230  M |20 930            20
270  1 660         MLC   L53X0,LGENCT                                           7  1237  M |25 955            20
271  1 670         SW    SWJOB,SWNWAR      INITIALIZE SWITCHES                  7  1244  , |08 |09            20
272  1 680         MLC   ROPR1,JOBOP1      SAVE OPERAND-1 ON SEGMENT CARD       7  1251  M 890 987            20
273  1 690         MLC   ROPR2,JOBOP2      SAVE TO OR THRU                      7  1258  M 906 997            20
274  1 700         MLC   ROPR3,JOBOP3      SAVE OPERAND-2                       7  1265  M 916 |07            21
275  1 710         BWZ   READD,SWMULT,1    IF MULTIPLE SEGMENTS, READ DICT      8  1272  V S84 812 1          21
276  1 720         B     P3MAIN            OTHERWISE RETURN                     4  1280  B /25                21
277  1 730  READD  B     SYSIO             BRANCH TO SUPERVISOR                 4  1284  B 500                21
278  1 740         DCW   &IOCON2                                                3  1290  200                  21
279  1 750         ORG   *-2                                                           1289
280  1 760         DC    &DICTIN                                                3  1291  I95                  22
281  1 770         DC    @R@                                                    1  1292                       22
282  1 780         B     P3MAIN                                                 4  1293  B /25                22
283  1 790  ******           SEGIN. IF THE JOB IS IN MULTIPLE SEGMENTS, SEGIN
284  1 800  *                WRITES THE EXPANDED LABEL DICTIONARY OUT
285  1 810  SEGIN  BWZ   WDICT,SWMULT,1    IF MULTIPLE SEGMENTS, WRITE DICT     8  1297  V T09 812 1          22
286  1 820         B     P3MAIN            OTHERWISE RETURN                     4  1305  B /25                22
287  1 830  WDICT  B     SYSIO             CALL SUPERVISOR                      4  1309  B 500                22
288  1 840         DCW   &IOCON3                                                3  1315  300                  23
289  1 850         ORG   *-2                                                           1314
290  1 860         DC    &DICTIN                                                3  1316  I95                  24
291  1 870         DC    @W@                                                    1  1317                       24
292  1 880         B     P3MAIN                                                 4  1318  B /25                24
293  1 890  ******           DOFLOW. THIS ROUTINE IS CALLED ONLY IF PASS-3
294  1 900  *                LABEL GENERATION OVERFLOWS THE LABEL DICT. ERROR
295  1 910  *                MESSAGE IS WRITTEN FOLLOWED BY CONTROL TO
296  1 920  *                SUPERVISOR.
297  1 930  DOFLOW MLC   L015E1,LPRINT&15                                       7  1322  M |68 216            24
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SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

298  1 940         MLC   JOBOP1,LPRINT&25   SEGMENT CARD HEADER                          7  1329  M 987 226            24
299  1 950         MLC   JOBOP2,LPRINT&36   INFORMATION TO PRINT AREA                    7  1336  M 997 237            24
300  1 960         MLC   JOBOP3,LPRINT&47                                                7  1343  M |07 248            25
301  1 970         MLC   L029E2,LPRINT&77                                                7  1350  M |97 278            25
302  1 980         MLC   L016E3,LPRINT&94                                                7  1357  M /13 295            25
303  1 990         B     PRINT                                                           4  1364  B 747                25
304  2 000         B     EJECT              EJECT PAGE                                   4  1368  B 704                25
305  2 010         RWD   IOTP4              REWIND INPUT TAPE                            5  1372  U %U4 R              25
306  2 020         RWD   SYSTAP                    SYSTEM TAPE                           5  1377  U %U1 R              25
307  2 021         MLC   COREND,X3          GET END OF CORE ADDRESS                      7  1382  M 811 099            26
308  2 022         CW    P1G1W1,0&X3        CLEAR GMWMS                                  7  1389  ) 917 0?0            26
309  2 030         BWZ   OFLOWB,SWMULT,1    IF JOB IN MULT SEGMENTS, OFLOWB              8  1396  V U13 812 1          26
310  2 040         B     SYSLNK             CALL SUPERVISOR IN                           4  1404  B 400                26
311  2 050         DCW   @1CONA@                                                         5  1412                       26
312  2 060  OFLOWB RWD   IOTP2              REWIND TAPE 2                                5  1413  U %U2 R              26
313  2 070         RWD   IOTP3                     TAPE 3                                5  1418  U %U3 R              27
314  2 080         B     SYSLNK             CALL SUPERVISOR                              4  1423  B 400                27
315  2 090         DCW   @1CONA@                                                         5  1431                       27
316  2 100  ******          P4CALL. THE NEXT PASS IS CALLED IN.
317  2 110  *
318  2 120  P4CALL RWD   IOTP4              REWIND INPUT TAPE                            5  1432  U %U4 R              27
319  2 170         CW    P1G1W1             CLEAR WORD-MARK FROM GM/WM                   4  1437  ) 917                27
320  2 180         BWZ   P4CAB,SWMULT,1     IF MULTIPLE SEGMENTS, GO TO P4CAB            8  1441  V U58 812 1          27
321  2 190  P4CAC  B     SYSLNK             OTHERWISE CALL NEXT PASS                     4  1449  B 400                27
322  2 200         DCW   @4CHRU@                                                         5  1457                       28
323  2 210  P4CAB  RWD   IOTP2                                                           5  1458  U %U2 R              28
324  2 220         RWD   IOTP3                                                           5  1463  U %U3 R              28
325  2 230         B     P4CAC                                                           4  1468  B U49                28
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

326  2 240         JOB   AREA NUMBER CHECKING
327  2 250  ******           AREAC, THE AREA NUMBER OF EACH RECORD IS CHECKED
328  2 260  *                AGAINST THE AREA NUMBERS IN THE LABEL DICTIONARY.
329  2 270  *
330  2 280  *                THIS PROCESS SYNCHRONIZES THE AREA NUMBER OF EACH
331  2 290  *                RECORD TO THE CORRECT AREA WITHIN THE DICTIONARY
332  2 300  *
333  2 310  AREAC  SBR   AREAX&3                                                      4  1472  H W71               29
334  2 320         C     RAREA,AREAS         COMPARENT CURRENT TO PREVIOUS            7  1476  C 853 930           29
335  2 330         BE    AREAX               AREA NOS. IF EQUAL, EXIT                 5  1483  B W68 S             29
336  2 340         BWZ   ARERL1,SWJOB,1      IF SWJOB IS ON, GO TO ARERL1             8  1488  V V34 |08 1         29
337  2 340         BCE   AREAX,DLABL-9&X1,}       HAVE REACHED END OF CORE            8  1496  B W68 IZ8 }         29
338  2 350         MLC   DLARE&20&X1,REGY3  MOVE ARE NO OF NEXT DICT ENTRY            7  1504  M 0TW 939           29
339  2 360         C     AREAS,REGY3         TO REGY3 AND COMPARE TO AREAS            7  1511  C 930 939           30
340  2 370         BU    ARESL2              IF UNEQUAL, NO FURTHER PROCESSING        5  1518  B V64 /             30
341  2 380         MA    L3020,X1           -BYPASS NEXT DICT ENTRY                   7  1523  # |30 089           30
342  2 390         B     ARESL1              GO TO ARESL1                             4  1530  B V53               30
343  2 400  ARERL1 MLC   DLARE&X1,REGY3      MOVE NEXT DICT ENTRY AREA NO TO          7  1534  M 0/W 939           30
344  2 410         C     REGY3,AREAS         REGY3 AND COMPARE TO AREAS               7  1541  C 939 930           30
345  2 420         BU    ARESL2              UNEQUAL, EXIT                            5  1548  B V64 /             31
346  2 430  ARESL1 CW    SWJOB               CLEAR SWJOB                              4  1553  ) |08               31
347  2 440         MLC   DLABL&X1,LABSV      MVE DICT DLABL TO LABVS                  7  1557  M 0|X 927           31
348  2 450  ARESL2 SW    SWNWAR              SET SWNWAR ON                            4  1564  , |09               31
349  2 460         MLC   RAREA,AREAS         MOVE RECORD AREA NO TO AREAS             7  1568  M 853 930           31
350  2 470         MLC   L1BLK,LABSV-9       BLANK OUT CURRENT LABEL                  7  1575  M |38 918           31
351  2 480         MLC   L3000,LCTR          RESET LCTR                               7  1582  M |17 933           32
352  2 490         BWZ   ART1,SWJOB,1        PROCESSING FIRST LABEL IN DICT           8  1589  V W34 |08 1         32
353  2 500         MLC   DLARE&20&X1,REGX3  MOVE NEXT DICT AREA CODE TO REGX3         7  1597  M 0TW 936           32
354  2 510         C     REGX3,AREAS         AND COMPARE IT TO AREAS                  7  1604  C 936 930           32
355  2 520         BU    STSW2               IF UNEQUAL, SET SWNOPR ON                5  1611  B W64 /             32
356  2 530         MA    L3020,X1            BUMP UP DICT POINTER TO NEXT             7  1616  # |30 089           33
357  2 540         CW    SWJOB,SWNOPR        CLEAR SWITCHES                           7  1623  ) |08 |11           33
358  2 550         B     AREAX                                                        4  1630  B W68               33
359  2 560  ******
360  2 570  ART1   MLC   DLARE&X1,REGX3      MOVE CURRENT DICT AREA TO REGX3          7  1634  M 0/W 936           33
361  2 580         C     REGX3,AREAS         AND COMPARE CURRENT RECORD AREA          7  1641  C 936 930           33
362  2 590         BU    STSW2               IF UNEQUAL, GO TO STSW2                  5  1648  B W64 /             33
363  2 600         CW    SWJOB,SWNOPR        CLEAR OUT SWITCHES                       7  1653  ) |08 |11           34
364  2 610         B     AREAX                                                        4  1660  B W68               34
365  2 620  ******           IF THE DICTIONARY AREA NUMBER IS NOT MATCHED TO
366  2 630  *                THE RECORD AREA NO, SWNOPR IS SET TO BYPASS LABLC
367  2 640  *                UNTIL NEXT AREA NO IS PROCESSED
368  2 650  STSW2  SW    SWNOPR                                                       4  1664  , |11               34
369  2 660  AREAX  B     000                                                          4  1668  B 000               34
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

370  2 670         JOB   LABEL PROCESSING
371  2 680  ******           LABLC. LABLC SYNCHRONIZES EACH LABEL OF A RECORD
372  2 690  *                TO ITS CORRESPONDING ENTRY IN THE LABEL DICTIONARY
373  2 710  *                AFTER THE AREA NUMBER OF A RECORD IS MATCHED TO
374  2 720  *                THE DICTIONARY AREA NUMBER, LABLC USES THE VALUE
375  2 730  *                OF THE LOCATION COUNTER LCTR TO PERFORM THE
376  2 740  *                MATCHING OF LABELS.
377  2 750  *                THE FOLLOWING CONDITIONS ARE NOTED.
378  2 760  *
379  2 770  *                SWNOPR IS ON. NO LABEL CHECKING IS TO BE DONE
380  2 780  *
381  2 790  *                SWJOB IS ON. THE ROUTINE IS PROCESSING THE FIRST
382  2 800  *                             LABEL IN THE DICTIONARY
383  2 810  *
384  2 820  *                SWJOB IS OFF, SWNWAR IS ON. THE ROUTINE IS PROCESS
385  2 830  *                             ING THE FIRST LABEL IN AN AREA
386  2 840  *
387  2 850  *                SWJOB, SWNWAR ARE OFF. THE ROUTINE HAS FINISHED
388  2 860  *                             WITH A LABEL IN AN AREA
389  2 870  LABLC  SBR   LABLX&3             SAVE RETURN ADDRESS                 4  1672  H Y54               35
390  2 880         BWZ   LABLX,SWNOPR,1      IF SWNOPR, NO FURTHER LABEL CHECK   8  1676  V Y51 |11 1         35
391  2 890         BWZ   LART1,SWNWAR,1      IF FIRST LABEL FOR JOB, GO LART1    8  1684  V Y02 |09 1         35
392  2 900         MLC   DLAFW&X1,REGX3      MOVE DICT DLAFW TO REGX3 AND        7  1692  M 0/T 936           35
393  2 910         C     REGX3,L3000         COMPARE TO ZERO                     7  1699  C 936 |17           35
394  2 920         BU    LACOM1              IF UNEQUAL, GO TO LACOM1            5  1706  B X34 /             35
395  2 930         MLC   DLARE&20&X1,REGY3   MOVE NEXT DICT AREA TO REGY3 AND    7  1711  M 0TW 939           36
396  2 940         C     AREAS,REGY3         COMPARE TO AREAS %RECORD AREA)      7  1718  C 930 939           36
397  2 950         BU    LABLX               IF UNEQUAL, NO FURTHER PROCESS      5  1725  B Y51 /             36
398  2 960         B     LMOVTO                                                  4  1730  B X77               36
399  2 970  LACOM1 C     REGX3,LCTR          COMPARE DICT DLAFW TO LCTR          7  1734  C 936 933           36
400  2 980         BL    LABLX               LOW, NO FURTHER PROCESSING          5  1741  B Y51 T             36
401  2 990         MLC   DLARE&20&X1,REGY3   MOVE NEXT DICT AREA NO TO REGY3     7  1746  M 0TW 939           37
402  3 000         C     AREAS,REGY3         AND  COMPARE TO AREAS               7  1753  C 930 939           37
403  3 010         BU    LABLX               NOT EQUAL GO TO LABLX               5  1760  B Y51 /             37
404  3 020         C     RLENG,L3000         IS INSTRUCTION LENGTH ZERO          7  1765  C 850 |17           37
405  3 030         BE    LABLX               YES, EXIT                           5  1772  B Y51 S             37
406  3 040  LMOVTO MLC   L3000,LCTR          EQUAL, RESET LCTR AND INCREMENT     7  1777  M |17 933           37
407  3 050         MA    L3020,X1            X1 TO POINT TO NEXT DICT ENTRY      7  1784  # |30 089           38
408  3 060         MLC   DLABL&X1,LABSV      AND MOVE THAT LABEL TO LABSV        7  1791  M 0|X 927           38
409  3 070         B     LABLX               AND EXIT                            4  1798  B Y51               38
410  3 080  LART1  MLC   DLABW&X1,REGX3      MOVE DICT DLABW TO REGX3 AND        7  1802  M 0/| 936           38
411  3 090         C     REGX3,LCTR          COMPARE TO LCTR                     7  1809  C 936 933           38
412  3 100         BL    LABLX               IF LOW GO TO LABLX                  5  1816  B Y51 T             38
413  3 110         C     RLENG,L3000         IS INSTRUCTION LENGTH ZERO          7  1821  C 850 |17           39
414  3 120         BE    LABLX               YES, EXIT                           5  1828  B Y51 S             39
415  3 130         CW    SWNWAR              RESET SWNWAR                        4  1833  ) |09               39
416  3 140         MLC   L3000,LCTR          CLEAR LCTR                          7  1837  M |17 933           39
417  3 150         MLC   DLABL&X1,LABSV      MOVE DICT LABEL TO LABSV            7  1844  M 0|X 927           39
418  3 160  LABLX  B     000                                                     4  1851  B 000               39
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

419  3 170         JOB   PASS-3 PROCESSING
420  3 180  ******           P3PRO. INSTRUCTIONS CLASSIFIED AS SUBRT, DECID,
421  3 190  *                AND GOTO ARE PROCESSED BY P3PRO.
422  3 200  *
423  3 210  *                P3PRO IN ADDITION UPDATES THE LOCATION COUNTER
424  3 220  *                LCTR AND RECOVERS THE DICTIONARY POINTER FOR
425  3 230  *                ERRONEOUS RELATIVE ADDRESSING.
426  3 240  *
427  3 250  *                IF THE INSTRUCTION IS A SUBRT TYPE, CONTROL PASSES
428  3 260  *                TO SUBROC.
429  3 270  *
430  3 280  *                IF THE INSTRUCTION IS EITHER DECID OR GOTO,
431  3 290  *                CONTROL PASSES TO PRBR.
432  3 300  *
433  3 310  *                PRBR CALLS ONE OF 3 ROUTINES DEPENDING ON TYPE OF
434  3 320  *                ADDRESS IN THE OPERAND
435  3 330  *
436  3 340  *                     SPRBR IF ADDRESS IS SIMPLE
437  3 350  *                     SYMRL IF ADDRESS IS SIMPLE RELATIVE
438  3 360  *                     LOCRL IF ADDRESS IS LOC CTR RELATIVE
439  3 370  P3PRO  SBR   P3PRX&3             SAVE RETURN ADDRESS                  4  1855  H Z26             40
440  3 380         CW    SWLOCR                                                   4  1859  ) |12             40
441  3 390         BCE   SUBROC,RCODE,Y      IS INSTRUCTION SUBRT TYPE            8  1863  B Z27 875 Y       40
442  3 400         BCE   PRBR,RCODE,4        IS INSTRUCTION DECID TYPE            8  1871  B Y95 875 4       40
443  3 410         BCE   PRBR,RCODE,V        IS INSTRUCTION BRANCH TYPE           8  1879  B Y95 875 V       40
444  3 420         B     LCTUPD              NO, UPDATE LCTR                      4  1887  B !03             40
445  3 430         B     P3PRX               AND EXIT                             4  1891  B Z23             41
446  3 440  PRBR   BCE   SPRBR,RBRAN,S       IS BRANCH ADDR SIMPLE                8  1895  B Z65 879 S       41
447  3 450         BCE   SYMRL,RBRAN,R       IS BRANCH ADDR SIMPLE RELATIVE       8  1903  B J30 879 R       41
448  3 460         B     LCTUPD              UPDATE LOCATION COUNTER              4  1911  B !03             41
449  3 470         BCE   LOCRL,RBRAN,L       IS BRANCH ADDR LOC CTR RELATIVE      8  1915  B J93 879 L       41
450  3 480  P3PRX  B     000                                                      4  1923  B 000             41
451  3 490  ******           SUBROC. IF INSTRUCTION IS A SUBROUTINE CALL, THE
452  3 500  *                LABEL DICTIONARY IS SCANNED FOR ITS PRESENCE.
453  3 510  *                IF PRESENT, THE DICT TYPE IS SET AS ENTER.
454  3 520  *
455  3 530  SUBROC SBR   SUBROX&3            SAVE RETURN ADDRESS                  4  1927  H Z64             42
456  3 540         MLC   ROPR1,LSTOR         SET UP LSTOR FOR DSCAN               7  1931  M 890 965         42
457  3 550         B     DSCAN               CALL DICTIONARY SCAN                 4  1938  B B24             42
458  3 560         BWZ   SUBR1,SWDIC,1       IF ON, LSTOR WAS IN DICTIONARY       8  1942  V Z54 |10 1       42
459  3 570         B     SUBROX              OTHERWISE EXIT                       4  1950  B Z61             42
460  3 580  SUBR1  MLC   L1SLA,DLATY&X2      SET DICT TYPE AS ENTER               7  1954  M |27 0JX         42
461  3 590  SUBROX B     000                                                      4  1961  B 000             42
462  3 600  SPRBR  SBR   SPRBX&3             SAVE RETURN ADDRESS                  4  1965  H !02             43
463  3 610         MLC   ROPR1,LSTOR         SET UP LSTOR FOR DSCAN               7  1969  M 890 965         43
464  3 620         B     DSCAN               CALL DICTIONARY SCAN                 4  1976  B B24             43
465  3 630         BWZ   SPRB1,SWDIC,1       IF LABEL IN DICT, GO TO SPRB1        8  1980  V Z92 |10 1       43
466  3 640         B     SPRBX               AND EXIT                             4  1988  B Z99             43
467  3 650  SPRB1  MLZS  L1V,DLATY&X2        SET DICT TYPE AS REFERENCED          7  1992  Y |26 0JX         43
468  3 660  SPRBX  B     000                                                      4  1999  B 000             43
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

469  3 670  ******           LCTUPD. AFTER THE INST LENGTH IS ADDED TO LCTR,
470  3 680  *                LCTR IS CHECKED TO THE DICTIONARY FOR ERRONEOUS
471  3 690  *                LABEL GENERATION
472  3 700  LCTUPD SBR   LCTUPX&3                                              4  2003  H J29                44
473  3 710         A     RLENG,LCTR         ADD LENGTH TO LCTR                 7  2007  A 850 933            44
474  3 720         BWZ   LCTUPX,SWNOPR,1    IF ON, NO PROCESSING NECESSARY     8  2014  V J26 |11 1          44
475  3 730         BWZ   LCTUP1,SWNWAR,1    IF PROCESSING NEW AREA, TO LCTUP1  8  2022  V !85 |09 1          44
476  3 740  LCLOOP MLC   DLAFW&X1,REGX3     MOVE DICT DLAFW TO REGX3 AND       7  2030  M 0/T 936            44
477  3 750         C     REGX3,LCTR         COMPARE TO LCTR                    7  2037  C 936 933            45
478  3 760         BH    LCTREC             IF HIGH MUST RECOVER               5  2044  B !53 U              45
479  3 770         B     LCTUPX             EXIT                               4  2049  B J26                45
480  3 780  LCTREC S     REGX3,LCTR         DECREMENT LCTR BY DICT DLAFW       7  2053  S 936 933            45
481  3 790         MLZS  L1BLK,LCTR         STRIP ZONE BITS                    7  2060  Y |38 933            45
482  3 800         MA    L3020,X1           INCREMENT X1 TO POINT TO NEXT ENT  7  2067  # |30 089            45
483  3 801         MLC   DLABL&X1,LABSV                                        7  2074  M 0|X 927            46
484  3 810         B     LCTUPX             EXIT FROM LCTUPD                   4  2081  B J26                46
485  3 820  LCTUP1 MLC   DLABW&X1,REGX3     MOVE DICT DLABW TO REGX3           7  2085  M 0/| 936            46
486  3 830         C     REGX3,LCTR         AND COMPARE TO LCRTR.              7  2092  C 936 933            46
487  3 840         BH    LCTWEC             IF HIGH, MUST RECOVER              5  2099  B J08 U              46
488  3 850         B     LCTUPX             OTHERWISE EXIT                     4  2104  B J26                46
489  3 860  LCTWEC S     REGX3,LCTR         DECREMENT LCTR BY DICT DLABW       7  2108  S 936 933            47
490  3 870         MLZS  L1BLK,LCTR         STRIP ZONE BITS                    7  2115  Y |38 933            47
491  3 880         CW    SWNWAR             CLEAR SWITCH FOR NEW AREA          4  2122  ) |09                47
492  3 890  LCTUPX B     000                                                   4  2126  B 000                47
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

493  3 900         JOB   DERELATIVIZATION ROUTINES SYMRL, LOCRL
494  3 910  ******           PASS-3 PROCESSES TWO CATEGORIES OF RELATIVE
495  3 920  *                ADDRESSES
496  3 930  *                        1. SIMPLE RELATIVE FORM S&N, WHERE S IS
497  3 940  *                            SOME LABEL
498  3 950  *
499  3 960  *                         2. LOCATION COUNTER RELATIVE FORM *&N
500  3 970  *                SYMRL AND LOCRL REDUCE THE RELATIVE ADDRESS TO THE
501  3 980  *                FORM LABEL&N OR LABEL-N WHERE LABEL IS SOME LABEL
502  3 990  *                IN THE DICTIONARY. THIS RELATIVE ADDRESS IS
503  4 000  *                FURTHER REDUCED, WHEN APPLICABLE, BY SMSCN, SPSCN
504  4 010  SYMRL  SBR   SYMRX&3            SAVE RETURN ADDRESS                  4  2130  H J92             48
505  4 020         MLC   ROPR1,LSTOR        SET UP LSTOR FOR DSCAN               7  2134  M 890 965         48
506  4 030         B     DSCAN              CALL DSCAN                           4  2141  B B24             48
507  4 040         BWZ   SYMR1,SWDIC,1      IS LABEL IN DICT                     8  2145  V J57 |10 1       48
508  4 050         B     SYMRX              NO, EXIT                             4  2153  B J89             48
509  4 060  SYMR1  MLC   ROPSN,SSTOR        MOVE SIGN TO SSTOR                   7  2157  M 891 966         48
510  4 070         MLC   L5000,NSTOR        INITIALIZE NSTOR                     7  2164  M |35 971         49
511  4 080         A     RDISP,NSTOR        ADD DISP OF RELATIVE ADDR TO NSTO    7  2171  A 896 971         49
512  4 090         MLZS  L1BLK,NSTOR        CLEAR ZONE BITS                      7  2178  Y |38 971         49
513  4 100         B     SREDR              CALL DICT SCAN SELECTING ROUTINE     4  2185  B M06             49
514  4 110  SYMRX  B     000                AND EXIT                             4  2189  B 000             49
515  4 120  ******           LOCRL USES AS A BASE FOR REDUCING THE RELATIVE
516  4 130  *                ADDRESS THE CURRENT DICTIONARY POINTER, X1, AND
517  4 140  *                THE CONTENTS OF LCTR.
518  4 150  LOCRL  SBR   LOCRX&3            SAVE RETURN ADDRESS                  4  2193  H L71             49
519  4 151         BWZ   LOCRX,SWNOPR,1     INTERNAL RECOVERY CONTROL            8  2197  V L68 |11 1       50
520  4 160         SW    SWLOCR             SET SWLOCR FOR LATER CORRECTIONS     4  2205  , |12             50
521  4 170         MLC   L5000,NSTOR        MOVE DISPLACEMENT OF THE RELATIVE    7  2209  M |35 971         50
522  4 180         A     RDISP,NSTOR        ADDRESS TO NSTOR                     7  2216  A 896 971         50
523  4 190         MLZS  ROPSN,NSTOR        MOVE SIGN OF RELATIVE ADDRESS        7  2223  Y 891 971         50
524  4 200         BWZ   LACRL,RLNTY,K      IF CURRENT UNKNOWN LENGTH, BYPASS    8  2230  V K91 847 K       51
525  4 210         BCE   LOCSUB,MACH,4      IS MACHINE 1620 TYPE                 8  2238  B K65 082 4       51
526  4 211         BCE   L360PR,MACH,0      IS MACHINE 360 TYPE                  8  2246  B L72 082 0       51
527  4 212         S     LOCAD,NSTOR        NO, DECREMENT NSTOR                  7  2254  S 974 971         51
528  4 213         B     LACRL              AND GO TO LACRL                      4  2261  B K91             51
529  4 214  LOCSUB S     RLENG,NSTOR        SUBTRACT LENGTH OF INSTRUCTION       7  2265  S 850 971         52
530  4 215         C     RLENG,L3000                                             7  2272  C 850 |17         52
531  4 216         BU    LACRL                                                   5  2279  B K91 /           52
532  4 217         S     L3012,NSTOR                                             7  2284  S |44 971         52
533  4 220  LACRL  A     LCTR,NSTOR         ADD LCTR TO NSTOR                    7  2291  A 933 971         52
534  4 230         BCE   LOCR1,LABSV-9,     PROCESSING A NEW AREA                8  2298  B L10 918         53
535  4 240         B     LOCR2              OTHERWISE GO TO LOCR2                4  2306  B L24             53
536  4 250  LOCR1  MLC   DLABW&X1,REGX3     MOVE DICT DLABW TO REGX3 AND         7  2310  M 0/| 936         53
537  4 260         S     REGX3,NSTOR        SUBTRACT FROM NSTOR                  7  2317  S 936 971         53
538  4 270  LOCR2  BWZ   LOCMIN,NSTOR,K     IS RESULT IN NSTOR NEGATIVE          8  2324  V L43 971 K       53
539  4 280         MLZS  L1PLU,SSTOR                                             7  2332  Y |36 966         54
540  4 290         B     LOCAMT             GO TO LOCAMT                         4  2339  B L50             54
541  4 300  LOCMIN MLZS  L1MIN,SSTOR        NSTOR MINUS, LET SSTOR BE MINUS      7  2343  Y |37 966         54
542  4 310  LOCAMT MLZS  L1BLK,NSTOR        CLEAR NSTOR                          7  2350  Y |38 971         54
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

543  4 320  U      MLC   X1,X2              SET UP X2 FOR LABEL GENERATION         7  2357  M 089 094            54
544  4 330         B     SREDR              GO TO SREDR                            4  2364  B M06                54
545  4 340  LOCRX  B     000                                                       4  2368  B 000                55
546  4 341  L360PR C     RLENG,L3000        IS INSTRUCTION ZERO LENGTH             7  2372  C 850 |17            55
547  4 342         BU    L360SB             UNEQUAL TO ZERO                        5  2379  B L95 /              55
548  4 343         S     LENGSV,NSTOR       IF ZERO, SUBTRACT SAVED LENGTH         7  2384  S 977 971            55
549  4 344         B     LACRL              AND GO TO LACRL                        4  2391  B K91                55
550  4 345  L360SB S     RLENG,NSTOR        SUBTRACT LENGTH FROM NSTOR             7  2395  S 850 971            55
551  4 346         B     LACRL              AND GO TO LACRL                        4  2402  B K91                55
552  4 350  ******           SREDR. IF NSTOR IS ZERO, THE RELATIVE ADDRESS HAS
553  4 360  *                BEEN REDUCED TO A SIMPLE ADDRESS. OTHERWISE, IF
554  4 370  *                SSTORE IS PLUS OR MINUS, THE NECESSARY SCAN IS
555  4 380  *                CHOSEN.
556  4 390  SREDR  SBR   SREDX&3            SAVE RETURN ADDRESS                    4  2406  H M41                56
557  4 400         C     NSTOR,L5000        IS NSTOR EQUAL ZERO                    7  2410  C 971 |35            56
558  4 410         BE    SREDA              IS EQUAL TO ZERO, GO TO SREDA          5  2417  B M42 S              56
559  4 420         BWZ   SPSCN,SSTOR,B      IF SSTOR#&, GO TO SPSCN                8  2422  V M53 966 B          56
560  4 430         BWZ   SMSCN,SSTOR,K      IF SSTOR#-, GO TO SPSCN                8  2430  V N70 966 K          56
561  4 440  SREDX  B     000                                                       4  2438  B 000                56
562  4 450  SREDA  MLZS  L1V,DLATY&X2       SET REFERENCED ZONE BIT                7  2442  Y |26 0JX            57
563  4 460         B     SREDX              AND EXIT FROM SREDR                    4  2449  B M38                57
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SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD

564  4 470         JOB   S&N DERELATIVIZATION SCAN
565  4 480  ******           SPSCN. SPSCN REDUCES THE RELATIVE FORM S&N BY
566  4 490  *                A FORWARD SCAN IN THE DICTIONARY FROM THE LABEL
567  4 500  *                S AND REDUCING N. THREE CONDITIONS ARE NOTE.
568  4 510  *
569  4 520  *                1. S&N REFERS TO A POSITION ACROSS A LOCATION  .
570  4 530  *                   COUNTER BREAK. NO PROCESSING IS DONE
571  4 540  *
572  4 550  *                2. S&N REFERS TO A LABEL CURRENTLY IN THE DICT
573  4 560  *                   NOT ACROSS A LOCATION COUNTER BREAK. NO
574  4 570  *                   LABEL GENERATION OCCURS.
575  4 580  *
576  4 590  *                3. S&N DOES NOT REFER TO A LABEL IN THE DICT.
577  4 600  *                   LABEL GENERATION FOR THIS RELATIVE ADDRESS
578  4 610  *                   OCCURS. IF THE GENERATED LABELS FALLS BEFORE
579  4 620  *                   A LOCATION COUNTER BREAK, SPECIAL DICTIONARY
580  4 630  *                   PROCESSI OCCURS, TYPE 2.
581  4 640  *
582  4 650  SPSCN  SBR   SPSCX&3            SAVE RETURN ADDRESS                   4  2453  H N09              58
583  4 660  SPSLP  MLC   DLAFW&X2,REGX3     MOVE DICT DLAFW                       7  2457  M 0JT 936          58
584  4 670         ZA    REGX3,REGX5        TO A FIVE POSITION                    7  2464  ? 936 944          58
585  4 680         MLZS  L1BLK,REGX5        HOLD TO COMPARE TO NSTOR              7  2471  Y |38 944          58
586  4 690         BCE   SPSR2,DLABW&20&X2,M   IS NEXT DICT DLABW#M               8  2478  B N10 0L| M        58
587  4 700         C     REGX5,NSTOR        COMPARE DICT DLABW TO NSTOR           7  2486  C 944 971          59
588  4 710         BH    SPSCX                                                    5  2493  B N06 U            59
589  4 720  SPSR1  SW    SWT2GN             SET SW FOR TYPE2 GENERATION           4  2498  , |13              59
590  4 730  SPSLA  B     LAGEN              CALL IN LABEL GENERATION              4  2502  B P08              59
591  4 740  SPSCX  B     000                EXIT POINT                            4  2506  B 000              59
592  4 750  SPSR2  C     REGX5,NSTOR        COMPARE DICT DLAFW TO NSTOR           7  2510  C 944 971          59
593  4 760         BL    SPSLA              LOW, GENERATE LABEL                   5  2517  B N02 T            59
594  4 770         BE    SPSPX              CLEANUP AFTER SPSCN                   5  2522  B N59 S            60
595  4 780         S     REGX5,NSTOR        DROP NSTOR BY DICT DLAFW              7  2527  S 944 971          60
596  4 790         MLZS  L1BLK,NSTOR        ZONE BIT CLEAR                        7  2534  Y |38 971          60
597  4 800         MA    L3020,X2           UP X2 TO POINT TO NEXT NEXT ENTRY     7  2541  # |30 094          60
598  4 810         MLC   DLABL&X2,LSTOR     NEW LABEL TO LSTOR                    7  2548  M 0!X 965          60
599  4 820         B     SPSLP              LOOP BACK                             4  2555  B M57              60
600  4 830  SPSPX  MLZS  L1V,DLATY&20&X2    SET ZONE BIT AS REFERENCED            7  2559  Y |26 0LX          61
601  4 840         B     SPSCX              AND EXIT                              4  2566  B N06              61
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SEQ PG LIN  LABEL  OP    OPERANDS                                   SFX CT  LOCN  INSTRUCTION TYPE  CARD

602  4 850         JOB   S-N DERELATIVIZATION SCAN
603  4 860  ******           SMSCN. SMSCN PERFORMS THE SAME FUNCTION AS SPSCN
604  4 870  *                IN REDUCING THE RELATIVE ADDRESS S-N TO A LABEL
605  4 880  *                IN THE DICTIONARY, AN IRREDUCIBLE RELATIVE
606  4 890  *                ADDRESS, OR A GENERATED LABEL
607  4 900  SMSCN  SBR   SMSCX&3            SAVE RETURN ADDRESS              4  2570  H O26                62
608  4 910  SMSLP  BCE   SMSR2,DLABW&X2,M   IS DICT DLABW EQUAL TO M         8  2574  B O27 0J| M          62
609  4 920         MLC   DLABW&X2,REGX3     MOVE DICT DLABW TO               7  2582  M 0J| 936            62
610  4 930         ZA    REGX3,REGX5        A FIVE POSITION                  7  2589  ? 936 944            62
611  4 940         MLZS  L1BLK,REGX5        HOLD                             7  2596  Y |38 944            62
612  4 950         C     REGX5,NSTOR        AND COMPARE TO NSTOR             7  2603  C 944 971            63
613  4 960         BH    SMSCX              IF HIGH, NO GENERATION, EXIT     5  2610  B O23 U              63
614  4 970  SMSR1  SW    SWT3GN             SET TYPE 3 FOR LABEL GENERATION  4  2615  , |14                63
615  4 980  SMCAL  B     LAGEN              CALL LABEL GENERATION            4  2619  B P08                63
616  4 990  SMSCX  B     000                EXIT POINT                       4  2623  B 000                63
617  5 000  SMSR2  MLC   DLAFW-20&X2,REGX3  MOVE PREVIOUS DLAFW              7  2627  M IR3 936            63
618  5 010         ZA    REGX3,REGX5        TO A FIVE POSITION               7  2634  ? 936 944            63
619  5 020         MLZS  L1BLK,REGX5        HOLD                             7  2641  Y |38 944            64
620  5 030         C     REGX5,NSTOR        AND COMPARE TO NSTOR             7  2648  C 944 971            64
621  5 040         BL    SMCAL              IF LOW, MUST GENERATE LABEL      5  2655  B O19 T              64
622  5 050         BE    SMSMX              IF EQUAL, GO TO SMSCX            5  2660  B O97 S              64
623  5 060         S     REGX5,NSTOR        OTHERWISE SUBTRACT PREVIOUS      7  2665  S 944 971            64
624  5 070         MLZS  L1BLK,NSTOR        DICT DLAFW FROM NSTOR            7  2672  Y |38 971            64
625  5 080         MA    L3020M,X2          DECREMENT X2 TO PREVIOUS ENTRY   7  2679  # |41 094            65
626  5 090         MLC   DLABL&X2,LSTOR     AND MOVE DICT LABEL TO LSTOR     7  2686  M 0!X 965            65
627  5 100         B     SMSLP              LOOP BACK                        4  2693  B N74                65
628  5 110  SMSMX  MLZS  L1V,DLATY-20&X2    SET REFERENCED BIT               7  2697  Y |26 IR7            65
629  5 120         B     SMSCX                                               4  2704  B O23                65
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

630  5 130         JOB   LABEL GENERATION
631  5 140  ******           LAGEN. LAGEN GENERATES A LABEL AND CONSTRUCTS THE
632  5 150  *                DICTIONARY ENTRY FOR THAT LABEL. PUSHD PUSHES THE
633  5 160  *                DICTIONARY DOWN FOR SPACE TO INSERT THE GEN ENTRY
634  5 170  *
635  5 180  *                FOUR SEPARATE LABEL GEN CONDITIONS ARE NOTED
636  5 190  *                1. THE RELATIVE ADDRESS WAS OF FORM S&N, AND THE
637  5 200  *                   GENERATE LABEL LIES BETWEEN TWO LABELS.
638  5 210  *
639  5 220  *                2. THE RELATIVE ADDRESS WAS OF FORM S&N, AND THE
640  5 230  *                   GENERATED LABEL LIES BETWEEN LABEL AND
641  5 240  *                   LOCATION COUNTER BREAK
642  5 250  *
643  5 260  *                3. THE RELATIVE ADDRESS WAS OF FORM S-N, AND THE
644  5 270  *                   GENERATED LABEL LIES BETWEEN TWO LABELS.
645  5 290  *                4. THE RELATIVE ADDRESS WAS OF FORM S-N, AND THE
646  5 300  *                   GENERATED LABEL LIES BETWEEN A LABEL AND A
647  5 310  *                   LOCATION COUNTER BREAK
648  5 320  LAGEN  SBR   LAGAX&3            SAVE RETURN ADDRESS                  4  2708  H R97               66
649  5 330         MLC   L5000,ILTYP        CLEAR OUT GEN ENTRY                  7  2712  M |35 836           66
650  5 340         MLC   LGENCT,ILABL-4     MOVE GENERATED NUMBER TO OUTPUT      7  2719  M 955 822           66
651  5 350         MLC   L1LOZ,ILABL-9      MOVE ) TO GENERATED LABEL            7  2726  M |45 817           66
652  5 360         A     L31,LGENCT         BUMP UP GENERATED NUMBER             7  2733  A |48 955           66
653  5 370         MLC   L3SAM,ILABW        MOVE SAM TO GENERATED ENTRY DLABW    7  2740  M |51 829           66
654  5 380         B     PUSHD              CALL PUSHD                           4  2747  B B86               67
655  5 390         MLC   NSTOR,N            SET UP N FOR GEN CALCULATION         7  2751  M 971 950           67
656  5 400         MLC   DLARE&X2,ILARE     SET GENERATED ENTRY AREA NUMBER      7  2758  M 0JW 835           67
657  5 410         BWZ   LG2R1,SWT2GN,1     LABEL GEN FOR TYPE 2                 8  2765  V Q28 |13 1         67
658  5 420         BWZ   LG3R1,SWT3GN,1     LABEL GEN FOR TYPE 3                 8  2773  V Q74 |14 1         67
659  5 430         BWZ   LGPR1,SSTOR,B      IS THIS LABEL FOR S&N                8  2781  V R20 966 B         68
660  5 440  LGSP1  MLC   DLAFW-20&X2,F      S-N. SET UP F FOR CALCULATION        7  2789  M IR3 947           68
661  5 450         S     N,F                SUBTRACT N FROM F                    7  2796  S 950 947           68
662  5 460         MLZS  L1BLK,F            ZONE BIT CLEAR                       7  2803  Y |38 947           68
663  5 470         MLC   N,ILAFW            N TO GENERATED ENTRY DLAFW           7  2810  M 950 832           68
664  5 480         MLC   F,DLAFW-20&X2      F TO PREVIOUS ENTRY DLAFW            7  2817  M 947 IR3           69
665  5 490         B     LINR               AND INSERT GENERATED ENTRY           4  2824  B R66               69
666  5 500  LG2R1  MLC   DLAFW&X2,F         MOVE DICT DLAFW TO F                 7  2828  M 0JT 947           69
667  5 510         S     N,F                SUBTRACT NSTOR FROM DICT DLAFW       7  2835  S 950 947           69
668  5 520         MLZS  L1BLK,F            ZONE BIT CLEAR                       7  2842  Y |38 947           69
669  5 530         MLC   N,DLAFW&X2         NSTOR TO DICT DLAFW                  7  2849  M 950 0JT           69
670  5 540         MLC   F,ILAFW            F TO GENERATED ENTRY DLAFW           7  2856  M 947 832           70
671  5 550         MA    L3020,X2           UP X2 FOR CORRECT INSERTION          7  2863  # |30 094           70
672  5 560         B     LINR               AND INSERT GENERATED ENTRY           4  2870  B R66               70
673  5 570  LG3R1  MLC   DLABW&X2,F         MOVE DICT DLAFW TO F                 7  2874  M 0J| 947           70
674  5 580         S     N,F                SUBTRACT NSTOR FROM DICT DLABW       7  2881  S 950 947           70
675  5 590         MLZS  L1BLK,F            ZONE BIT CLEAR                       7  2888  Y |38 947           70
676  5 600         MLC   N,ILAFW            MOVE NSTOR TO GENERATED DLALW        7  2895  M 950 832           71
677  5 610         MLC   F,ILABW            MOVE F TO GENERATED DLABW            7  2902  M 947 829           71
678  5 620         MLC   L3SAM,DLABW&20&X2  MOVE SAM TO PRECEDING DICT DLABW     7  2909  M |51 0L|           71
679  5 630         B     LINR               AND INSERT GENERATED ENTRY           4  2916  B R66               71
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SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
680	5	640	LGPR1	MLC	DLAFW&X2,F	MOVE DICT DLAFW TO F		7	2920	M 0JT 947	71
681	5	650		S	N,F	SUBTRACT NSTOR FROM DICT DLAFW		7	2927	S 950 947	71
682	5	660		MLZS	L1BLK,F	ZONE BIT CLEAR		7	2934	Y |38 947	72
683	5	670		MLC	N,DLAFW&X2	MOVE NSTOR TO DICT DLAFW		7	2941	M 950 0JT	72
684	5	680		MLC	F,ILAFW	MOVE F TO GENERATED DLAFW		7	2948	M 947 832	72
685	5	690		MA	L3020,X2	UP X1 FOR ENTRY INSERTION		7	2955	# |30 094	72
686	5	700		B	LINR	GENERATED ENTRY INSERTION		4	2962	B R66	72
687	5	710	LINR	MLC	L1RM,ILTYP	SET DICT TYPE AS REFERENCED		7	2966	M |52 836	72
688	5	720		MLC	ILTYP,DLATY&X2	MOVE		7	2973	M 836 0JX	73
689	5	730		MLC		GENERATED		1	2980	M	73
690	5	740		MLC		DICTIONARY ENTRY		1	2981	M	73
691	5	750		MLC		TO DICTIONARY		1	2982	M	73
692	5	760		CW	SWT2GN,SWT3GN	CLEAR GENERATED TYPE SWITCHES		7	2983	) |13 |14	73
693	5	770		B	ADCH	DICTIONARY UPDATE		4	2990	B R98	73
694	5	780	LAGAX	B	000	EXIT		4	2994	B 000	73

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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

695  5 790         JOB   DICTIONARY CORRECTION ROUTINE
696  5 800  ******           ADCH. ADCH CORRECTS ANY CHANGE IN THE DICTIONARY
697  5 810  *                AFTER LAGEN THAT WOULD CAUSE SYNCHRONIZATION
698  5 820  *                BETWEEN TEXT AND DICTIONARY TO BE LOST.
699  5 830  ADCH   SBR   ADCX&3              SAVE RETURN ADDRESS                  4  2998  H B23                74
700  5 840         BWZ   ADR1,SWNOPR,1       IS NOPR SWITCH ON                    8  3002  V A05 |11 1          74
701  5 850         BWZ   ADR2,SWNWAR,1       PROCESSING FIRST OF AREA             8  3010  V A28 |09 1          74
702  5 860         C     LABSV,DLABL&X1      COMPARE LABSV WITH OLD CURRENT       7  3018  C 927 0|X            74
703  5 870         BE    ADR3                IF EQUL, MUST CONTINUE CHECKING      5  3025  B ?41 S              74
704  5 880         MA    L3020,X1            UP X1 TO POINT TO CURRENT ENTRY      7  3030  # |30 089            74
705  5 890         B     ADCW                AND EXIT                             4  3037  B B16                75
706  5 900  ADR3   MLC   DLAFW&X1,REGX3      MOVE DICT DLAFW TO REGX3             7  3041  M 0/T 936            75
707  5 910         C     REGX3,LCTR          AND COMPARE TO LCTR                  7  3048  C 936 933            75
708  5 920         BL    ADCW                IF LOW, NO FURTHER PROCESSING        5  3055  B B16 T              75
709  5 930         BU    AD3UP               IF HIGH, GO TO AD3UP                 5  3060  B ?73 /              75
710  5 940         BWZ   ADCW,SWLOCR,1       IF CALLED FROM LOC REL, EXIT         8  3065  V B16 |12 1          75
711  5 950  AD3UP  S     REGX3,LCTR          SUBTRACT DICT DLAFW FROM             7  3073  S 936 933            76
712  5 960         MLZS  L1BLK,LCTR          LCTR                                 7  3080  Y |38 933            76
713  5 970         MA    L3020,X1            INCREMENT X1 TO POINT TO NEXT        7  3087  # |30 089            76
714  5 980         MLC   DLABL&X1,LABSV      INSERT CORRECT LABEL TO LABSV        7  3094  M 0|X 927            76
715  5 990         B     ADCW                AND EXIT                             4  3101  B B16                76
716  6 000  ADR1   C     LABSV,DLABL&X1      COMPARE LABSAVE TO CURRENT DICT      7  3105  C 927 0|X            76
717  6 010         BE    ADCW                EQUAL, NO FURTHER PROBLEM            5  3112  B B16 S              77
718  6 020         MA    L3020,X1            OTHERWISE BUMP X1                    7  3117  # |30 089            77
719  6 030         B     ADCW                AND EXIT                             4  3124  B B16                77
720  6 040  ADR2   C     LABSV,DLABL&X1      COMPARE LABSV TO LABEL IN DICT       7  3128  C 927 0|X            77
721  6 050         BE    ADCW                EQUAL, NO PROCESSING                 5  3135  B B16 S              77
722  6 060         BCE   ADR4,DLABW&20&X1,M  IS NEXT ENTRY DLABW# SAM             8  3140  B A59 0T| M          77
723  6 070         MA    L3020,X1            NO, BUMP UP X1                       7  3148  # |30 089            78
724  6 080         B     ADCW                AND EXIT                             4  3155  B B16                78
725  6 090  ADR4   MLC   DLABW&X1,REGX3      MOVE DLABW TO REGX3                  7  3159  M 0/| 936            78
726  6 100         C     REGX3,LCTR          COMPARE DICT DLABW TO                7  3166  C 936 933            78
727  6 110         BL    ADCW                IF LOW, EXIT                         5  3173  B B16 T              78
728  6 120         BU    AD4UP               IF HIGH GO TO AD4UP                  5  3178  B A91 /              78
729  6 130         BWZ   ADCW,SWLOCR,1       IF CALLED FROM LOCRL, EXIT           8  3183  V B16 |12 1          79
730  6 140  AD4UP  S     REGX3,LCTR          OTHERWISE SUBTRACT DICT DLABW        7  3191  S 936 933            79
731  6 150         MLZS  L1BLK,LCTR          FROM LOCATION COUNTER                7  3198  Y |38 933            79
732  6 160         MLC   DLABL,LABSV         AND MOVE THE NEW LABEL TO LABSV      7  3205  M 00X 927            79
733  6 170         CW    SWNWAR              CLEAR WM AT SWNWAR                   4  3212  ) |09                79
734  6 180  ADCW   CW    SWLOCR              CLEAR SW FOR LOC REL ADDRESS         4  3216  ) |12                79
735  6 190  ADCX   B     000                 AND RETURN                           4  3220  B 000                80
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

736  6 200         JOB   MISCELLANEOUS ROUTINES
737  6 210  ******           DSCAN. DSCAN COMPARES EACH DICTIONARY LABEL TO THE
738  6 220  *                CONTENTS OF LSTOR. IF A MATCH IS MADE, SWDIC IS
739  6 230  *                TURNED ON. THE RESULT OF DSCAN IS THE SWITCH
740  6 240  *                SETTING AND THE CONTENTS OF INDEX REGISTER 2.
741  6 250  DSCAN  SBR   DSCAX&3            SAVE RETURN ADDRESS                   4  3224  H B85                81
742  6 260         CW    SWDIC              CLEAR @FOUND@ SWITCH                  4  3228  ) |10                81
743  6 270         MLC   L3000,X2           RESET X2                              7  3232  M |17 094            81
744  6 280  DSLOP  C     LSTOR,DLABL&X2     COMPARE LSTOR TO DICT DLAB            7  3239  C 965 0!X            81
745  6 290         BE    DFOUN              IF EQUAL, A MATCH                     5  3246  B B78 S              81
746  6 300         MA    L3020,X2           INCREMENT X1 FOR NEXT COMPARE         7  3251  # |30 094            81
747  6 309         BCE   DSCAX,DLABL-9&X2,}                                       8  3258  B B82 IR8 }          82
748  6 310         BWZ   DSCAX,DLATY&X2,B   HAVE REACHED END OF DICTIONARY        8  3266  V B82 0JX B          82
749  6 320         B     DSLOP              NO, LOOP BACK                         4  3274  B B39                82
750  6 330  DFOUN  SW    SWDIC              SET FOUND SWITCH                      4  3278  , |10                82
751  6 340  DSCAX  B     000                RETURN HOME.                          4  3282  B 000                82
752  6 350  ******           PUSHD. PUSHD IS CALLED FROM LAGEN. AT THE TIME
753  6 360  *                PUSHD, X2 POINTS TO THE POSITION IN THE DICTIONARY
754  6 370  *                FOR THE REDUCE RELATIVE ADDRESS.
755  6 380  *
756  6 390  *                PUSHD MOVES EACH DICT ENTRY TO ITS IMMEDIATEL
757  6 400  *                SUCCEEDING ENTRY TO AND INCLUDING THE ENTRY
758  6 410  *                POINTED TO BY X2. LAGEN LATER DECIDS WHICH OF THE
759  6 420  *                DUPLICATE ENTRIES IS TO BE REPLACED BY THE
760  6 430  *                GENERATED ENTRY
761  6 440  PUSHD  SBR   PUSHX&3            SAVE RETURN ADDRESS                   4  3286  H C45                82
762  6 450         MLC   DCTR,X3            MOVE NEXT OPEN DISP TO X3             7  3290  M I97 099            82
763  6 460         BCE   DOFLOW,DLABL-9&X3,}  HAVE REACHED END OF CORE            8  3297  B T22 II8 }          83
764  6 470  PLOOP  MLC   DLATY-20&X3,DLATY&X3   MOVE DICT ENTRY TO FOLLOWING      7  3305  M II7 0AX            83
765  6 480         MA    L3020M,X3          DECREMENT X3 FOR NEXT MOVE            7  3312  # |41 099            83
766  6 490         C     X3,X2              HAVE REACHED END OF PUSHDOWN          7  3319  C 099 094            83
767  6 500         BE    PFINI              YES, PFINI                            5  3326  B C35 S              83
768  6 510         B     PLOOP              NO, LOOP BACK                         4  3331  B C05                83
769  6 520  PFINI  MA    L3020,DCTR         UP DCTR TO POINT NEXT AVAILABLE       7  3335  # |30 I97            84
770  6 530  PUSHX  B     000                EXIT                                  4  3342  B 000                84
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SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD

771  6 540         JOB   SNAPSHOT ROUTINE
772  6 560         BIN   DPINT,D                                                 5  3346  B C59 D              85
773  6 570         B     DPDUMX                                                  4  3351  B F15                85
774  6 550  DDUMP  SBR   DPDUMX&3                                                4  3355  H F18                85
775  6 580  DPINT  MLC   @B@,DPFALL                                              7  3359  M F38 E94            85
776  6 590         MLC   X2,DPX2#3                                               7  3366  M 094 F41            85
777  6 600         MLC   @000@,DPCTR#3                                           7  3373  M F44 F47            85
778  6 610         MLC   DPLOW,DPLOOP&3                                          7  3380  M F24 D26            86
779  6 620         MLC   DPLOW,DPTEST&6                                          7  3387  M F24 D43            86
780  6 630         MLC   DPLOW,DPLADR#3                                          7  3394  M F24 F50            86
781  6 640         MLC   @00000@,DPTAG#5                                         7  3401  M F55 F60            86
782  6 650  DPALOP MLC   @000@,X2                                                7  3408  M F44 094            86
783  6 660         CS    332                                                     4  3415  / 332                86
784  6 670         CS    299                                                     4  3419  / 299                87
785  6 680  DPLOOP MLC   000,DPHOLD#1                                            7  3423  M 000 F61            87
786  6 690         MLC   DPHOLD,225&X2                                           7  3430  M F61 2K5            87
787  6 700  DPTEST BWZ   DPSETW,000,1                                            8  3437  V D49 000 1          87
788  6 710         B     DPSETW&4                                                4  3445  B D53                87
789  6 720  DPSETW SW    225&X2                                                  4  3449  , 2K5                87
790  6 730         MA    @001@,DPLOOP&3                                          7  3453  # F37 D26            88
791  6 740         MA    @001@,DPTEST&6                                          7  3460  # F37 D43            88
792  6 750         A     @001@,X2                                                7  3467  A F37 094            88
793  6 760         BCE   DPDOGO,DPLOOP&3,Z                                       8  3474  B D86 D26 Z          88
794  6 770         B     DPCOMP                                                  4  3482  B E09                88
795  6 780  DPDOGO BCE   DPARGH,DPLOOP&1,I                                       8  3486  B D98 D24 I          89
796  6 790         B     DPCOMP                                                  4  3494  B E09                89
797  6 800  DPARGH MLC   @N@,DPFALL                                              7  3498  M F62 E94            89
798  6 810         B     DPWRIT                                                  4  3505  B E25                89
799  6 820  DPCOMP C     X2,DPWID                                                7  3509  C 094 F27            89
800  6 830         BE    DPWRIT                                                  5  3516  B E25 S              89
801  6 840         B     DPLOOP                                                  4  3521  B D23                89
802  6 850  DPWRIT MLC   DPLOW,205                                               7  3525  M F24 205            90
803  6 860         MLC   @&@,210                                                 7  3532  M F63 210            90
804  6 870         MLC   DPTAG-1,215                                             7  3539  M F59 215            90
805  6 880         MLC   DPLADR,219                                              7  3546  M F50 219            90
806  6 890         W                                                             1  3553  2                    90
807  6 900         WM                                                            2  3554  2 )                  90
808  6 910         BCV   DPCH1                                                   5  3556  B F10 @              90
809  6 920  DPADD  A     DPWID,DPTAG-1                                           7  3561  A F27 F59            91
810  6 930         MA    DPWID,DPLADR                                            7  3568  # F27 F50            91
811  6 940         A     @001@,DPCTR                                             7  3575  A F37 F47            91
812  6 950         C     DPCTR,DPNUM                                             7  3582  C F47 F21            91
813  6 960         BE    *&5                                                     5  3589  B E98 S              91
814  6 970  DPFALL B     DPALOP                                                  4  3594  B D08                91
815  6 980         MLC   DPX2,X2                                                 7  3598  M F41 094            92
816  6 990         CCB   DPDUMX,K                                                5  3605  F F15 K              92
817  7 000  DPCH1  CCB   DPADD,1                                                 5  3610  F E61 1              92
818  7 010  DPDUMX B     000                                                     4  3615  B 000                92
819  7 020  DPNUM  DCW   @080@                                                   3  3621                       92
820  7 030  DPLOW  DCW   @001@                                                   3  3624                       92
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SEQ PG LIN  LABEL  OP    OPERANDS                                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD

821  7 040  DPWID  DCW   @100@                                                             3  3627                      92
822  7 050         LTORG *&1                                                                     3629
       248         DCW   &RTREA                                                            3  3631  837         ADCON   93
                         @100@                                                             3  3634              LIT     93
                         @001@                                                             3  3637              LIT     93
                         @B@                                                               1  3638              LIT     93
       776  DPX2         #03                                                               3  3641              AREA    93
                         @000@                                                             3  3644              LIT     93
       777  DPCTR        #03                                                               3  3647              AREA    93
       780  DPLADR       #03                                                               3  3650              AREA    94
       781               @00000@                                                           5  3655              LIT     94
       781  DPTAG        #05                                                               5  3660              AREA    94
       785  DPHOLD       #01                                                               1  3661              AREA    94
                         @N@                                                               1  3662              LIT     94
                         @&@                                                               1  3663              LIT     94
823  7 060  HIGH2  EQU   3900                                                                 3900
824  7 070         END   START                                                                      / /14 080          95
                                                                                                                                  *****
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821  7 040  DPWID  DCW   @100@                                                             3  3627                      92
822  7 050         LTORG *&1                                                                     3629
       248         DCW   &RTREA                                                            3  3631  837         ADCON   93
                         @100@                                                             3  3634              LIT     93
                         @001@                                                             3  3637              LIT     93
                         @B@                                                               1  3638              LIT     93
       776  DPX2         #03                                                               3  3641              AREA    93
                         @000@                                                             3  3644              LIT     93
       777  DPCTR        #03                                                               3  3647              AREA    93
       780  DPLADR       #03                                                               3  3650              AREA    94
       781               @00000@                                                           5  3655              LIT     94
       781  DPTAG        #05                                                               5  3660              AREA    94
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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                               1                 4CHRU
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?          2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040           3

                          PASS-4                                                      4CHRU              PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    010  000    JOB   PASS-4
 102    020         CTL   440
 103    025  *              VERSION 2  LEVEL 0   JULY 25,1965
 104    030         DCW   @$ADD     @                                                 9  0341                       4
 105    040         DSA   BRANCH                                                      3  0344  813                  4
 106    050         DSA   BRANCH                                                      3  0347  813                  4
 107    060         DSA   3900                                                        3  0350  I00                  4
 108    070         DCW   @04/05/65@                                                  8  0358                       4
 109    080  *
 110    090  *                                TAPE DEFINITIONS
 111    100  IOCON2 EQU   200                TAPE 2 FOR SYSIO CALL                       0200
 112    110  IOCON3 EQU   300                TAPE 3 FOR SYSIO CALL                       0300
 113    120  IOCON4 EQU   400                TAPE 4 FOR SYSIO CALL                       0400
 114    130  IOTP2  EQU   %U2                TAPE UNIT 2                                 %U2
 115    140  IOTP3  EQU   %U3                TAPE UNIT 3                                 %U3
 116    150  IOTP4  EQU   %U4                TAPE UNIT 4                                 %U4
 117    160  SYSTAP EQU   %U1                SYSTEM TAPE UNIT 1                          %U1
 118    170  *
 119    180  *                                SYSTEM COMMUNICATION DEFINITION
 120    190  LCARD  EQU   1                  1-80, $CONTROL CARD INPUT AREA              0001
 121    200  *                                81 NOT USED, MAY HAVE BLANK, RM
 122    210  MACH   EQU   82                 MACHINE CODE                                0082
 123    220  LANG   EQU   83                 LANGUAGE CODE                               0083
 124    230  SWEJEC EQU   084               PRINT PAGE EJECT SWITCH                      0084
 125    240  *                                85, 86 NOT ASSIGNED
 126    250  X1     EQU   89                 87-89, INDEX REGISTER 1                     0089
 127    260  *                                90-91 NOT ASSIGNED
 128    270  X2     EQU   94                 92-94, INDEX REGISTER 2                     0094
 129    280                                  95, 96 NOT ASSIGNED
 130    290  X3     EQU   99                 97-99, INDEX REGISTER 3                     0099
 131    300                                  100 READ/PUNCH CHECK POSITION
 132    310  LPUNCH EQU   101                101-180, PUNCH-DAJOB HEADING                0101
 133    320  *                                181-195, USED BY SYSLNK
 134    330  LPAGE  EQU   199                196-199, DAJOB PAGE HEADING                 0199
 135    340  *                                200 NOT ASSIGNED
 136    350  LPRINT EQU   201                201-332, PRINT AREA                         0201
 137    360  SYSLNK EQU   400                SYSTEM TAPE READ ROUTINE                    0400
 138    370  SYSIO  EQU   500                READ-WRITE TAPE ROUTINE                     0500
 139    380  LINTOT EQU   659                NUMBER OF LINES PER PAGE                    0659
 140    390  MESSG  EQU   660                                                            0660
 141    400  EJECT  EQU   704                EJECT PAGE ROUTINE                          0704
 142    410  PRINT  EQU   747                PRINT LINE ROUTINE                          0747
 143    420  READ   EQU   781                READ CONTROL CARD ROUTINE                   0781
 144    430  PUNCH  EQU   789                PUNCH CARD ROUTINE                          0789
 145    440  *
 146    450  SYSEND EQU   799                LAST CHARACTER                              0799
 147    460  *
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SEQ PG LIN  LABEL  OP    OPERANDS                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

148    470  *              SWITCHES COMMON TO ALL PHASES OF FLOWCHART
149    480  SWLIST EQU   SYSEND&1                                          0800
150    490  SWDECK EQU   SWLIST&1                                          0801
151    500  SWNOCH EQU   SWDECK&1                                          0802
152    510  SWNOST EQU   SWNOCH&1                                          0803
153    520  SWCROS EQU   SWNOST&1                                          0804
154    530  SWNOSV EQU   SWCROS&1                                          0805
155    540  LOCADJ EQU   SWNOSV&3                                          0808
156    550  COREND EQU   LOCADJ&3                                          0811
157    560  SWMULT EQU   COREND&1                                          0812
158    570         ORG   SWMULT&1                                                 0813
159    580  BRANCH B     START                                          4  0813  B |40                5
160    590  ******           INPUT READ AREA - OUTPUT WRITE AREA
161    600  RTREA  DA    1X80                                              0817   0896                5
162    610  RLNTY        11                  LENGTH CODE OF INSTRUCTION    0827                SBFLD
163    620  RLENG        12,14               LENGTH OF INSTRUCTION         0830                FIELD   5
164    630  RAREA        15,17               AREA CODE NUMBER              0833                FIELD   5
165    640  RLABL        23,32               LABEL OF INSTRUCTION          0848                FIELD   5
166    650  RCODE        39                  PROCESSING CODE               0855                SBFLD
167    660  RBRAN        43                  IF BR, TYPE OF BR             0859                SBFLD
168    670  ROPR1        45,54               FIRST OPERAND                 0870                FIELD   5
169    680  ROPSN        55,55               SIGN                          0871                FIELD   5
170    690  RDISP        56,60               DISPLACEMENT OF RELATIVE ADDR 0876                FIELD   6
171    700  ROPR2        61,70               OPERAND 2                     0886                FIELD   6
172    710  ROPR3        71,80               OPERAND 3                     0896                FIELD   6
173    720  P1G1W1 DC    @}@                 FOR GROUP-MARK/WORD-MARK   1  0897                        7
174    730  ******           CONSTANT SECTION
175    740  LABSV  DCW   #10                 HOLDS MOST RECENT LABEL IN TEXT   10  0907                7
176    750  AREAS  DCW   #3                  HOLDS CURRENT AREA NUMBER      3  0910                    7
177    760  LCTR   DCW   @000@               LOCATION COUNTER               3  0913                    7
178    770  REGX3  DCW   #3                  3 POSITION WORKAREA            3  0916                    7
179    780  REGY3  DCW   #3                  3 POSITION WORKAREA            3  0919                    8
180    790  REGX5  DCW   #5                  5 POSITION WORKAREA            5  0924                    8
181    800  LSTOR  DCW   #10                 10 POSITION HOLD FOR DEREL    10  0934                    8
182    810  SSTOR  DCW   #1                  HOLDS SIGN                     1  0935                    8
183    820  NSTOR  DCW   #5                  5 POSITION HOLD                5  0940                    8
184    825  LENGSV DCW   #3                  LENGTH SAVE AREA               3  0943                    8
185    830  ******           SWITCHES FOR 4CHRU
186    840  LOCAD  DCW   #3                                                 3  0946                    8
187    850  SWNWAR DC    #1                  ON FOR NEW AREA                1  0947                    9
188    860  SWLOCR DC    #1                  ON IF BR IS TO LOC REL ADDRESS    1  0948                 9
189    870  SWJOB  DC    #1                  ON FOR FIRST LABEL IN A JOB    1  0949                    9
190    880  SWNOPR DC    #1                  ON IF NO LABEL CHECKING TO DICT   1  0950                 9
191    890  SWDIC  DC    #1                  ON IF LABEL FOUND IN DICT      1  0951                    9
192    900  SWEXIT DC    #1                  ON IF BRANCH TO BE CHANGED T EXIT  1  0952                9
193    910  SWSUBR DC    #1                  ON IF INSTRUCTION IS A SUBRT TYPE  1  0953                9
194    915  L3012  DCW   @012@                                              3  0956                    9
195    920  L3BLK  DCW   @   @                                              3  0959                    9
196    930  L1BLK  DCW   @ @                                                1  0960                    9
197    940  L3020  DCW   @020@                                              3  0963                    9
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SEQ PG LIN  LABEL  OP    OPERANDS                                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD

198     950  L3000  DCW   @000@                                                             3  0966                     10
199     960  L5BLK  DCW   @     @                                                           5  0971                     10
200     970  L5000  DCW   @00000@                                                           5  0976                     10
201     980  L1PLU  DCW   @&@                                                               1  0977                     10
202     990  L1MIN  DCW   @-@                                                               1  0978                     10
203   1 000  NTRCOD DCW   @9000@                                                            4  0982                     10
204   1 010  L3020M DCW   @I8?@                                                             3  0985                     10
205   1 020  SUBCOD DCW   @Y012@                                                            4  0989                     11
206   1 030  SUBCCD DCW   @6@                                                               1  0990                     11
207   1 040  EXTCOD DCW   @U@                                                               1  0991                     11
208   1 050  DXTCOD DCW   @5@                                                               1  0992                     11
209   1 060  L012E1 DCW   @ERROR. TAPE @                                                   12  1004                     11
210   1 070  L001E2 DCW   &IOCON2                                                           3  1007  200                11
211   1 080         ORG   *-2                                                                          1006
212   1 090  L011E3 DCW   @ TOO SHORT.@                                                    11  1016                     12
213   1 100  L023E4 DCW   @REPLACE IT AND RESTART.@                                        23  1039                     12
214   1 110  P3DICT EQU   DCTR-2                                                               3995
215   1 120  DCTR   EQU   3997                                                                 3997
216   1 130  DLABL  EQU   4007                                                                 4007
217   1 140  DLABW  EQU   4010                                                                 4010
218   1 150  DLAFW  EQU   4013                                                                 4013
219   1 160  DLARE  EQU   4016                                                                 4016
220   1 170  DLATY  EQU   4017                                                                 4017
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SEQ PG LIN  LABEL  OP    OPERANDS                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

221  1 180         JOB   MAIN PROCESSING ROUTINES
222  1 190  *****            START. SETS WORD-MARK IN GMWM FOR TAPE I-O
223  1 200  *
224  1 210  START  SW    P1G1W1                                        4  1040  , 897               13
225  1 220  *****            P4MAIN. BRANCH TO INPUT READ, FOLLOWED BY MAINLINE
226  1 230  *                SUBROUTINE CALLS
227  1 240  *
228  1 250  P4MAIN B     TREAD              INPUT READ                 4  1044  B /13               13
229  1 260         BCE   JOBIN,RCODE,W      IF JOB, INITIALIZE         8  1048  B /30 855 W         13
230  1 270         BEF   P5CALL             IF EOF, CALL NEXT PASS     5  1056  B /95 K             13
231  1 280         B     AREAC              CHECK AREA NUMBERS         4  1061  B T35               13
232  1 290         B     LABLC              CHECK FOR GENERATED LABELS 4  1065  B V35               13
233  1 300         B     P3PRO              BRANCH, SUBRT PROCESSING   4  1069  B Y68               13
234  1 310         MLC   &RTREA,DPLOW                                  7  1073  M ?54 ?47           14
235  1 320         MLC   @100@,DPWID                                   7  1080  M ?57 ?50           14
236  1 330         MLC   @001@,DPNUM                                   7  1087  M ?60 ?44           14
237  1 340         NOP   DDUMP              CHANGE TO B FOR PASS- 4 SNAPSHOT 4  1094  N P69         14
238  1 350         B     TWRITE             OUTPUT WRITE               4  1098  B S38               14
239  1 355         MLC   RLENG,LENGSV       MOVE INSTRUCTION LENGTH    7  1102  M 830 943           14
240  1 360         B     P4MAIN             AND LOOP BACK              4  1109  B |44               15
241  1 370  ******           TREAD. INPUT ONE RECORD
242  1 380  TREAD  SBR   TREADX&3                                      4  1113  H /29               15
243  1 390         B     SYSIO                                         4  1117  B 500               15
244  1 400         DCW   &IOCON4                                       3  1123  400                 15
245  1 410         ORG   *-2                                                     1122
246  1 420         DC    &RTREA                                        3  1124  817                 16
247  1 430         DC    @R@                                           1  1125                      16
248  1 440  TREADX B     000                EXIT                       4  1126  B 000               16
249  1 450  ******           JOBIN. INITIALIZE SWITCHES, AREAS. IF JOB IS IN
250  1 460  *                MULTIPLE SEGMENTS, READ LABEL DICTIONARY IN TO
251  1 470  *                CORE. WRITE OUT JOB RECORD, AND RETURN TO BEGIN.
252  1 480  JOBIN  MLC   L3BLK,AREAS        BLANK OUT AREA NUMBER SAVE 7  1130  M 959 910           16
253  1 490         MLC   LOCADJ,LOCAD       SET LOCAD FOR PARTICULAR MACHINE 7  1137  M 808 946     16
254  1 500         SBR   X2,000             CLEAR X2                   7  1144  H 094 000           16
255  1 510         SBR   X1                       X1                   4  1151  H 089               17
256  1 520         SBR   LCTR                     LCTR                 4  1155  H 913               17
257  1 530         B     TWRITE             WRITE OUT JOB RECORD       4  1159  B S38               17
258  1 540         SW    SWJOB,SWNWAR       SET SWITCHES NEW JOB, NEW AREA 7  1163  , 949 947       17
259  1 550         BWZ   RJDICT,SWMULT,1    IF MULTIPLE SEGMENTS, READ DICT 8  1170  V /82 812 1    17
260  1 560         B     P4MAIN             NO, RETURN TO MAINLINE     4  1178  B |44               17
261  1 570  RJDICT B     SYSIO              CALL SUPERVISOR            4  1182  B 500               17
262  1 580         DCW   &IOCON3                                       3  1188  300                 18
263  1 590         ORG   *-2                                                     1187
264  1 600         DC    &P3DICT            INPUT FOR DICTIONARY       3  1189  I95                 19
265  1 610         DC    @R@                                           1  1190                      19
266  1 620         B     P4MAIN             RETURN TO P4MAIN           4  1191  B |44               19
267  1 630  P5CALL MLC   COREND,X3          CLEAR GROUP-MARK AT        7  1195  M 811 099           19
268  1 640         CW    0&X3,P1G1W1        HIGH END OF CORE AND INPUT AREA 7  1202  ) 0?0 897      19
269  1 650         WTM   IOTP2              WRITE END OF FILE ON OUTPUT 5  1209  U %U2 M            19
270  1 660         RWD   IOTP2              REWIND IOTP2               5  1214  U %U2 R             20
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SEQ PG LIN  LABEL  OP    OPERANDS                                                     SFX CT  LOCN  INSTRUCTION TYPE  CARD

271  1 670         RWD   IOTP3                        IOTP3                                5  1219  U %U3 R             20
272  1 680         RWD   IOTP4                        IOTP4                                5  1224  U %U4 R             20
273  1 690         B     SYSLNK            CALL SUPERVISOR                                 4  1229  B 400               20
274  1 700         DCW   @4CHRV@           FOR NEXT PASS                                   5  1237                      20
275  1 710  ******           TWRITE. WRITE OUT FROM TAPE INPUT AREA
276  1 720  TWRITE SBR   TWRITX&3                                                          4  1238  H S59               20
277  1 730         B     SYSIO                                                             4  1242  B 500               20
278  1 740         DCW   &IOCON2                                                           3  1248  200                 21
279  1 750         ORG   *-2                                                                         1247
280  1 760         DC    &RTREA                                                            3  1249  817                 22
281  1 770         DC    @W@                                                               1  1250                      22
282  1 780         BEF   P4WRI1            HAVE REACHED END OF REEL                        5  1251  B S60 K             22
283  1 790  TWRITX B     000                                                               4  1256  B 000               22
284  1 800  P4WRI1 MLC   ERRTAP,LPRINT&48   MOVE MESSAGE TO PRINT AREA                     7  1260  M T34 249           22
285  1 810         B     MESSG              PRINT MESSAGE                                  4  1267  B 660               22
286  1 820         RWD   SYSTAP             REWIND SYSTEM TAPE                             5  1271  U %U1 R             23
287  1 830  P5WRI2 H     6,6                AND HALT                                       7  1276  . 006 006           23
288  1 840         B     P5WRI2              REPETITIVELY                                  4  1283  B S76               23
289  1 850         DCW   @ERROR. TAPE @                                                   12  1298                      23
290  1 860         DC    IOCON2                                                            3  1301  200                 23
291  1 870         ORG   *-2                                                                         1300
292  1 880  ERRTAP DC    @ TOO SHORT. REPLACE IT AND RESTART.@                            35  1334                      24
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PG LIN  LABEL  OP    OPERANDS                                       SFX CT  LOCN  INSTRUCTION TYPE  CARD

1 890          JOB   AREA NUMBER CHECK
1 900   ******           AREAC. AREAC SYNCHRONIZES THE AREA NUMBER OF EACH
1 910   *                INPUT RECORD TO THE AREA NUMBER IN THE LABEL
1 920   *                DICTIONARY.
1 930   *
1 940   *                IF AN AREA OF TEXT DOES NOT ANY LABEL, THEN AREAC
1 950   *                SETS SWNOPR ON FOR BYPASSING THE LABEL CHECKING
1 960   *                ROUTINE
1 970   *
1 980   *                SWNWAR IS SET EACH TIME THE AREA NUMBERS IN TEXT
1 990   *                CHANGED
2 000   *
2 010   *                THE FIRST LABEL IN THE DICTIONARY IS PROCESSED
2 020   *                IN ART1
2 030   AREAC  SBR   AREAX&3            SAVE RETURN ADDRESS                  4  1335  H V34              25
2 040          C     RAREA,AREAS        COMPARE CURRENT TO LAST AREA NOS.    7  1339  C 833 910          25
2 050          BE    AREAX              IF EQUAL, NO FURTHER PROCESSING      5  1346  B V31 S            25
2 060          BWZ   ARERL1,SWJOB,1     IF SWJOB IS ON, GO TO ARERL1         8  1351  V T97 949 1        25
2 070          BCE   AREAX,DLABL-9&X1,}                                      8  1359  B V31 IZ8 }        25
2 070          MLC   DLARE&20&X1,REGY3  MOVE ARE NO OF NEXT DICT ENTRY       7  1367  M 0TW 919          25
2 080          C     AREAS,REGY3        TO REGY3 AND COMPARE TO AREAS        7  1374  C 910 919          26
2 090          BU    ARESL2             IF UNEQUAL, NO FURTHER PROCESSING    5  1381  B U27 /            26
2 100          MA    L3020,X1           BYPASS NEXT DICT ENTRY               7  1386  # 963 089          26
2 110          B     ARESL1             GO TO ARESL1                         4  1393  B U16              26
2 120   ARERL1 MLC   DLARE&X1,REGY3     MOVE NEXT DICT ENTRY AREA NO TO      7  1397  M 0/W 919          26
2 130          C     REGY3,AREAS        REGY3 AND COMPARE TO AREAS           7  1404  C 919 910          26
2 140          BU    ARESL2             UNEQUAL, EXIT                        5  1411  B U27 /            27
2 150   ARESL1 CW    SWJOB              CLEAR SWJOB                          4  1416  ) 949              27
2 160          MLC   DLABL&X1,LABSV     MVE DICT DLABL TO LABVS              7  1420  M 0|X 907          27
2 170   ARESL2 SW    SWNWAR             SET SWNWAR ON                        4  1427  , 947              27
2 180          MLC   RAREA,AREAS        MOVE RECORD AREA TO AREAS            7  1431  M 833 910          27
2 190          MLC   L1BLK,LABSV-9      BLANK OUT LABSV FOR NEW AREA         7  1438  M 960 898          27
2 200          MLC   L3000,LCTR         ZERO LCTR                            7  1445  M 966 913          28
2 210          BWZ   ART1,SWJOB,1       PROCESSING FIRST ENTRY IN DICT       8  1452  V U97 949 1        28
2 220          MLC   DLARE&20&X1,REGX3  MOVE NEXT DICT AREA TO REGX3         7  1460  M 0TW 916          28
2 230          C     REGX3,AREAS        AND COMPARE TO RECORD AREA NO        7  1467  C 916 910          28
2 240          BU    STSW2              UNEQUAL, SET SWNOPR                  5  1474  B V27 /            28
2 250          MA    L3020,X1           EQUAL, UP X1 TO POINT TO NEXT        7  1479  # 963 089          29
2 260          CW    SWJOB,SWNOPR       RESET SWITCHES                       7  1486  ) 949 950          29
2 270          B     AREAX              EXIT                                 4  1493  B V31              29
2 280   ART1   MLC   DLARE&X1,REGX3     MOVE FIRST DICT AREA TO REGX3 AND    7  1497  M 0/W 916          29
2 290          C     REGX3,AREAS        COMPARE AREA NUMBERS                 7  1504  C 916 910          29
2 300          BU    STSW2              IF UNEQUAL MUST SET SWNOPR           5  1511  B V27 /            29
2 310          CW    SWJOB,SWNOPR       RESET SWITCHES                       7  1516  ) 949 950          30
2 320          B     AREAX              AND EXIT                             4  1523  B V31              30
2 330   STSW2  SW    SWNOPR             SET SWNOPR ON                        4  1527  , 950              30
2 340   AREAX  B     000                                                     4  1531  B 000              30
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

340  2 350         JOB   LABEL CHECKING
341  2 360  ******           LABLC. LABLC SYNCHRONIZES EACH LABEL IN THE LABEL
342  2 370  *                DICTIONARY TO THE INPUT RECORDS.
343  2 380  *
344  2 390  *                GENERATED LABELS FROM PASS-3 ARE INSERTED TO THEIR
345  2 400  *                CORRESPONDING RECORDS IN THIS ROUTINE
346  2 410  *
347  2 420  *                STATEMENTS DEFINED AS SUBROUTINE ENTRANCES IN
348  2 430  *                PASS-3 ARE EXPANDED TO ENTER TYPES.
349  2 440  *
350  2 450  LABLC  SBR   LABLX&3             SAVE RETURN ADDRESS                 4  1535  H Y15                31
351  2 460         BWZ   LABLX,SWNOPR,1      IF ON, NO LABEL CHECKING            8  1539  V Y12 950 1          31
352  2 470         BWZ   LART1,SWNWAR,1      PROCESSING A NEW AREA               8  1547  V X12 947 1          31
353  2 480         MLC   DLAFW&X1,REGX3      MOVE DICT DLAFW TO REGX3 AND        7  1555  M 0/T 916            31
354  2 490         C     REGX3,L3000         COMPARE IT TO 000                   7  1562  C 916 966            31
355  2 500         BU    LACOM1              IF UNEQUAL, GO TO LACOM1            5  1569  B V97 /              31
356  2 510         MLC   DLARE&20&X1,REGY3   MOVE NEXT DICT AREA NO TO REGY3     7  1574  M 0TW 919            32
357  2 520         C     AREAS,REGY3         AND COMPARE TO AREAS                7  1581  C 910 919            32
358  2 530         BU    LABLX               IF UNEQUAL, EXIT                    5  1588  B Y12 /              32
359  2 540         B     LMOVTO              AND GOTO LMOVTO                     4  1593  B W28                32
360  2 550  LACOM1 C     REGX3,LCTR          COMPARE DICT DLAFW TO LCTR          7  1597  C 916 913            32
361  2 560         BL    LABLX               IF LOW, NO FURTHER PROCESSING       5  1604  B Y12 T              32
362  2 570         MLC   DLARE&20&X1,REGY3   MOVE NEXT DICT AREA TO REGY3        7  1609  M 0TW 919            33
363  2 580         C     AREAS,REGY3         AND COMPARE TO AREAS                7  1616  C 910 919            33
364  2 590         BU    LABLX               IF UNEQUAL, EXIT                    5  1623  B Y12 /              33
365  2 600  LMOVTO C     RLENG,L3000         IS INSTRUCTION OF ZERO LENGTH       7  1628  C 830 966            33
366  2 610         BE    LABLX                                                   5  1635  B Y12 S              33
367  2 620         MA    L3020,X1            OTHERWISE BUMP X1                   7  1640  # 963 089            33
368  2 630         MLC   L3000,LCTR          ZERO LCTR                           7  1647  M 966 913            34
369  2 640         MLC   DLABL&X1,LABSV      AND MOVE DICT DLABL TO LABSAV       7  1654  M 0|X 907            34
370  2 650         BWZ   LABLX,DLATY&X1,2    LABEL NOT REFERENCED                8  1661  V Y12 0/X 2          34
371  2 660         BCE   LBINS1,DLABL-9&X1,)  IS DICT LABEL GENERATED            8  1669  B W89 IZ8 )          34
372  2 670         BCE   ENTGNR,DLATY&X1,/   IS DICT TYPE A SUBROUTINE ENTER     8  1677  B Y16 0/X /          34
373  2 680         B     LABLX               AND EXIT                            4  1685  B Y12                35
374  2 690  LBINS1 BCE   LBINSA,RLABL-9,     IS LABEL FIELD BLANK                8  1689  B X01 839            35
375  2 692         B     LABLX               NO,EXIT                             4  1697  B Y12                35
376  2 694  LBINSA MLC   DLABL&X1,RLABL      INSERT GENERATED LABEL              7  1701  M 0|X 848            35
377  2 698         B     LABLX                                                   4  1708  B Y12                35
378  2 710  LART1  MLC   DLABW&X1,REGX3      MOVE DICT DLABW TO REGX3            7  1712  M 0/| 916            35
379  2 720         C     REGX3,LCTR          AND COMPARE IT TO LCTR              7  1719  C 916 913            36
380  2 730         BL    LABLX               IF LOW, NO FURTHER PROCESSING.      5  1726  B Y12 T              36
381  2 740         C     RLENG,L3000         IS CURRENT INSTRUCTION OF LENGTH    7  1731  C 830 966            36
382  2 750         BE    LABLX               ZERO. IF SO, EXIT                   5  1738  B Y12 S              36
383  2 760         CW    SWNWAR              SET NEW AREA SW ON                  4  1743  ) 947                36
384  2 770         MLC   DLABL&X1,LABSV      RESET LABSV                         7  1747  M 0|X 907            36
385  2 780         MLC   L3000,LCTR          CLEAR LCTR                          7  1754  M 966 913            37
386  2 790         BWZ   LABLX,DLATY&X1,2    LABEL NOT REFERENCED                8  1761  V Y12 0/X 2          37
387  2 800         BCE   LBINS2,DLABL-9&X1,)  IS LABEL A GENERATED LABEL         8  1769  B X89 IZ8 )          37
388  2 810         BCE   ENTGNR,DLATY&X1,/   IS DICT TYPE A SUBRT ENTER          8  1777  B Y16 0/X /          37
389  2 820         B     LABLX               EXIT                                4  1785  B Y12                37
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SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

390  2 830  LBINS2 BCE   LBINSB,RLABL-9,    IS LABEL FIELD BLANK                          8  1789  B Y01 839            38
391  2 382         B     LABLX              NO,EXIT                                       4  1797  B Y12                38
392  2 834  LBINSB MLC   DLABL&X1,RLABL     MOVE GEN LABEL TO TEXT                        7  1801  M 0|X 848            38
393  2 836         B     LABLX              AND EXIT                                      4  1808  B Y12                38
394  2 840  LABLX  B     000                EXIT RETURN                                   4  1812  B 000                38
395  2 850  ENTGNR SBR   ENTGNX&3           SAVE RETURN ADDRESS                           4  1816  H Y67                38
396  2 860         BCE   ENTGNX,RCODE,9     IS INSTRUCTION CURRENTLY ENTER                8  1820  B Y64 855 9          38
397  2 870         MLC   RCODE&4,REGX5      SAVE INSTRUCTION TYPE                         7  1828  M 859 924            39
398  2 880         MLC   NTRCOD,RCODE&3     MOVE IN ENTER CODE                            7  1835  M 982 858            39
399  2 890         B     TWRITE             WRITE INSTRUCTION OUT                         4  1842  B S38                39
400  2 900         MLC   L5BLK,RLABL        CLEAR OUT LABEL                               7  1846  M 971 848            39
401  2 910         MLC   L5BLK              FIELD                                         4  1853  M 971                39
402  2 920         MLC   REGX5,RCODE&4      RESTORE FORMER INSTRUCTION CODE               7  1857  M 924 859            39
403  2 930  ENTGNX B     000                                                              4  1864  B 000                40
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SEQ PG LIN  LABEL  OP    OPERANDS                                       SFX CT  LOCN  INSTRUCTION TYPE  CARD

404  2 940         JOB   PASS-4 DERELATIVIZATION
405  2 950  ******           P3PRO. DECID AND GOTO INSTRUCTIONS ARE PROCESSED
406  2 960  *               BY P3PRO.
407  2 970  *
408  2 980  *               P3PRO SELECTS THE ACCORDING ROUTINE IF THE BRANCH
409  2 990  *               IS TO A SIMPLE ADDRESS, SIMPLE RELATIVE, OR
410  3 000  *               LOCATION COUNTER RELATIVE ADDRESS.
411  3 010  *
412  3 020  *               THE LOCATION COUNTER IS UPDATED BY THE SUBROUTINE
413  3 030  *               LCTUPD, WHICH ALSO CHECKS FOR INVALID LABEL
414  3 040  *               GENERATION
415  3 050  P3PRO  SBR   P3PRX&3            SAVE RETURN ADDR                    4  1868  H Z27              41
416  3 060         BCE   P3PR1,RCODE,V      TYPE IS GOTO                        8  1872  B Y96 855 V        41
417  3 070         BCE   P3PR1,RCODE,4      TYPE IS DECID                       8  1880  B Y96 855 4        41
418  3 080         B     LCTUPD             GO UPDATE LOCATION COUNTER          4  1888  B Z28              41
419  3 090         B     P3PRX              EXIT                                4  1892  B Z24              41
420  3 100  P3PR1  BCE   SPRBR,RBRAN,S      ADDRESS IS SIMPLE                   8  1896  B !62 859 S        41
421  3 110         BCE   SYMRL,RBRAN,R      ADDRESS IS SIMPLE RELATIVE          8  1904  B !97 859 R        42
422  3 120         B     LCTUPD             GO UPDATE LOCATION COUNTER          4  1912  B Z28              42
423  3 130         BCE   LOCRL,RBRAN,L      ADDRESS IS LOC COUNTER RELATIVE     8  1916  B J80 859 L        42
424  3 140  P3PRX  B     000                                                    4  1924  B 000              42
425  3 150  LCTUPD SBR   LCTUPX&3           SAVE RETURN                         4  1928  H !61              42
426  3 160         A     RLENG,LCTR         ADD INSTRUCTION LENGTH TO LCTR      7  1932  A 830 913          42
427  3 170         BWZ   LCTUPX,SWNOPR,1    IS SWNOPR ON                        8  1939  V !58 950 1        43
428  3 180         BWZ   LCTUP1,SWNWAR,1    GO TO LCTUP1 IF IN NEW AREA         8  1947  V !10 947 1        43
429  3 190  LCLOOP MLC   DLAFW&X1,REGX3     MOVE DICT DLAFW TO REGX3 AND        7  1955  M 0/T 916          43
430  3 200         C     REGX3,LCTR         AND COMPARE TO LCTR                 7  1962  C 916 913          43
431  3 210         BH    LCTUPA             IF HIGH, MUST RECOVER               5  1969  B Z78 U            43
432  3 220         B     LCTUPX             OTHERWISE EXIT                      4  1974  B !58              43
433  3 230  LCTUPA S     REGX3,LCTR         SUBTRACT DICT DLAFW FROM LCTR       7  1978  S 916 913          44
434  3 240         MLZS  L1BLK,LCTR         ZONE BIT CLEAR                      7  1985  Y 960 913          44
435  3 250         MA    L3020,X1           BUMP UP X1                          7  1992  # 963 089          44
436  3 260         MLC   DLABL&X1,LABSV                                         7  1999  M 0|X 907          44
437  3 802         B     LCTUPX                                                 4  2006  B !58              44
438  3 280  LCTUP1 MLC   DLABW&X1,REGX3     MOVE DICT DLABW TO REGX3            7  2010  M 0/| 916          44
439  3 290         C     REGX3,LCTR         AND COMPARE TO LCTR                 7  2017  C 916 913          45
440  3 300         BH    LCTUPB             IF HIGH, MUST RECOVER               5  2024  B !33 U            45
441  3 310         B     LCTUPX             EXIT                                4  2029  B !58              45
442  3 320  LCTUPB S     REGX3,LCTR         DECREMENT LCTR BY REGX3             7  2033  S 916 913          45
443  3 330         MLZS  L1BLK,LCTR         CLEAR ZONE BITS                     7  2040  Y 960 913          45
444  3 340         CW    SWNWAR             RESET NEW AREASW                    4  2047  ) 947              45
445  3 350         MLC   DLABL&X1,LABSV     UPDATE LABSV                        7  2051  M 0|X 907          46
446  3 360  LCTUPX B     000                EXIT RETURN                         4  2058  B 000              46
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

447  3 370         JOB   DERELATIVIZATION ADDRESS PROCESSING ROUTINES
448  3 380  ******           SPRBR. SIMPLE ADDRESS, LABEL ONLY. SHIFT LABEL
449  3 390  *                TO LSTOR FOR DSCAN. IF LABEL NOT IN DICT, SET
450  3 400  *                SWEXIT AND GO TO TCHAN
451  3 410  SPRBR  SBR   SPRBX&3             SAVE RETURN ADDRESS              4  2062  H !96                47
452  3 420         MLC   ROPR1,LSTOR         MOVE LABEL TO LSTOR              7  2066  M 870 934            47
453  3 430         B     DSCAN               CALL DICTIONARY SCAN             4  2073  B O19                47
454  3 440         BWZ   SPRB1,SWDIC,1       GO TO SPRB1 IF IN DICTIONARY     8  2077  V !89 951 1          47
455  3 450         SW    SWEXIT              OTHERWISE SET SWEXIT ON          4  2085  , 952                47
456  3 460  SPRB1  B     TCHAN               GO TO TCHAN                      4  2089  B O81                47
457  3 470  SPRBX  B     000                 EXIT                             4  2093  B 000                47
458  3 480  ******           SYMRL. SYMRL FIRST CHECKS THAT THE LABEL OF THE
459  3 490  *                SIMPLE RELATIVE ADDRESS IS IN THE DICTIONARY,
460  3 500  *                AFTER WHICH THE ROUTINE SPSCN IS SELECTED IF THE
461  3 510  *                RELATIVE ADDRESS IS OF FORM S&N, SMSCN OTHERWISE
462  3 520  SYMRL  SBR   SYMRX&3             SAVE RETURN ADDRESS              4  2097  H J79                48
463  3 530         MLC   ROPR1,LSTOR         MOVE LABEL TO LSTOR              7  2101  M 870 934            48
464  3 540         B     DSCAN               CALL DICTIONARY SCAN             4  2108  B O19                48
465  3 550         BWZ   SYMR1,SWDIC,1       IF LABEL IN DICT, GO TO SYMR1    8  2112  V J32 951 1          48
466  3 560         SW    SWEXIT              SET WM FOR EXIT PROCESSING       4  2120  , 952                48
467  3 570         B     TCHAN                                                4  2124  B O81                48
468  3 580         B     SYMRX                                                4  2128  B J76                48
469  3 590  SYMR1  MLC   ROPSN,SSTOR         SAVE SIGN                        7  2132  M 871 935            49
470  3 600         MLC   L5000,NSTOR         ZERO NSTOR                       7  2139  M 976 940            49
471  3 610         A     RDISP,NSTOR         MOVE RDISP,NSTOR                 7  2146  A 876 940            49
472  3 620         MLZS  L1BLK,NSTOR         ZONE BIT CLEAR                   7  2153  Y 960 940            49
473  3 630         BWZ   SPSCN,SSTOR,B       IF SSTOR#&, GO TO SPSCN          8  2160  V M15 935 B          49
474  3 640         BWZ   SMSCN,SSTOR,K       IF SSTOR#-, GO TO SMSCN          8  2168  V N17 935 K          50
475  3 650  SYMRX  B     000                                                  4  2176  B 000                50
476  3 660  ******           LOCRL. LOCRL PROCESSES LOCATION COUNTER RELATIVE
477  3 670  *                ADDRESSES. WHILE SYMRL USES THE LABEL, LOCRL
478  3 680  *                USES THE CURRENT DICTIONARY POINTER TO REDUCE
479  3 690  *                THE RELATIVE ADDRESS.
480  3 700  LOCRL  SBR   LOCRX&3             SAVE RETURN ADDRESS              4  2180  H L80                50
481  3 701         BWZ   LOCRX,SWNOPR,1      INTERNAL RECOVERY CONTROL        8  2184  V L77 950 1          50
482  3 710         MLC   RDISP,REGX5         MOVE DISPLACEMENT TO REGX5       7  2192  M 876 924            50
483  3 720         MLZS  ROPSN,REGX5         MOVE SIGN TO REGX5               7  2199  Y 871 924            50
484  3 730         BWZ   LACRL,RLNTY,K       IS INSTRUCTION UNKNOWN LENGTH    8  2206  V K67 827 K          51
485  3 735         BCE   L360PR,MACH,0       IS MACHINE 360 TYPE              8  2214  B L81 082 0          51
486  3 740         BCE   LOCSUB,MACH,4       IS MACHINE 1620 TYPE             8  2222  B K41 082 4          51
487  3 741         S     LOCAD,REGX5         DECRMENT REGX5                   7  2230  S 946 924            51
488  3 742         B     LACRL               AND GO TO LACRL                  4  2237  B K67                51
489  3 742  LOCSUB S     RLENG,REGX5                                          7  2241  S 830 924            52
490  3 742         C     RLENG,L3000                                          7  2248  C 830 966            52
491  3 744         BU    LACRL                                                5  2255  B K67 /              52
492  3 745         S     L3012,REGX5                                          7  2260  S 956 924            52
493  3 750  LACRL  A     LCTR,REGX5          ADD LCTR TO REGX5                7  2267  A 913 924            52
494  3 760         BCE   LOCR1,LABSV-9,      IF LABSAV IS BLANK, GO TO LOCR1  8  2274  B K86 898            53
495  3 770         B     LOCR2               GO TO LOCR2                      4  2282  B L00                53
496  3 780  LOCR1  MLC   DLABW&X1,REGX3      MOVE DICT DLABW TO REGX3 AND     7  2286  M 0/| 916            53
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

497  3 790         S     REGX3,REGX5        SUBTRACT IT FROM REGX5               7  2293  S 916 924           53
498  3 800  LOCR2  BWZ   LOCMIN,REGX5,K     IS AMOUNT AT REGX5                   8  2300  V L19 924 K         53
499  3 810         MLZS  L1PLU,SSTOR        SET SSTOR#&                          7  2308  Y 977 935           54
500  3 820         B     LOCAMT             GO TO LOCAMT                         4  2315  B L26               54
501  3 830  LOCMIN MLZS  L1MIN,SSTOR        SET SSTOR#-                          7  2319  Y 978 935           54
502  3 840  LOCAMT MLZS  L1BLK,REGX5        CLEAR ZONE BITS  IN REGX5            7  2326  Y 960 924           54
503  3 850         MLC   L5000,NSTOR        RESET NSTOR                          7  2333  M 976 940           54
504  3 860         A     REGX5,NSTOR        SET UP NSTOR FOR DERELATIVIZATION    7  2340  A 924 940           54
505  3 870         MLZS  L1BLK,NSTOR        ZONE BIT CLEAR                       7  2347  Y 960 940           55
506  3 880         MLC   X1,X2              SET X2#X1 FOR DEREL PROCESS.         7  2354  M 089 094           55
507  3 890         BWZ   SPSCN,SSTOR,B      IF SSTOR#&, GO TO SPSCN              8  2361  V M15 935 B         55
508  3 900         BWZ   SMSCN,SSTOR,K      IF SSTOR#-, GO TO SMSCN              8  2369  V N17 935 K         55
509  3 910  LOCRX  B     000                                                     4  2377  B 000               55
510  3 910  L360PR C     RLENG,L3000        IS INSTRUCTION LENGTH ZERO           7  2381  C 830 966           56
511  3 911         BU    L360SB             IF UNEQUAL TO ZERO, L360SB           5  2388  B M04 /             56
512  3 912         S     LENGSV,REGX5       SUBTRACT SAVED LENGTH                7  2393  S 943 924           56
513  3 913         B     LACRL              AND GO TO LACRL                      4  2400  B K67               56
514  3 914  L360SB S     RLENG,REGX5        SUBTRACT INSTRUCTION LENGTTH         7  2404  S 830 924           56
515  3 915         B     LACRL              AND GO TO LACRL                      4  2411  B K67               56
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

516  3 920         JOB   SPSCN,SMSCN
517  3 930  ******           SPSCN. SPSCN REDUCES THE RELATIVE ADDRESS OF FORM
518  3 940  *                S&N, WHERE INDEX REGISTER X2 POINTS TO S AND
519  3 950  *                N#NSTOR, TO SOME LABEL IN THE DICTIONARY OR IT
520  3 960  *                CANNOT SO REDUCE THE RELATIVE ADDRESS
521  3 970  *
522  3 980  *                IF REDUCIBLE, THE LABEL REPLACES THE RELATIVE ADDR
523  3 990  *
524  4 000  *                OTHERWISE THE INSTRUCTION IS CLASSIFIED AS EXIT.
525  4 010  SPSCN  SBR   SPSCX&3             SAVE RETURN ADDRESS              4  2415  H M57              57
526  4 020         MLC   NSTOR,REGX5         MOVE NSTOR TO REGX5              7  2419  M 940 924          57
527  4 030  SPSLP  C     REGX5,L5000         AND COMPARE IT TO ZERO           7  2426  C 924 976          57
528  4 040         BE    SPSFIN              IF EQUAL, FINISHED               5  2433  B M63 S            57
529  4 050         BCE   SPSR1,DLABW&20&X2,M  IS NEXT DICT DLABW EQUAL TO M   8  2438  B M58 0L| M        57
530  4 060         SW    SWEXIT              NO. SET SWEXIT                   4  2446  , 952              57
531  4 070         B     TCHAN               AND CHANGE TYPE OF INST          4  2450  B O81              57
532  4 080  SPSCX  B     000                 EXIT                             4  2454  B 000              58
533  4 090  SPSR1  BU    SPSR2                                                5  2458  B M85 /            58
534  4 100  SPSFIN MLC   DLABL&X2,ROPR1      MOVE DICT DLABEL TO OPERAND-1    7  2463  M 0!X 870          58
535  4 110         MLC   L5BLK,RDISP         BLANK OUT DISPLACEMENT           7  2470  M 971 876          58
536  4 120         B     TCHAN               GO TCHAN                         4  2477  B O81              58
537  4 130         B     SPSCX               AND EXIT                         4  2481  B M54              58
538  4 140  SPSR2  MLC   DLAFW&X2,REGX3      MOVE DICT DLAFW TO REGX3 AND THEN 7  2485  M 0JT 916          58
539  4 150         S     REGX3,REGX5         SUBTRACT IT FROM REGX5           7  2492  S 916 924          59
540  4 160         MLZS  L1BLK,REGX5         ZONE BIT CLEAR                   7  2499  Y 960 924          59
541  4 170         MA    L3020,X2            BUMP UP X1                       7  2506  # 963 094          59
542  4 180         B     SPSLP               AND CONTINUE THE LOOP.           4  2513  B M26              59
543  4 190  *                SMSCN. SMSCN PERFORMS THE SAME FUNCTIONS OF SPSCN
544  4 200  *                FOR RELATIVE ADDRESSES OF FORM S-N
545  4 210  *
546  4 220  SMSCN  SBR   SMSCX&3             SAVE RETURN ADDRESS              4  2517  H N59              59
547  4 230         MLC   NSTOR,REGX5         MOVE NSTOR TO REGX5              7  2521  M 940 924          59
548  4 240  SMLOP  C     L5000,REGX5         COMPARE REGX5 TO ZERO            7  2528  C 976 924          60
549  4 250         BE    SMSFIN              IF EQUAL, GO TO SMSFIN           5  2535  B N65 S            60
550  4 260         BCE   SMSR1,DLABW&X2,M    IS DICT DLABW #SAM               8  2540  B N60 0J| M        60
551  4 270         SW    SWEXIT              NO, SET FOR EXIT                 4  2548  , 952              60
552  4 280         B     TCHAN               CALL TCHAN                       4  2552  B O81              60
553  4 290  SMSCX  B     000                 EXIT                             4  2556  B 000              60
554  4 300  SMSR1  BU    SMSR2                                                5  2560  B N87 /            60
555  4 310  SMSFIN MLC   DLABL&X2,ROPR1      MOVE DICT LABEL TO OPERAND-1     7  2565  M 0!X 870          61
556  4 320         MLC   L5BLK,RDISP         BLANK OUT RDISP                  7  2572  M 971 876          61
557  4 330         B     TCHAN               CALL TCHAN                       4  2579  B O81              61
558  4 340         B     SMSCX               GO TO EXIT                       4  2583  B N56              61
559  4 350  SMSR2  MLC   DLAFW-20&X2,REGX3   MOVE PRECEDING DICT DLAFW TO     7  2587  M IR3 916          61
560  4 360         S     REGX3,REGX5         REGX3 AND SUBTRACT FROM REGX5    7  2594  S 916 924          61
561  4 370         MLZS  L1BLK,REGX5                                          7  2601  Y 960 924          62
562  4 380         MA    L3020M,X2           DECREMENT TO PREVIOUS ENTRY      7  2608  # 985 094          62
563  4 390         B     SMLOP               LOOP BACK                        4  2615  B N28              62
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

564  4 400         JOB   DSCAN, TCHAN SUBROUTINES
565  4 410  ******           DSCAN. DSCAN COMPARES THE CONTENTS OF LSTOR
566  4 420  *                TO EACH LABEL IN THE DICTIONARY IN A SEQUENTIAL
567  4 430  *                SEARCH UNTIL THE LABEL IS FOUND OR END OF TABLE
568  4 440  *                IS REACHED
569  4 450  *
570  4 460  *                IF THE LABEL IS FOUND, DSCAN SWDIC ON. X2 POINTS
571  4 470  *                TO THE LOCATION IN THE DICTIONARY
572  4 480  DSCAN  SBR   DSCAX&3             SAVE RETURN ADDRESS             4  2619  H O80              63
573  4 490         CW    SWDIC               CLEAR SWDIC                     4  2623  ) 951              63
574  4 500         MLC   L3000,X2            CLEAR X2                        7  2627  M 966 094          63
575  4 510  DSLOP  C     LSTOR,DLABL&X2      COMPARE LSTOR TO DICT LABEL     7  2634  C 934 0!X          63
576  4 520         BE    DFOUN               EQUAL, HAVE FOUND IT.           5  2641  B O73 S            63
577  4 530         MA    L3020,X2                                            7  2646  # 963 094          63
578                BCE   DSCAX,DLABL-9&X2,}                                  8  2653  B O77 IR8 }        64
579  4 540         BWZ   DSCAX,DLATY&X2,B    HAVE REACHED END OF DICT        8  2661  V O77 0JX B        64
580  4 550         B     DSLOP               NO, LOOP BACK                   4  2669  B O34              64
581  4 560  DFOUN  SW    SWDIC               SET SWITCH AS FOUND             4  2673  , 951              64
582  4 570  DSCAX  B     000                 EXIT                            4  2677  B 000              64
583  4 580  ******           TCHAN CHANGES INSTRUCTION TYPE ACCORDING WHETHER
584  4 590  *                OR NOT THE INSTRUCTION REFERS TO A SUBROUTINE
585  4 600  *                ENTRANCE OR IT IS AN EXIT.
586  4 610  TCHAN  SBR   TCHANX&3            SAVE EXIT                       4  2681  H P08              64
587  4 620         BWZ   TCHAN1,SWEXIT,1     IF NO HIT IN DICT, EXIT TYPE    8  2685  V P39 952 1        65
588  4 630         BCE   TCHAN2,DLATY&X2,/   IS THIS SUBRT TYPE.             8  2693  B P09 0JX /        65
589  4 640  TCHAN3 CW    SWEXIT              CLEAR OUT EXIT DEFINING SW      4  2701  ) 952              65
590  4 650  TCHANX B     000                 EXIT                            4  2705  B 000              65
591  4 660  TCHAN2 BCE   TCHAN4,RCODE,4      IF DECID, CHANGE TO DECID-SUBRT 8  2709  B P28 855 4        65
592  4 670         MLC   SUBCOD,RCODE&3      OTHERWISE CHANGE TO SUBRT       7  2717  M 989 858          65
593  4 680         B     TCHAN3              GO CLEAR SW AND EXIT            4  2724  B P01              66
594  4 690  TCHAN4 MLC   SUBCCD,RCODE        CHANGE TO DECIDE-SUBRT          7  2728  M 990 855          66
595  4 700         B     TCHAN3              GO CLEAR SW AND EXIT            4  2735  B P01              66
596  4 710  TCHAN1 BCE   TCHAN5,RCODE,4      IF DECID, CHANGE TO DECIDE-EXIT 8  2739  B P58 855 4        66
597  4 720         MLC   EXTCOD,RCODE        ELSE SET TYPE AS EXIT           7  2747  M 991 855          66
598  4 730         B     TCHAN3              GO CLEAR SW AND EXIT            4  2754  B P01              66
599  4 740  TCHAN5 MLC   DXTCOD,RCODE        SET DECIDE-EXIT CODE            7  2758  M 992 855          67
600  4 750         B     TCHAN3              GO CLEAR SW AND EXIT            4  2765  B P01              67
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SEQ PG LIN  LABEL  OP    OPERANDS                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

601  4 760         JOB   SNAPSHOT ROUTINE
602  4 770  DDUMP  SBR   DPDUMX&3                                4  2769  H ?41                68
603  4 780         BIN   DPINT,D                                 5  2773  B P82 D              68
604  4 790         B     DPDUMX                                  4  2778  B ?38                68
605  4 800  DPINT  MLC   @B@,DPFALL                              7  2782  M ?61 ?17            68
606  4 810         MLC   X2,DPX2#3                               7  2789  M 094 ?64            68
607  4 820         MLC   @000@,DPCTR#3                           7  2796  M ?67 ?70            68
608  4 830         MLC   DPLOW,DPLOOP&3                          7  2803  M ?47 Q49            69
609  4 840         MLC   DPLOW,DPTEST&6                          7  2810  M ?47 Q66            69
610  4 850         MLC   DPLOW,DPLADR#3                          7  2817  M ?47 ?73            69
611  4 860         MLC   @00000@,DPTAG#5                         7  2824  M ?78 ?83            69
612  4 870  DPALOP MLC   @000@,X2                                7  2831  M ?67 094            69
613  4 880         CS    332                                     4  2838  / 332                69
614  4 890         CS    299                                     4  2842  / 299                70
615  4 900  DPLOOP MLC   000,DPHOLD#1                            7  2846  M 000 ?84            70
616  4 910         MLC   DPHOLD,225&X2                           7  2853  M ?84 2K5            70
617  4 920  DPTEST BWZ   DPSETW,000,1                            8  2860  V Q72 000 1          70
618  4 930         B     DPSETW&4                                4  2868  B Q76                70
619  4 940  DPSETW SW    225&X2                                  4  2872  , 2K5                70
620  4 950         MA    @001@,DPLOOP&3                          7  2876  # ?60 Q49            71
621  4 960         MA    @001@,DPTEST&6                          7  2883  # ?60 Q66            71
622  4 970         A     @001@,X2                                7  2890  A ?60 094            71
623  4 980         BCE   DPDOGO,DPLOOP&3,Z                       8  2897  B R09 Q49 Z          71
624  4 990         B     DPCOMP                                  4  2905  B R32                71
625  5 000  DPDOGO BCE   DPARGH,DPLOOP&1,I                       8  2909  B R21 Q47 I          72
626  5 010         B     DPCOMP                                  4  2917  B R32                72
627  5 020  DPARGH MLC   @N@,DPFALL                              7  2921  M ?85 ?17            72
628  5 030         B     DPWRIT                                  4  2928  B R48                72
629  5 040  DPCOMP C     X2,DPWID                                7  2932  C 094 ?50            72
630  5 050         BE    DPWRIT                                  5  2939  B R48 S              72
631  5 060         B     DPLOOP                                  4  2944  B Q46                72
632  5 070  DPWRIT MLC   DPLOW,205                               7  2948  M ?47 205            73
633  5 080         MLC   @&@,210                                 7  2955  M ?86 210            73
634  5 090         MLC   DPTAG-1,215                             7  2962  M ?82 215            73
635  5 100         MLC   DPLADR,219                              7  2969  M ?73 219            73
636  5 110         W                                             1  2976  2                    73
637  5 120         WM                                            2  2977  2 )                  73
638  5 130         BCV   DPCH1                                   5  2979  B ?33 @              73
639  5 140  DPADD  A     DPWID,DPTAG-1                           7  2984  A ?50 ?82            74
640  5 150         MA    DPWID,DPLADR                            7  2991  # ?50 ?73            74
641  5 160         A     @001@,DPCTR                             7  2998  A ?60 ?70            74
642  5 170         C     DPCTR,DPNUM                             7  3005  C ?70 ?44            74
643  5 180         BE    *&5                                     5  3012  B ?21 S              74
644  5 190  DPFALL B     DPALOP                                  4  3017  B Q31                74
645  5 200         MLC   DPX2,X2                                 7  3021  M ?64 094            75
646  5 210         CCB   DPDUMX,K                                5  3028  F ?38 K              75
647  5 220  DPCH1  CCB   DPADD,1                                 5  3033  F R84 1              75
648  5 230  DPDUMX B     000                                     4  3038  B 000                75
649  5 240  DPNUM  DCW   @080@                                   3  3044                       75
650  5 250  DPLOW  DCW   @001@                                   3  3047                       75
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

651  5 260  DPWID  DCW   @100@                                                  3  3050                     75
652  5 270         LTORG *&1                                                          3052
       234         DCW   &RTREA                                                 3  3054  817         ADCON   76
                         @100@                                                  3  3057              LIT     76
                         @001@                                                  3  3060              LIT     76
                         @B@                                                    1  3061              LIT     76
       606  DPX2         #03                                                    3  3064              AREA    76
                         @000@                                                  3  3067              LIT     76
       607  DPCTR        #03                                                    3  3070              AREA    76
       610  DPLADR       #03                                                    3  3073              AREA    77
       611               @00000@                                                5  3078              LIT     77
       611  DPTAG        #05                                                    5  3083              AREA    77
       615  DPHOLD       #01                                                    1  3084              AREA    77
                         @N@                                                    1  3085              LIT     77
                         @&@                                                    1  3086              LIT     77
653  5 280  HIGH2  EQU   3900                                                      3900
654  5 290         END   START                                                         / |40 080            78
                                                                                                                        *****
```


```
651  5 260  DPWID  DCW   @100@                                                  3  3050                     75
652  5 270         LTORG *&1                                                          3052
       234         DCW   &RTREA                                                 3  3054  817         ADCON   76
                         @100@                                                  3  3057              LIT     76
                         @001@                                                  3  3060              LIT     76
                         @B@                                                    1  3061              LIT     76
       606  DPX2         #03                                                    3  3064              AREA    76
                         @000@                                                  3  3067              LIT     76
       607  DPCTR        #03                                                    3  3070              AREA    76
       610  DPLADR       #03                                                    3  3073              AREA    77
       611               @00000@                                                5  3078              LIT     77
       611  DPTAG        #05                                                    5  3083              AREA    77
       615  DPHOLD       #01                                                    1  3084              AREA    77
                         @N@                                                    1  3085              LIT     77
```

```
CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                          1                 4CHRV
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?       2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039              ,0010011040       3

                          PHASE-1,PASS-5 OF FLOWCHARTER                          4CHRV              PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    010  000    JOB   PHASE-1,PASS-5 OF FLOWCHARTER
 102    020         CTL   440
 103    025  *              VERSION 2  LEVEL 0   JULY 25,1965
 104    030  *
 105    040         DCW   @$ADD     @         GENERATE $ADD CARD                  9  0341                      4
 106    050         DSA   BRANCH              LOW ADDRESS                         3  0344  813                 4
 107    060         DSA   BRANCH              START ADDRESS                       3  0347  813                 4
 108    070         DSA   HIGH                HIGH ADDRESS                        3  0350  99Z                 4
 109    080         DCW   @033065@            DATE OF ASSEMBLY                    6  0356                      4
 110    090  *
 111    100  *                                  TAPE DEFINITIONS
 112    110  IOCON2 EQU   200                 TAPE 2 FOR SYSIO CALL                  0200
 113    120  IOCON3 EQU   300                 TAPE 3 FOR SYSIO CALL                  0300
 114    130  IOCON4 EQU   400                 TAPE 4 FOR SYSIO CALL                  0400
 115    140  IOTP2  EQU   %U2                 TAPE UNIT 2                            %U2
 116    150  IOTP3  EQU   %U3                 TAPE UNIT 3                            %U3
 117    160  IOTP4  EQU   %U4                 TAPE UNIT 4                            %U4
 118    170  SYSTAP EQU   %U1                 SYSTEM TAPE UNIT 1                     %U1
 119    180  *
 120    190  *                                  SYSTEM COMMUNICATION DEFINITIONS
 121    200  LCARD  EQU   1                   1-80, $CONTROL CARD INPUT AREA         0001
 122    210  *                                  81 NOT USED, MAY HAVE BLANK, RM
 123    220  MACH   EQU   82                  MACHINE CODE                           0082
 124    230  LANG   EQU   83                  LANGUAGE CODE                          0083
 125    240  SWEJEC EQU   84                  PRINT PAGE EJECT SWITCH                0084
 126    250  SWMAST EQU   85                  SWITCH TO SAVE SFL MASTER              0085
 127    260  *                                    86 NOT ASSIGNED
 128    270  X1     EQU   89                  87-89, INDEX REGISTER 1                0089
 129    280  *                                  90-91 NOT ASSIGNED
 130    290  X2     EQU   94                  92-94, INDEX REGISTER 2                0094
 131    300                                   95, 96 NOT ASSIGNED
 132    310  X3     EQU   99                  97-99, INDEX REGISTER 3                0099
 133    320                                   100 READ/PUNCH CHECK POSITION
 134    330  LPUNCH EQU   101                 101-180, PUNCH-DAJOB HEADING           0101
 135    340  *                                  181-195, USED BY SYSLNK
 136    350  LPAGE  EQU   199                 196-199, DAJOB PAGE HEADING            0199
 137    360  *                                  200 NOT ASSIGNED
 138    370  LPRINT EQU   201                 201-332, PRINT AREA                    0201
 139    380  SYSLNK EQU   400                 SYSTEM TAPE READ ROUTINE               0400
 140    390  SYSIO  EQU   500                 READ-WRITE TAPE ROUTINE                0500
 141    400  LINTOT EQU   659                 NUMBER OF LINES PER PAGE               0659
 142    410  MESSG  EQU   660                 SYSTEM OPERATOR MESSAGE WRITER         0660
 143    420  EJECT  EQU   704                 EJECT PAGE ROUTINE                     0704
 144    430  PRINT  EQU   747                 PRINT LINE ROUTINE                     0747
 145    440  READ   EQU   781                 READ CONTROL CARD ROUTINE              0781
 146    450  PUNCH  EQU   789                 PUNCH CARD ROUTINE                     0789
 147    460  SYSEND EQU   799                 LAST CHARACTER                         0799
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD
148    470  *
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SEQ PG LIN  LABEL  OP    OPERANDS                                      SFX CT  LOCN  INSTRUCTION TYPE  CARD

149    480         JOB   PHASE-1,PASS-5 OF FLOWCHARTER
150    490  *
151    500  *              SWITCHES COMMON TO ALL PHASES OF FLOWCHART
152    510  SWLIST EQU   SYSEND&1            LIST SWITCH                      0800
153    520  SWDECK EQU   SWLIST&1            DECK SWITCH                      0801
154    530  SWNOCH EQU   SWDECK&1            NOCHART SWITCH                   0802
155    540  SWNOST EQU   SWNOCH&1            NOSTOP SWITCH                    0803
156    550  SWCROS EQU   SWNOST&1            NOCROSS SWITCH                   0804
157    560  SWNONO EQU   SWCROS&1            NOT REFERENCED SWITCH FOR SFL    0805
158    570  *
159    580  *
160    590  LOCADJ EQU   SWNONO&3                                             0808
161    600  COREND EQU   LOCADJ&3                                             0811
162    610  SWMULT EQU   COREND&1                                             0812
163    620         ORG   SWMULT&1                                                    0813
164    630  *              COMMON BRANCH POINT FROM SYSTEM TAPE READ, OVERLAID
165    640  BRANCH B     START               GO TO INSTRUCTION AFTER READ   4 0813  B T96              5
166    650  P5CAT  EQU   5003                COMMENT ADDRESS TABLE            5003
167    660  *
168    670  *
169    680  *              IO AREA DEFINITIONS
170    690  SWR1EF DCW   @ @                 REC1 EOF SWITCH                1 0817                     5
171    700  REC1   DA    1X81                RECORD 1 AREA                    0818   0898              5
172    710  R1LABL       32                  LAST CHAR OF RECORD 1 LABEL      0849             SBFLD
173    720  R1PCOD       39                  PASS-5 PROCESSING CODE IN REC1   0856             SBFLD
174    730  *              NOTE EXTRA CHAR FOR GMWM INSERTION
175    740  SWR2EF DCW   @ @                 REC2 EOF SWITCH                1 0899                     6
176    750  REC2   DA    1X81                RECORD 2 AREA                    0900   0980              6
177    760  R2CHAI       9                   1400 CHAINING CONDITION          0908             SBFLD
178    770  R2ASEQ       22                  LAST CHAR OF ASSEMBLY SEQ. NO.   0921             SBFLD
179    780  R2LABL       32                  LAST CHAR OF RECORD 2 LABEL      0931             SBFLD
180    790  R2BCOP       38                  LAST CHAR OF RECORD 2 BCD OP.    0937             SBFLD
181    800  R2PCOD       39                  PASS-5 PROCESSING CODE IN REC2   0938             SBFLD
182    810  R2CCOD       42                  LAST CHAR OF PASS-5 COMMENT CODE 0941             SBFLD
183    820  R2OP1        54                  LAST CHAR OF REC2 OPERAND-1      0953             SBFLD
184    830  R2OP2        70                  LAST CHAR OF REC2 OPERAND-2      0969             SBFLD
185    840  R2OP3        80                  LAST CHAR OF REC2 OPERAND-3      0979             SBFLD
186    850  *              NOTE EXTRA CHAR FOR GMWM INSERTION
187    860  SFLREC DA    1X81                SFL CARD IMAGE OUTPUT AREA       0981   1061              6
188    870  SFLSEQ       5                   LAST CHAR OF GENERATED SEQ. NO.  0985             SBFLD
189    880  SFLLAB       15                  LAST CHAR OF LABEL FIELD         0995             SBFLD
190    890  SFLBOP       20                  LAST CHAR OF BCD OPERATION FIELD 1000             SBFLD
191    900  SFLVAR       21                  FIRST CHAR OF VARIABLE FIELD     1001             SBFLD
192    910  *              NOTE EXTRA CHAR FOR GMWM INSERTION
193    920  *              PASS-5 PROCESSING CODE TRANSFER TABLE
194    930  PROCTB DSA   PBLOCK              0  BLOCK                       3 1064  Q22                7
195    940         DSA   PCOMON              1  IO                          3 1067  O57                7
196    950         DSA   PCOMON              2  MODFY                       3 1070  O57                7
197    960         DSA   PCOMON              3  PREDF                       3 1073  O57                7
198    970         DSA   PDECID              4  DECID YES                   3 1076  C76                7
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

199    980         DSA   PDECID              5  DECID YES EXIT                     3  1079  C76                   7
200    990         DSA   PDECID              6 DECID YES SUBRT                     3  1082  C76                   7
201  1 000         DSA   PDECID              7 DECID 2-WAY COMPARE                 3  1085  C76                   8
202  1 010         DSA   READNX              8 START                               3  1088  U04                   8
203  1 020         DSA   READNX              9 ENTER                               3  1091  U04                   8
204  1 030         DSA   READNX              10 WAIT                               3  1094  U04                   8
205  1 040         DSA   READNX              11 HALT                               3  1097  U04                   8
206  1 050         DSA   PCOMON              12 EXIT                               3  1100  O57                   8
207  1 060         DSA   PGOTO               13 GOTO                               3  1103  O72                   8
208  1 070         DSA   PJOB                14 JOB                                3  1106  P23                   9
209  1 080         DSA   PEND                15 END                                3  1109  P41                   9
210  1 090         DSA   PSUBRT              16 SUBRT                              3  1112  P69                   9
211  1 100  *
212  1 110  *              PASS-5 SFL OPERATION TABLE IN PROCESSING CODE ORDER
213  1 120  SFLOTB DCW   @BLOCK@             0    BLOCK                            5  1117                        9
214  1 130         DCW   @IO   @             1    IO                               5  1122                        9
215  1 140         DCW   @MODFY@             2    MODFY                            5  1127                        9
216  1 150         DCW   @PREDF@             3    PREDF                            5  1132                        9
217  1 160         DCW   @DECID@             4    DECID YES                        5  1137                       10
218  1 170         DCW   @DECID@             5    DECID YES EXIT                   5  1142                       10
219  1 180         DCW   @DECID@             6    DECID YES SUBRT                  5  1147                       10
220  1 190         DCW   @DECID@             7    DECID 2-WAY COMPARE              5  1152                       10
221  1 200         DCW   @START@             8    START                            5  1157                       10
222  1 210         DCW   @ENTER@             9    ENTER                            5  1162                       10
223  1 220         DCW   @WAIT @             10 S WAIT                             5  1167                       10
224  1 230  SFLHLT DCW   @HALT @             11 T HALT                             5  1172                       11
225  1 240  SFLEXT DCW   @EXIT @             12 U EXIT                             5  1177                       11
226  1 250         DCW   @GOTO @             13 V GOTO                             5  1182                       11
227  1 260         DCW   @JOB  @             14 W JOB                              5  1187                       11
228  1 270  SFLEND DCW   @END  @             15 X END                              5  1192                       11
229  1 280  SFLSUB       @SUBRT@             16 Y SUBRT                            5  1197                       11
230  1 290  *              OTHER SFL OPS NOT COVERED BY PROCESSING CODE
231  1 300  SFLYES DCW   @YES  @                  YES                              5  1202                       11
232  1 310  SFLNO  DCW   @NO   @                  NO                               5  1207                       12
233  1 320  *              CONSTANT DEFINITIONS
234  1 330  L1GM   DC    @}@                 1 GROUP MARK, NO WORD MARK            1  1208                       12
235  1 340  L3010  DCW   @010@               TEN                                   3  1211                       12
236  1 350  L1BLNK DCW   @ @                 1 BLANK                               1  1212                       12
237  1 360  L10BLN DCW   @          @        10 BLANKS                            10  1222                       12
238  1 370  L3000  DCW   @000@               3 ZEROS                               3  1225                       12
239  1 380  L3003  DCW   @003@               THREE                                 3  1228                       12
240  1 390  L18    DCW   @8@                 EIGHT                                 1  1229                       12
241  1 400  L37    DCW   @007@               SEVEN                                 3  1232                       13
242  1 410  L311   DCW   @011@               ELEVEN                                3  1235                       13
243  1 420  L312   DCW   @012@               TWELVE                                3  1238                       13
244  1 430  L1Z    DCW   @Z@                 Z                                     1  1239                       13
245  1 440  L3001  DCW   @001@               ONE                                   3  1242                       13
246  1 450  L1COMA DCW   @,@                 COMMA                                 1  1243                       13
247  1 460  L313   DCW   @013@               THIRTEEN                              3  1246                       13
248  1 470  L3014  DCW   @014@               FOURTEEN                              3  1249                       14
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

249  1 480  L11    DCW   @1@                 ONE                                 1  1250                     14
250  1 490  L10    DCW   @0@                 ZERO                                1  1251                     14
251  1 500  L3052  DCW   @052@               FIFTY TWO                           3  1254                     14
252  1 510  L14    DCW   @4@                 FOUR                                1  1255                     14
253  1 520  L50    DCW   @00000@             5 ZEROS                             5  1260                     14
254  1 530  L3AC   DCW   @AC @               7070                                3  1263                     14
255  1 540  L6MINU DCW   @MINUS @            7070                                6  1269                     15
256  1 550  L5PLUS DCW   @PLUS @             7070                                5  1274                     15
257  1 560  L6ALFA DCW   @ALPHA @            7070                                6  1280                     15
258  1 590  SPCCOD DCW   @014@               COMMENT CODE TO INSERT SPEC-3       3  1283                     15
259  1 600  PREDCC DCW   @016@               COMMENT CODE FOR BCDOP OP1, ETC     3  1286                     15
260  1 610  BKSCOD DCW   @017@               BACKSPACE INSERT COMMA CODE         3  1289                     15
261  1 620  CHACOD DCW   @019@               CHAIN CODE                          3  1292                     15
262  1 630  SEQCOD EQU   L3000               COMMENT CODE FOR SEQ. FIELD            1225
263  1 640  SB1COD EQU   L3001               COMMENT CODE TO SUBSTITUTE OP1         1242
264  1 650  MOVMOD DCW   @4@                 MOVE TO MODE FOR BLOCK ANALYSIS     1  1293                     16
265  1 660  SUBCOD EQU   L312                SUBRT CODE FOR OP1,SEQ                 1238
266  1 670  SQNCOD DCW   @018@               ASSEMBLY SEQ COD, NO COMMA          3  1296                     16
267  1 680  *              WORKING AREAS
268  1 690  SEQNUM DCW   #5                  GENERATED SEQUENCE NO. FOR SFL      5  1301                     16
269  1 700  CBOXIN DCW   #3                  CURRENT REC2 BOX-CODE INDEX         3  1304                     16
270  1 710  PBOXIN DCW   #3                  PREVIOUS REC2 BOX-CODE INDEX        3  1307                     16
271  1 720  L3TEMP DCW   #3                  3 CHARACTER WORKING STORAGE         3  1310                     16
272  1 730  VARPAR DCW   #3                  INPUT PARAMETER FOR COMMENTS        3  1313                     16
273  1 740  VARTMP DCW   #3                  TEMPORARY VARIABLE POINTER          3  1316                     17
274  1 750  VARPNT DCW   #3                  VARIABLE FIELD POINTER              3  1319                     17
275  1 760  SPEC1  DCW   #10                 SPECIAL FIELD-1                    10  1329                     17
276  1 770  SPEC2  DCW   #10                 SPECIAL FIELD-2                    10  1339                     17
277  1 780  SPEC3  DCW   #10                 SPECIAL FIELD-3                    10  1349                     17
278  1 790  SPEC4  DCW   #10                 SPECIAL FIELD-4                    10  1359                     18
279  1 800  CHARCT DCW   #3                  CHARACTER COUNT IN GROUP L.T.14     3  1362                     18
280  1 810  GRUPCT DCW   #3                  GROUP COUNT                         3  1365                     18
281  1 820  CBOXMD DCW   #1                  CURRENT BOX MODE %TEMPORARY)        1  1366                     18
282  1 830  PBOXMD DCW   #1                  PREVIOUS BOX MODE                   1  1367                     18
283  1 840  SAVCNT DCW   #3                  WORD LENGTH SAVE FIELD FOR BCKSP    3  1370                     18
284  1 841  R2OSAV DCW   #10                 SAVE CHAIN OP1                     10  1380                     18
285  1 842  R2PSAV DCW   #1                  SAVE CHAIN OP1 TYPE DECID           1  1381                     19
286  1 850  GENLBL DCW   @0000@              GENERATED LABEL NUMBER              4  1385                     19
287  1 860  LOZENG DCW   @)5@                GENERATED LABEL PASS5               2  1387                     19
288  1 870  L2STAR DCW   @**@                TWO ASTERISKSSES                    2  1389                     19
289  1 880  *              SWITCH DEFINITIONS
290  1 890  SWMODE DC    #1                  NEW MODE IN BLOCK SWITCH            1  1390                     19
291  1 900  SWPEND DC    #1                  SFL CARD PENDING IF NO WM SWITCH    1  1391                     19
292  1 910  SWMORE DC    #1                  MORE COMMENTS COMING SWITCH         1  1392                     19
293  1 920  SWBOX  DC    #1                  SOMETHING IN BOX SWITCH             1  1393                     19
294  1 930  SWCOMA DC    #1                  INSERT COMMA SWITCH                 1  1394                     19
295  1 940  SWMORC DC    #1                  COMMENT CONTINUATION SWITCH         1  1395                     19
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

296  1 950         JOB   PHASE-1,PASS-5 OF FLOWCHARTER
297  1 960  *              THIS BEGINS MAIN LINE PROCESSING
298  1 970  START  B     INITIL              INITIALIZATION ROUTINE              4  1396  B U63               20
299  1 980         B     P5READ              MOVE REC1 TO REC2                   4  1400  B W33               20
300  1 990  READNX B     P5READ              BRING IN ANOTHER RECORD             4  1404  B W33               20
301  2 000  P5EOFT BCE   P5DONE,SWR2EF,1     IF EOF, WRITE OUT LAST SFL CARD     8  1408  B U46 899 1         20
302  2 010         B     BOXTYP              IF NOT, GET BOX TYPE                4  1416  B X36               20
303  2 020  OVFRET B     PENDIN              SEE IF SFL CARD PENDING             4  1420  B Y06               20
304  2 030         MLC   CBOXIN,X3           MOVE BOX CODE INDEX INTO X3         7  1424  M T04 099           20
305  2 040         B     X3X3                MULTIPLY BE THREE                   4  1431  B X80               21
306  2 050         MLC   PROCTB&X3,X3        MOVE ADDRESS IN PROCTB INTO X3      7  1435  M |F4 099           21
307  2 060         B     0&X3                PERFORM APPROPRIATE ROUTINE         4  1442  B 0?0               21
308  2 070  P5DONE B     P5WRIT              WRITE OUT LAST SFL CARD             4  1446  B !42               21
309  2 080         B     CLEAN               RESTORE TAPES AND RECORD AREAS      4  1450  B G09               21
310  2 090         B     SYSLNK              RETURN TO SYSTEM                    4  1454  B 400               21
311  2 100         DCW   @4CHTA@             WHICH CALLS IN PHASE 2-CHARTER      5  1462                      21
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

312  2 110         JOB   PHASE-1,PASS-5 OF FLOWCHARTER
313  2 120  *              INITIALIZATION SUBROUTINE
314  2 130  *
315  2 140  *              THIS ROUTINE COULD BE IN DICTIONARY AREA IF EXIT
316  2 150  *              IS CHANGED TO RETURN DIRECTLY TO MAIN LINE CALL
317  2 160  *              INITIALIZATION ROUTINE.
318  2 170  INITIL SBR   INITIX&3            SAVE RETURN                        4  1463  H W18                 22
319  2 180         SW    REC1&80,REC2&80     SET WM AT END OF INPUT RECORDS     7  1467  , 898 980             22
320  2 190         MLC   L1GM,REC1&80        SET GM AT END OF REC1              7  1474  M S08 898             22
321  2 200         MLC   L1GM,REC2&80        SET GM AT END OF REC2              7  1481  M S08 980             22
322  2 210         SW    SFLREC&80           SET WM AT END OF SFL CARD AREA     4  1488  , |61                 22
323  2 220         MLC   L1GM,SFLREC&80      SET GM AT END OF SFL CARD AREA     7  1492  M S08 |61             22
324  2 230         MLC   L10,SWR1EF          RESET EOF SWITCH                   7  1499  M S51 817             23
325  2 240         MLC   L10,SWR2EF          RESET EOF SWITCH                   7  1506  M S51 899             23
326  2 250         SW    SWPEND              RESET SFL CARD PENDING SWITCH      4  1513  , T91                 23
327  2 260         MLC   L50,SEQNUM          RESET NEXT SFL                     7  1517  M S60 T01             23
328  2 270         A     L3010,SEQNUM         SEQ) NO) TO 00010                 7  1524  A S11 T01             23
329  2 280         SW    R2ASEQ-4,R2LABL-9   SET                                7  1531  , 917 922             23
330  2 290         SW    R2BCOP-5            WORD MARKS                         4  1538  , 932                 24
331  2 300         SW    R2PCOD,R2CCOD-2     IN                                 7  1542  , 938 939             24
332  2 310         SW    R2OP1-9,R2OP1&1     REC2                               7  1549  , 944 954             24
333  2 320         SW    R2OP2-9,R2OP3-9     AREAS                              7  1556  , 960 970             24
334  2 330         SW    R1LABL-9            SET WORD MARK IN REC1 LABEL AREA   4  1563  , 840                 24
335  2 340         RWD   IOTP3               REWIND TAPE WHICH WILL BE SFL      5  1567  U %U3 R               24
336  2 350         RWD   IOTP2                                                  5  1572  U %U2 R               24
337  2 360  *              READ COMMENT DICTIONARY INTO CORE
338  2 370         MLC   L3000,X3            ZERO X3                            7  1577  M S25 099             25
339  2 380         MLNS  MACH,X3             MOVE MACHINE CODE TO X3            7  1584  D 082 099             25
340  2 390         MLC   NAMETB&X3,RECNM    GET LAST CHAR OF RECORD NAME        7  1591  M WA9 W13             25
341  2 400         MLC   BRANCC&3,BRANCH&3   SET RETURN FROM SYSTEM             7  1598  M W32 816             25
342  2 410         B     SYSLNK              READ IN COMMENT DICTIONARY,        4  1605  B 400                 25
343  2 420  RECNM  DCW   @4CHR @              USING CALCULATED RECORD NAME      5  1613                        25
344  2 430  RETSYS NOP                       RETURN FROM DICTIONARY READ-IN     1  1614  N                     25
345  2 440  INITIX B     000                 EXIT TO MAIN LINE                  4  1615  B 000                 26
346  2 450  *              LAST CHAR OF RECORD NAME OF COMMENT DICTIONARY
347  2 460  NAMETB DCW   @7@                360                                 1  1619                        26
348  2 461         DCW   @1@                1401,1460                           1  1620                        26
349  2 470         DCW   @1@                 1440                               1  1621                        26
350  2 480         DCW   @2@                 1410,7010                          1  1622                        26
351  2 490         DCW   @3@                 1620                               1  1623                        26
352  2 500         DCW   @4@                 705                                1  1624                        26
353  2 510         DCW   @4@                 7080                               1  1625                        27
354  2 520         DCW   @5@                 7070,7072,7074                     1  1626                        27
355  2 530         DCW   @6@                 7040,7044                          1  1627                        27
356  2 540         DCW   @6@                 7090,7094                          1  1628                        27
357  2 550  *
358  2 560  BRANCC B     RETSYS              SYSLNK BRANCH RETURN CELL          4  1629  B W14                 27
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

359  2 570         JOB   PHASE-1,PASS-5 OF FLOWCHARTER
360  2 580  *              THIS ROUTINE MOVES REC1 TO REC2, READS REC1
361  2 590  P5READ SBR   P5REAX&3            SAVE RETURN                             4  1633  H X24                28
362  2 600         MLC   REC1&79,REC2&79     MOVES FROM CC 80-71                     7  1637  M 897 979            28
363  2 610         MLC                       MOVES FROM CC 70-61                     1  1644  M                    28
364  2 620         MLC                       MOVES FROM CC 60-55                     1  1645  M                    28
365  2 630         MLC                       MOVES FROM CC 54-45                     1  1646  M                    28
366  2 640         MLC                       MOVES FROM CC 44-40                     1  1647  M                    28
367  2 650         MLC                       MOVES FROM CC 39-39                     1  1648  M                    28
368  2 660         MLC                       MOVES FROM CC 38-33                     1  1649  M                    29
369  2 670         MLC                       MOVES FROM CC 32-23                     1  1650  M                    29
370  2 680         MLC                       MOVES FROM CC 22-18                     1  1651  M                    29
371  2 690         MLC                       MOVES FROM CC 17-1                      1  1652  M                    29
372  2 700         MLC   SWR1EF,SWR2EF       MOVE EOF CONDITION                      7  1653  M 817 899            29
373  2 710         MLC   L10BLN,R2OP1&6      BLANK OUT RELATIVE ADDRESS FIELD        7  1660  M S22 959            29
374  2 720         MLC   R2BCOP,R2OP1&2      MOVE 7080 REGISTER TO OP1 REL           7  1667  M 937 955            29
375  2 730         BCE   P5REAX,SWR2EF,1     IF REC2 IS EOF, GO EXIT                 8  1674  B X21 899 1          30
376  2 740         B     SYSIO               READ NEXT ASSEMBLY LANG. RECORD         4  1682  B 500                30
377  2 750         DCW   &IOCON2             FROM UNIT NUMBER                        3  1688  200                  30
378  2 760         ORG   *-2                                                               1687
379  2 770         DC    &REC1                LOC OF INPUT AREA                      3  1689  818                  31
380  2 780         DC    @R@                  READ                                   1  1690                       31
381  2 790         BEF   P5REA1              IF EOF, GO SET SWITCH                   5  1691  B X25 K              31
382  2 800         MLC   &REC2,DPLOW         DUMP                                    7  1696  M 05/ 04V            31
383  2 810         MLC   @080@,DPWID          REC1                                   7  1703  M 05U 04Y            31
384  2 820         MLC   @001@,DPNUM          INPUT                                  7  1710  M 05X 04S            31
385  2 830         B     DUMP                 AREA                                   4  1717  B G67                32
386  2 840  P5REAX B     000                 EXIT                                    4  1721  B 000                32
387  2 850  P5REA1 MLC   L11,SWR1EF          SET EOF CONDITION IN REC1               7  1725  M S50 817            32
388  2 860         B     P5REAX              GO EXIT                                 4  1732  B X21                32
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

389  2 870         JOB   PHASE-1,PASS-5 OF FLOWCHARTER
390  2 880  *              THIS ROUTINE EXTRACTS THE PASS-5 PROCESSING CODE
391  2 890  *              FROM REC2 AND COMPUTES THE BOX CODE INDEX. IT ALSO
392  2 900  *              SAVES THE CURRENT BOX CODE INDEX
393  2 910  BOXTYP SBR   BOXTYX&3            SAVE RETURN                            4  1736  H X79               33
394  2 920         MLC   CBOXIN,PBOXIN       SAVE CURRENT BOX CODE INDEX            7  1740  M T04 T07           33
395  2 930         MLC   L3000,CBOXIN        ZERO OUT CURRENT BOX CODE              7  1747  M S25 T04           33
396  2 940         MLNS  R2PCOD,CBOXIN       SAVE NUMERIC PART OF REC2 CODE         7  1754  D 938 T04           33
397  2 950         BWZ   BOXTYX,R2PCOD,2     IF REC2 CODE NUMERIC, GO EXIT          8  1761  V X76 938 2         33
398  2 960         A     L18,CBOXIN          OTHERWISE ADD 8 TO BOX CODE            7  1769  A S29 T04           34
399  2 970  BOXTYX B     000                 EXIT                                   4  1776  B 000               34
400  2 980  *              THIS ROUTINE MULTIPLES X3 BY 3 FOR ADDRESS LOOKUP
401  2 990  X3X3   SBR   X3X3X&3                                                    4  1780  H Y05               34
402  3 000         MLC   X3,L3TEMP           SAVE TEMPORARILY                       7  1784  M 099 T10           34
403  3 010         MA    X3                  X3 TIMES 2                             4  1791  # 099               34
404  3 020         MA    L3TEMP,X3           X3 TIMES 3                             7  1795  # T10 099           34
405  3 030  X3X3X  B     000                 EXIT                                   4  1802  B 000               34
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

406  3 040         JOB   PHASE-1,PASS-5 OF FLOWCHARTER
407  3 050  *              THIS ROUTINE DETERMINES IF THERE IS AN SFL CARD
408  3 060  *              PENDING, WRITES OUT THE SFL CARD AND INITIALIZES
409  3 070  *              A NEW SFL CARD WITH SEQ, LABEL, OP, AND SOURCE
410  3 080  *              SEQ FROM REC2 AREA IF NECESSARY
411  3 090  PENDIN SBR   PENDIX&3            SAVE EXIT                          4  1806  H Z36              35
412  3 100         BWZ   PENDI2,SWPEND,1     IS THERE A CARD PENDING            8  1810  V Y54 T91 1        35
413  3 110         C     PBOXIN,CBOXIN       YES, SEE IF OUTPUT NECESSARY       7  1818  C T07 T04          35
414  3 120         BU    PENDI1              IF BOX CODES NOT EQUAL, OUTPUT     5  1825  B Y50 /            35
415  3 130         C     L3003,CBOXIN        EQUAL, SEE IF COMMENTS ARE TO      7  1830  C S28 T04          35
416  3 140         BH    PENDI1               BUILD. IF NOT GO OUTPUT           5  1837  B Y50 U            35
417  3 150         BCE   PENDIX,R2LABL-9,    IF REC2 HAS LABEL, OUTPUT          8  1842  B Z33 922          36
418  3 160  PENDI1 B     P5WRIT              OUTPUT PENDIN SFL CARD             4  1850  B !42              36
419  3 170  PENDI2 B     INISFL              INITIALIZE SFL CARD WITH SEQ.      4  1854  B Z48              36
420  3 180         CW    SWPEND              SET SFL CARD PENDING               4  1858  ) T91              36
421  3 190         MLC   R2LABL,SFLLAB       MOVE REC2 LABEL TO SFL LABEL       7  1862  M 931 995          36
422  3 200         MLC   CBOXIN,X3           GET BOX CODE INDEX                 7  1869  M T04 099          36
423  3 210         A     X3                   TIMES 2                           4  1876  A 099              36
424  3 220         A     X3                   TIMES 4                           4  1880  A 099              37
425  3 230         A     CBOXIN,X3            TIMES 5                           7  1884  A T04 099          37
426  3 240         MLC   SFLOTB&X3,SFLBOP    INSERT SFL OP CODE FROM TABLE      7  1891  M /A7 |00          37
427  3 250         C     L311,CBOXIN         IF BOX CODE IS GTR THAN 11         7  1898  C S35 T04          37
428  3 260         BH    PENDIX               DO NOT INSERT ASSEM. SEQ. NO.     5  1905  B Z33 U            37
429  3 270         C     L37,CBOXIN          IF START, ENTER, WAIT, OR HALT     7  1910  C S32 T04          37
430  3 280         BH    PENDI3               GO INSERT SEQ WITHOUT COMMA       5  1917  B Z37 U            38
431  3 290         MLC   SEQCOD,VARPAR       MOVE COMMENT CODE FOR SEQ.         7  1922  M S25 T13          38
432  3 300  PENDI4 B     VARFLD              GO INSERT ASSEMBLY SEQ NO.         4  1929  B J51              38
433  3 310  PENDIX B     000                 EXIT                               4  1933  B 000              38
434  3 320  PENDI3 MLC   SQNCOD,VARPAR       MOVE IN SEQUENCE CODE, NO COMMA    7  1937  M S96 T13          38
435  3 330         B     PENDI4              GO INSERT SEQ.                     4  1944  B Z29              38
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

436  3 340         JOB   PHASE-1,PASS-5 OF FLOWCHARTER
437  3 350  *              THIS ROUTINE BLANKS OUT THE SFL CARD AREA AND
438  3 360  *              ENTERS THE NEXT SFL SEQ. NO. IN THE SEQ. FIELD
439  3 370  INISFL SBR   INISFX&3            SAVE RETURN                      4  1948  H !41              39
440  3 380         SW    SFLREC              SET WORDMARK IN FIRST CHAR       4  1952  , 981              39
441  3 390         MLC   L1BLNK,SFLREC&79    BLANK LAST CHAR OF AREA          7  1956  M S12 |60          39
442  3 400         MLC   SFLREC&79,SFLREC&78    BLANK REMAINING CHARACTERS    7  1963  M |60 |59          39
443  3 410         CW    SFLREC              CLEAR WORD MARK IN FIRST CHAR    4  1970  ) 981              39
444  3 420         MLC   SEQNUM,SFLSEQ       MOVE CURRENT SEQ. NO. TO SFL     7  1974  M T01 985          39
445  3 430         A     L3010,SEQNUM        BUMP SEQ. NO. BY TEN FOR NEXT    7  1981  A S11 T01          40
446  3 440         MLC   L3000,GRUPCT        INITIALIZE GROUP COUNT TO ZERO   7  1988  M S25 T65          40
447  3 450         MLC   L3000,CHARCT        INITIALIZE CHAR-CNT IN GROUP     7  1995  M S25 T62          40
448  3 460         MLC   L3000,VARPNT        INITIALIZE VAR.FIELD POINTER     7  2002  M S25 T19          40
449  3 470         MLC   L3000,VARTMP        INITIALIZE VAR.FLD TEMP. POINTER 7  2009  M S25 T16          40
450  3 480         CW    SWMORC,SWMORE       RESET NO MORE COMMENTS SWITCHES  7  2016  ) T95 T92          41
451  3 490         SW    SWCOMA              RESET TO NO COMMA FOLLOWS        4  2023  , T94              41
452  3 500         CW    SWBOX               RESET TO NOTHING IN BOX          4  2027  ) T93              41
453  3 510         MLC   L1BLNK,PBOXMD       RESET TO NO MODE IN BOX          7  2031  M S12 T67          41
454  3 520  INISFX B     000                 EXIT                             4  2038  B 000              41
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SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

455  3 530         JOB   PHASE-1,PASS-5 OF FLOWCHARTER
456  3 540  *              THIS ROUTINE WRITES OUT A PENDING SFL CARD AND
457  3 550  *              RESETS THE PENDING SWITCH
458  3 560  *
459  3 570  P5WRIT SBR   P5WRIX&3             SAVE RETURN                           4  2042  H !75                42
460  3 580         BWZ   P5WRIX,SWPEND,1      IF NO CARD PENDING, EXIT              8  2046  V !72 T91 1          42
461  3 590         SW    SWPEND               RESET TO NO CARD PENDING              4  2054  , T91                42
462  3 600         B     SYSIO                WRITE OUT SFL CARD                    4  2058  B 500                42
463  3 610         DCW   IOCON3                ONTO UNIT NUMBER 3                   3  2064  300                  42
464  3 620         ORG   *-2                                                              2063
465  3 630         DC    &SFLREC               LOC OF OUTPUT AREA                   3  2065  981                  43
466  3 640         DC    @W@                   WRITE                                1  2066                       43
467  3 650         BEF   P5WRI1               IF EOT CONDITION, ERROR               5  2067  B !76 K              43
468  3 660  P5WRIX B     000                  EXIT                                  4  2072  B 000                43
469  3 670  P5WRI1 MLC   ERRTAP,LPRINT&48     MOVE MESSAGE TO PRINT AREA            7  2076  M J50 249            43
470  3 680         B     MESSG                PRINT MESSAGE                         4  2083  B 660                43
471  3 690         RWD   SYSTAP               REWIND SYSTEM TAPE                    5  2087  U %U1 R              44
472  3 700  P5WRI2 H     6,6                  AND HALT                              7  2092  . 006 006            44
473  3 710         B     P5WRI2                REPETITIVELY                         4  2099  B !92                44
474  3 720         DCW   @ERROR. TAPE @                                            12  2114                       44
475  3 730         DC    IOCON3                                                     3  2117  300                  44
476  3 740         ORG   *-2                                                              2116
477  3 750  ERRTAP DC    @ TOO SHORT. REPLACE IT AND RESTART.@                     35  2150                       45
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SEQ PG LIN  LABEL  OP    OPERANDS                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

478  3 760         JOB   PHASE-1,PASS-5 OF FLOWCHARTER
479  3 770  *              THIS SUBROUTINE ENTERS WORDS INTO THE VARIABLE
480  3 780  *              PORTION %COL. 21-72) OF THE SFL CARD.
481  3 790  VARFLD SBR   VARFLX&3            SAVE RETURN                   4  2151  H L42               46
482  3 800         MLC   VARPAR,X3           GET SKELETON CODE             7  2155  M T13 099           46
483  3 810         B     X3X3                 TIMES 3 INTO X3 FOR ADDRESS  4  2162  B X80               46
484  3 820         MLC   P5CAT&X3,X3         PUT ADDRESS OF SKELETON IN X3 7  2166  M |?T 099           46
485  3 830         BWZ   VARFL3,SWMORC,1     IF COMMENT CONTINUATION,RELOAD 8  2173  V K47 T95 1         46
486  3 840         MLC   VARPNT,X2           LOAD STORE PNTR WITH NEXT POS. 7  2181  M T19 094           46
487  3 850  VARFL1 C     L1Z,0&X3            INSPECT CHAR IN SKELETON      7  2188  C S39 0?0           47
488  3 860         BH    VARFL4              IF NUMERIC, GO PROCESS CONTROL 5  2195  B K58 U             47
489  3 870         BCE   VARFL7,0&X3,        IF BLANK, COMMENT SKELETON DONE 8  2200  B L13 0?0           47
490  3 880         BCE   VARFL6,0&X3,,       IF COMMA, SET FOR COMMA INSERT 8  2208  B L05 0?0 ,         47
491  3 890         BCE   VARF10,0&X3,&       IF PLUS, IMMEDIATE INSERT     8  2216  B L51 0?0 &         47
492  3 900         BCE   VARF11,0&X3,-       IF HYPHEN, BACKSPACE          8  2224  B L62 0?0 -         48
493  3 910  VARF12 B     DOWORD              GO INSERT SKELETON WORD       4  2232  B M43               48
494  3 920  VARFL2 MA    L3001,X3            ADD ONE TO SKELETON POINTER   7  2236  # S42 099           48
495  3 930         B     VARFL1              GO DO NEXT CHAR IN SKELETON   4  2243  B J88               48
496  3 940  VARFL3 MLC   VARTMP,X2           RELOAD SFL STORE PNTR FROM LAST 7  2247  M T16 094           48
497  3 950         B     VARFL1               PARTIAL COMMENT, THEN PROCESS 4  2254  B J88               48
498  3 960  VARFL4 MLC   X3,VARFL5&6         SAVE SKELETON POINTER         7  2258  M 099 L00           49
499  3 970         MLC   0&X3,X3             PUT SUBSTITUTION CODE INTO X3 7  2265  M 0?0 099           49
500  3 980         MLC   L3000,X3-1          ZERO LEFT 2 CHARS             7  2272  M S25 098           49
501  3 990         B     X3X3                 TIMES 3 INTO X3 FOR ADDRESS  4  2279  B X80               49
502  4 000         MLC   SUBTB&X3,X3         PUT ADDRESS OF SUBST. INTO X3 7  2283  M MA5 099           49
503  4 010         B     DOWORD              NO, GO INSERT SUBSTITUTION WORD 4  2290  B M43               49
504  4 020  VARFL5 SBR   X3,000              RESTORE SKELETON POINTER      7  2294  H 099 000           50
505  4 030         B     VARFL2              GO DO NEXT SKELETON CHARACTER 4  2301  B K36               50
506  4 040  VARFL6 CW    SWCOMA              COMMA INSERTION, SET SWITCH   4  2305  ) T94               50
507  4 050         B     VARFL2              GO DO NEXT SKELETON CHARACTER 4  2309  B K36               50
508  4 060  VARFL7 BWZ   VARFL9,SWMORE,1     IS MORE COMMENT COMING        8  2313  V L43 T92 1         50
509  4 070         CW    SWMORC              NO, RESET COMMENT CONTINUATION 4  2321  ) T95               50
510  4 080         MLC   X2,VARPNT           SAVE POINTER FOR LAST COMPLETE 7  2325  M 094 T19           50
511  4 090  VARFL8 MLC   X2,VARTMP           SAVE POINTER FOR LAST TEMPOR. 7  2332  M 094 T16           51
512  4 100  VARFLX B     000                 EXIT                          4  2339  B 000               51
513  4 110  VARFL9 SW    SWMORC              SET MORE COMING SWITCH        4  2343  , T95               51
514  4 120         B     VARFL8              GO SAVE TEMPORARY POINTER     4  2347  B L32               51
515  4 130  VARF10 MA    L3001,X3            SET TO INSERT SPECIAL CHAR    7  2351  # S42 099           51
516  4 140         B     VARF12                                            4  2358  B K32               51
517  4 150  VARF11 S     L3001,X2            BACKSPACE, BACK-UP SFL POINTER 7  2362  S S42 094           51
518  4 160         MLZS  L1BLNK,X2           RESET TO NO ZONES             7  2369  Y S12 094           52
519  4 180         S     L3001,CHARCT        SUBTRACT ONE FROM CHAR COUNT  7  2376  S S42 T62           52
520  4 190         MLZS  L1BLNK,CHARCT       RESET TO NO ZONES             7  2383  Y S12 T62           52
521  4 200         C     CHARCT,L3000        IF BACKSPACE DIDNT OCCUR AT   7  2390  C T62 S25           52
522  4 210         BU    VARFL2               GROUP BEGINNING, EXIT        5  2397  B K36 /             52
523  4 220         MLC   SAVCNT,CHARCT       OTHERWISE RESET TO LAST WORD  7  2402  M T70 T62           53
524  4 230         B     VARFL2               LENGTH PROCESSED AND EXIT    4  2409  B K36               53
525  4 240  *              VARIABLE FIELD ADDRESS SUBSTITUTION TABLE
526  4 250  SUBTB  DSA   R2ASEQ-4            0 ASSEMBLY LANG SEQ. NO.      3  2415  917                 53
527  4 260         DSA   R2OP1-9             1 OP-1                        3  2418  944                 53
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

528  4 270         DSA   R2OP2-9              2 OP-2                           3  2421  960                 53
529  4 280         DSA   R2OP3-9              3 OP-3                           3  2424  970                 53
530  4 290         DSA   R2BCOP-5             4 ASSEMBLY LANG. BCD OP FIELD    3  2427  932                 53
531  4 300         DSA   SPEC1-9              5 SPECIAL FIELD-1                3  2430  T20                 54
532  4 310         DSA   SPEC2-9              6 SPECIAL FIELD-2                3  2433  T30                 54
533  4 320         DSA   SPEC3-9              7 SPECIAL FIELD-3                3  2436  T40                 54
534  4 330         DSA   R2OP1&1              8 7080 REGISTER NUMBER IN OP1REL 3  2439  954                 54
535  4 340         DSA   SPEC4-9              9 SPECIAL FIELD-4                3  2442  T50                 54
536  4 350  *
537  4 360  *            THIS ROUTINE SCANS TO A WORD MARK OR BLANK AND
538  4 370  *            MOVES THE WORD TO THE SFL CARD VARIABLE FIELD.
539  4 380  *            A BLANK OR A COMMA FOLLOWED BY BLANK IS INSERTED
540  4 390  *            AT THE END OF THE WORD. IF THE SFL RULES ARE
541  4 400  *            VIOLATED OR IF THE WORD WOULD GO BEYOND COL-72, THE
542  4 410  *            SFL CARD IS BLANKED BACKWARDS FROM 72 TO THE VALUE
543  4 420  *            IN VARPNT. THE CARD IS WRITTEN OUT AND MAIN-LINE
544  4 430  *            PROCESSING IS RE-ENTERED TO REFORM THE COMMENT.
545  4 440  *            %THE COMMENT MAY ACTUALLY CHANGE SINCE MODES ARE
546  4 450  *            RESET. THE SEQ. NO. IS ALSO INSERTED BEFORE THE
547  4 460  *            COMMENT IS REFORMED.)
548  4 470  DOWORD SBR   DOWORX&3             SAVE RETURN                      4  2443  H N51               54
549  4 480         SBR   X1,1                 SET FOR 1 CHAR                   7  2447  H 089 001           54
550  4 490         BCE   DOWOR4,0&X3,         IF FIRST CHAR BLANK, GO EXIT     8  2454  B N44 0?0           55
551  4 500  DOWOR1 BWZ   DOWOR2,1&X3,1        IF NEXT CHAR HAS WM, ALL DONE    8  2462  V M96 0?1 1         55
552  4 510         BCE   DOWOR2,1&X3,         IF NEXT CHAR IS BLANK, ALL DONE  8  2470  B M96 0?1           55
553  4 520         A     L3001,X1             ADD 1 TO CHAR COUNT              7  2478  A S42 089           55
554  4 530         MA    L3001,X3             ADD 1 TO WORD POINTER ADDRESS    7  2485  # S42 099           55
555  4 540         B     DOWOR1               GO DO NEXT CHARACTER             4  2492  B M62               56
556  4 550  DOWOR2 MLC   X1,SAVCNT            SAVE LENGTH IN CASE OF BACKSPACE 7  2496  M 089 T70           56
557  4 560         B     OVERFL               GO SEE IF OVERFLOW               4  2503  B N52               56
558  4 570         MLC   0&X3,SFLVAR-1&X2     OK, MOVE WORD TO SFL CARD        7  2507  M 0?0 |!0           56
559  4 580         SBR   X1,1                 SET FOR ONE MORE CHAR            7  2514  H 089 001           56
560  4 590         BWZ   DOWOR3,SWCOMA,1      IS COMMA INSERTION REQUESTED     8  2521  V N40 T94 1         56
561  4 600         B     OVERFL               SEE IF COMMA CAUSES OVERFLOW     4  2529  B N52               57
562  4 610         MLC   L1COMA,SFLVAR-1&X2   OK, MOVE COMMA TO SFL CARD       7  2533  M S43 |!0           57
563  4 620  DOWOR3 B     OVERFL               DOES TRAILING BLANK CAUSE OVERF  4  2540  B N52               57
564  4 630  DOWOR4 SW    SWCOMA               RESET TO NO COMMA                4  2544  , T94               57
565  4 640  DOWORX B     000                  OK, EXIT                         4  2548  B 000               57
566  4 650  *            THIS ROUTINE CHECKS FOR SFL RULE VIOLATION OR
567  4 660  *            COL-72 OVERFLOW.
568  4 670  OVERFL SBR   OVERFX&3             SAVE RETURN                      4  2552  H O19               57
569  4 680         A     X1,X2                ADD WORD COUNT TO SFL POINTER    7  2556  A 089 094           57
570  4 690         C     L3052,X2             IF POINTER GTR 52,               7  2563  C S54 094           58
571  4 700         BH    COMOVR                GO TO PROCESS OVERFLOW          5  2570  B O20 U             58
572  4 710         A     X1,CHARCT            ADD WORD COUNT TO CURRENT GROUP  7  2575  A 089 T62           58
573  4 720         C     L3014,CHARCT         IF LESS THA 14,                  7  2582  C S49 T62           58
574  4 730         BL    OVERFX                GO EXIT                         5  2589  B O16 T             58
575  4 740         MLC   X1,CHARCT            RESET CRNT GROUP WITH NEW COUNT  7  2594  M 089 T62           58
576  4 750         A     L3001,GRUPCT         ADD ONE TO GROUP COUNT           7  2601  A S42 T65           59
577  4 760         BCE   COMOVR,GRUPCT,5      IF MORE THAN 5 GROUPS, OVERFLOW  8  2608  B O20 T65 5         59
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SEQ PG LIN  LABEL  OP    OPERANDS                                                 SFX CT  LOCN  INSTRUCTION TYPE  CARD

578  4 770  OVERFX B     000                 EXIT                                      4  2616  B 000                59
579  4 780  *
580  4 790  COMOVR MLC   VARPNT,X2           SET XR2 WITH LOC. OF LAST                 7  2620  M T19 094            59
581  4 800         SW    SFLVAR&X2           COMPLETE COMMENT. SET WM                  4  2627  , |!1                59
582  4 810         MLC   L1BLNK,SFLVAR&52    PUT IN RIGHTMOST BLANK                    7  2631  M S12 |53            59
583  4 820         MLC   SFLVAR&52,SFLVAR&51  CASCADE BACKWARD                         7  2638  M |53 |52            60
584  4 830         CW    SFLVAR&X2           CLEAR WORD MARK                           4  2645  ) |!1                60
585  4 840         B     P5WRIT              OUTPUT SFL CARD                           4  2649  B !42                60
586  4 850         B     OVFRET              GO BACK TO MAIN-LINE, REPROCESS           4  2653  B U20                60
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

587  4 860         JOB   PHASE-1,PASS-5 OF FLOWCHARTER
588  4 870  *              THE FOLLOWING ROUTINES PROCESS SPECIFIC BLOCK TYPES
589  4 880  *
590  4 890  *
591  4 900  *              THIS ROUTINE USES THE COMMENT CODE IN REC2 TO FORM
592  4 910  *              THE VARIABLE PORTION OF THE SFL CARD AND RETURNS
593  4 920  *              TO THE MAIN-LINE ROUTINE TO READ THE NEXT RECORD.
594  4 930  PCOMON MLC   R2CCOD,VARPAR       PUT COMMENT CODE INTO PARAM          7  2657  M 941 T13             61
595  4 940         B     VARFLD              GO ENTER VARIABLE FIELD              4  2664  B J51                 61
596  4 950         B     READNX              GO BACK TO MAIN LINE                 4  2668  B U04                 61
597  4 960  *              THIS ROUTINE PROCESSES GOTO CODES
598  4 970  PGOTO  C     L313,PBOXIN         IF PREVIOUS STATEMENT WAS GOTO       7  2672  C S46 T07             61
599  4 980         BE    PGOTO1               CHANGE TO EXIT                      5  2679  B P12 S               61
600  4 990         C     L312,PBOXIN         IF PREVIOUS STATEMENT WAS EXIT       7  2684  C S38 T07             61
601  5 000         BE    PGOTO1               CHANGE TO EXIT                      5  2691  B P12 S               61
602  5 010         BCE   PGOTO1,PBOXIN,      IF FIRST REC IS GOTO,MAKE EXIT       8  2696  B P12 T07             62
603  5 020         BCE   PCOMON,R2LABL-9,    IF THIS GOTO HAS NO LABEL, OK        8  2704  B O57 922             62
604  5 030  PGOTO1 MLC   SFLEXT,SFLBOP       CHANGE GOTO TO EXIT                  7  2712  M /77 |00             62
605  5 040         B     PCOMON              GO INSERT COMMENT                    4  2719  B O57                 62
606  5 050  *              PROCESS JOB TYPE
607  5 060  PJOB   MLC   L50,GENLBL          RESET GEN-LABEL NUMBER               7  2723  M S60 T85             62
608  5 070         MLC   L1BLNK,CBOXIN       RESET CURRENT BOX TYPE               7  2730  M S12 T04             63
609  5 080         B     PCOMON              GO INSERT COMMENTS                   4  2737  B O57                 63
610  5 090  *              INSURE A LOGIC BREAK BEFORE AN END CARD
611  5 100  PEND   C     L311,PBOXIN         IF PREVIOUS STATEMENT WAS NOT        7  2741  C S35 T07             63
612  5 110         BL    PHALT               A LOGIC BREAK, CHANGE TO HALT        5  2748  B P92 T               63
613  5 120         C     L313,PBOXIN         IF PREVIOUS STATEMENT WAS NOT        7  2753  C S46 T07             63
614  5 130         BH    PHALT               A LOGIC BREAK,CHANGE TO HALT         5  2760  B P92 U               63
615  5 140         B     READNX              IF HALT,EXIT,GOTO, BACK TO MAIN      4  2765  B U04                 63
616  5 150  *
617  5 160  PSUBRT BCE   PSUBR1,R2OP1-9,     IF BLANK OP1, GO MOVE IN **          8  2769  B P81 944             64
618  5 170         B     PCOMON              GO INSERT FROM COMMENT CODE          4  2777  B O57                 64
619  5 180  PSUBR1 MLC   L2STAR,R2OP1-8      MOVE IN ** TO OP1                    7  2781  M T89 945             64
620  5 190         B     PCOMON              GO INSERT FROM COMMENT CODE          4  2788  B O57                 64
621  5 200  *
622  5 210  PHALT  MLC   SFLHLT,SFLBOP       MOVE HALT OPCODE TO SFL CARD         7  2792  M /72 |00             64
623  5 220         B     P5WRIT              GO WRITE OUT THE HALT CARD           4  2799  B !42                 64
624  5 230         B     INISFL              INITIALIZE A NEW SFL END CARD        4  2803  B Z48                 64
625  5 240         MLC   SFLEND,SFLBOP       MOVE END OPCODE TO SFLL CARD         7  2807  M /92 |00             65
626  5 250         CW    SWPEND              SET CARD PENDING SWITCH              4  2814  ) T91                 65
627  5 260         B     READNX              GO BACK TO MAIN LINE                 4  2818  B U04                 65
628  5 270  *
629  5 280  *
630  5 290  *
631  5 300  *              THIS ROUTINE PROCESSES BLOCK TYPE INSTRUCTIONS
632  5 310  PBLOCK BCE   PBLOC1,R2CCOD-2,0   DOES BLOCK HAVE COMMENT CODE         8  2822  B Q67 939 0           65
633  5 320         BCE   PBLOC2,R2CCOD,0     NO, IS THERE SPECIAL PROCESSING      8  2830  B ?87 941 0           65
634  5 330         SBR   X3,0                YES, ZERO X3,                        7  2838  H 099 000             65
635  5 340         MLNS  R2CCOD,X3           GET NUMBER FOR OBTAINING ADDRESS     7  2845  D 941 099             66
636  5 350         B     X3X3                TIMES 3                              4  2852  B X80                 66
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

637  5 360         MLC   SPECTB-3&X3,X3      GET BRANCH ADDRESS TO X3                 7  2856  M QH9 099           66
638  5 370         B     0&X3                GO TO SPECIAL PROCESSING                 4  2863  B 0?0               66
639  5 380  *
640  5 390  PBLOC1 SW    SWBOX               SET SOMETHING IN BOX                     4  2867  , T93               66
641  5 400         MLC   L1BLNK,PBOXMD       SET NO MODE                              7  2871  M S12 T67           66
642  5 410         BCE   CHAIN,R2CHAI,1      IF CHAINING GO OUTPUT CHAIN              8  2878  B C49 908 1         67
643  5 420         B     PCOMON              GO PROCESS COMMENT CODE                  4  2886  B O57               67
644  5 430  *              BRANCH TABLE FOR SPECIAL PROCESSING
645  5 440  SPECTB DSA   SPECP1              1 1400 COMPARES                          3  2892  R84                 67
646  5 450         DSA   SPECP2              7070 C1, C2, C3                          3  2895  R11                 67
647  5 460         DSA   SPECP3              7070 CSM                                 3  2898  R29                 67
648  5 470         DSA   SPECP4              7070 CSP                                 3  2901  R40                 67
649  5 480         DSA   SPECP5              7070 CSA                                 3  2904  R51                 67
650  5 490         DSA   SPECP7              6 7080 COMPARES                          3  2907  R62                 68
651  5 500         DSA   SPECP8              7 7080 LOAD MAC II SIMULATION            3  2910  R73                 68
652  5 530  SPECP2 MLC   L3AC,SPEC1-7        MOVE AC TO SPECIAL FIELD1                7  2911  M S63 T22           68
653  5 540         MLC   R2OP1,SPEC2         MOVE OP1 TO SPECIAL FIELD 2              7  2918  M 953 T39           68
654  5 545         B     SPECP9              GO TEST FOR UNCONDITIONAL BRANCH         4  2925  B ?14               68
655  5 550  SPECP3 MLC   L6MINU,SPEC2-4      MOVE MINUS TO SPECIAL FIELD 2            7  2929  M S69 T35           68
656  5 560         B     SPECP6              GO SAVE OP1                              4  2936  B R91               68
657  5 570  SPECP4 MLC   L5PLUS,SPEC2-5      MOVE PLUS TO SPECIAL FIELD 2             7  2940  M S74 T34           69
658  5 580         B     SPECP6              GO SAVE OP1                              4  2947  B R91               69
659  5 590  SPECP5 MLC   L6ALFA,SPEC2-4      MOVE ALPHA TO SPECIAL FIELD 2            7  2951  M S80 T35           69
660  5 600         B     SPECP6              GO SAVE OP1                              4  2958  B R91               69
661  5 610  SPECP7 MLC   R2BCOP,SPEC2-8      SAVE REGISTER IN SPEC-2                  7  2962  M 937 T31           69
662  5 620         B     SPECP6                                                       4  2969  B R91               69
663  5 630  SPECP8 MLC   R2OP1,SPEC4         SAVE OP1 IN SPEC4                        7  2973  M 953 T59           70
664  5 640         B     PBLOC2              GO PROCESS INSTRUCTION                   4  2980  B ?87               70
665  5 710  SPECP1 MLC   R2OP2,SPEC2         SAVE OP2 IN SPECIAL FIELD 2              7  2984  M 969 T39           70
666  5 720  SPECP6 MLC   R2OP1,SPEC1         SAVE OP1 IN SPECIAL FIELD 1              7  2991  M 953 T29           70
667  5 721         BCE   SPECP9,MACH,4       IF 1620 DONT TEST SPS                    8  2998  B ?14 082 4         70
668  5 722         BCE   PBLO13,LANG,1       IF SPS GO OUTPUT COMPARE                 8  3006  B B75 083 1         71
669  5 730  SPECP9 BCE   PBLO13,R1PCOD,V     IF NEXT INSTRUCTION IS GOTO              8  3014  B B75 856 V         71
670  5 740         BCE   PBLO13,R1PCOD,U      OR EXIT,OUTPUT LIKE PREDEFINE           8  3022  B B75 856 U         71
671  5 750         BWZ   READNX,SWBOX,1      IF SOMETHING IN BLOCK,EXIT               8  3030  V U04 T93 1         71
672  5 760         BCE   SPECC2,SFLLAB-9,    IF NO LABEL PENDING, DELETE              8  3038  B ?65 986           72
673  5 770         BCE   SPECC1,R1LABL-9,    IF NO LABEL ON NEXT, MOVE LABEL          8  3046  B ?58 840           72
674  5 780         B     PBLOC2              LABELS ON BOTH, MUST HAVE BLOCK          4  3054  B ?87               72
675  5 790  SPECC1 MLC   SFLLAB,R1LABL       MOVE PENDING LABEL TO NEXT               7  3058  M 995 849           72
676  5 800  SPECC2 SW    SWPEND              SET FOR NO SFL CARD PENDING              4  3065  , T91               72
677  5 810         S     L3010,SEQNUM        SUBTRACT 1 FROM SFL SEQ NUM              7  3069  S S11 T01           72
678  5 820         MLZS  L1BLNK,SEQNUM       REMOVE ZONES                             7  3076  Y S12 T01           73
679  5 830         B     READNX                                                       4  3083  B U04               73
680  5 840  *
681  5 850  PBLOC2 BCE   PBLOC3,R2CCOD-2,1   IS THIS A NO MODE INSTRUCTION            8  3087  B B21 939 1         73
682  5 860         MLC   R2CCOD-2,CBOXMD     HAS A MODE, SAVE MODE                    7  3095  M 939 T66           73
683  5 870         C     CBOXMD,PBOXMD       SEE IF SAME MODE AS PREVIOUS             7  3102  C T66 T67           73
684  5 880         BE    PBLO14              IF MODES EQUAL SEE IF OP1                5  3109  B B98 S             73
685  5 890         MLC   CBOXMD,PBOXMD       DIFFERENT MODES, SAVE NEW MODE           7  3114  M T66 T67           74
686  5 900  PBLOC5 CW    SWMODE              RESET SWITCH TO NEW MODE                 4  3121  ) T90               74
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SEQ PG LIN  LABEL  OP    OPERANDS                                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD

687  5 910         BWZ   PBLO15,SWBOX,1      TEST IF ANYTHING IN BOX                      8  3125  V A37 T93 1         74
688  5 920         B     PBLO16              NOTHING IN BLOCK, DONT BACKSPACE             4  3133  B A56               74
689  5 930  PBLO15 MLC   BKSCOD,VARPAR       MOVE BACKSPACE CODE TO PARAM                 7  3137  M S89 T13           74
690  5 940         SW    SWMORE              SET FOR MORE COMMENTS COMING                 4  3144  , T92               74
691  5 950         B     VARFLD              GO BACKSPACE AND INSERT COMMA                4  3148  B J51               74
692  5 960         CW    SWMORE              RESET FOR NO MORE COMING                     4  3152  ) T92               75
693  5 970  PBLO16 MLC   L3000,VARPAR        ZERO VARPAR                                  7  3156  M S25 T13           75
694  5 980         MLC   PBOXMD,VARPAR       USE MODE NUMBER TO FORM COMMENT              7  3163  M T67 T13           75
695  5 990         BCE   PBLOC6,R2CCOD-1,0    CODE. IF NO OP1, MODE ONLY                  8  3170  B A82 940 0         75
696  6 000         SW    SWMORE              SET MORE COMMENTS %OP1) COMING               4  3178  , T92               75
697  6 010  PBLOC6 B     VARFLD              GO OUTPUT MODE                               4  3182  B J51               75
698  6 020         CW    SWMORE              RESET FOR NO MORE COMING                     4  3186  ) T92               75
699  6 030         BCE   PBLOC7,R2CCOD-1,0   IF NO OP1, EXIT                              8  3190  B B13 940 0         76
700  6 040  PBLOC8 MLC   SB1COD,VARPAR       OP1 SUBSTITUTION                             7  3198  M S42 T13           76
701  6 050         SW    SWMODE              SET OP1 ENTERED, BKSPC NEXT OP1              4  3205  , T90               76
702  6 060  PBLOC9 B     VARFLD              GO INSERT OPERAND1 %OR PREDF-TYP             4  3209  B J51               76
703  6 070  PBLOC7 SW    SWBOX               SET SOMETHING IN BOX SWITCH                  4  3213  , T93               76
704  6 080         B     READNX              GO BACK TO MAIN-LINE FOR NEXT                4  3217  B U04               76
705  6 090  *              INSTRUCTION HAS NO MODE
706  6 100  PBLOC3 BCE   PBLO10,R2CCOD-1,0   IS INSTRUCTION A NO-MODE STORE               8  3221  B B52 940 0         76
707  6 110         BCE   PBLO11,PBOXMD,      YES, IS THERE A MODE ALREADY                 8  3229  B B41 T67           77
708  6 120         B     PBLO17              GO BACKSPACE AND OUTPUT OP1                  4  3237  B C06               77
709  6 130  PBLO11 MLC   MOVMOD,PBOXMD       SET MOVE TO MODE                             7  3241  M S93 T67           77
710  6 140         B     PBLOC5              GO INSERT MOVE TO OP1                        4  3248  B A21               77
711  6 150  *              NO MODE, NO STORE
712  6 160  PBLO10 MLC   L1BLNK,PBOXMD       RESET TO NO BLOCK MODE                       7  3252  M S12 T67           77
713  6 170         BWZ   READNX,SWBOX,1      IF SOMETHING IN BLOCK, EXIT                  8  3259  V U04 T93 1         77
714  6 180         BCE   PBLO12,R1LABL-9,    IF NEXT REC HAS LABEL                        8  3267  B B86 840           78
715  6 190  PBLO13 MLC   PREDCC,VARPAR       FORCE OUT COMMENT LIKE PREDF                 7  3275  M S86 T13           78
716  6 200         B     PBLOC9                                                           4  3282  B B09               78
717  6 210  PBLO12 BCE   READNX,R1PCOD,0     IF NEXT IS BLOCK, NO OUTPUT                  8  3286  B U04 856 0         78
718  6 220         B     PBLO13              GO OUTPUT LIKE PREDF TYPE                    4  3294  B B75               78
719  6 230  PBLO14 BCE   PBLOC7,R2CCOD-1,0   IF NO OP1, EXIT                              8  3298  B B13 940 0         78
720  6 240  PBLO17 BCE   PBLOC7,R2OP1-9,     IF BLANK OP1, EXIT                           8  3306  B B13 944           79
721  6 250         BWZ   PBLO18,SWMODE,1     IF OP1 PREVIOUS, GO BACKSPACE                8  3314  V C26 T90 1         79
722  6 260         B     PBLOC8               OTHERWISE, GO INSERT OP1                    4  3322  B A98               79
723  6 270  PBLO18 MLC   BKSCOD,VARPAR       SET BACKSPACE COMMA MODE                     7  3326  M S89 T13           79
724  6 280         SW    SWMORE              SET FOR MORE COMMENTS COMING                 4  3333  , T92               79
725  6 290         B     VARFLD              BACKSPACE AND INSERT COMMA                   4  3337  B J51               79
726  6 300         CW    SWMORE              RESET FOR NO MORE COMING                     4  3341  ) T92               79
727  6 310         B     PBLOC8              GO OUTPUT OP1                                4  3345  B A98               80
728  6 320  *
729  6 330  *
730  6 340  CHAIN  SBR   CHAINX&3            SAVE RETURN                                  4  3349  H C75               80
731  6 350         SW    SWMORE              SET FOR MORE COMMENTS COMING                 4  3353  , T92               80
732  6 360         MLC   CHACOD,VARPAR       MOVE CHAIN CODE TO PARAM                     7  3357  M S92 T13           80
733  6 370         B     VARFLD              AND OUTPUT CHAIN                             4  3364  B J51               80
734  6 380         CW    SWMORE              RESET TO NO MORE COMING                      4  3368  ) T92               80
735  6 390  CHAINX B     000                 RETURN                                       4  3372  B 000               80
736  6 400  *
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SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

737  6 410  PDECID BCE   PDEC10,R2CHAI,1     IF CHAINING, GO GET OP1-TYPE               8  3376  B F50 908 1          81
738  6 411  PDEC11 MLC   R2PCOD,R2PSAV       SAVE TYPE4,5 OR 6 FOR DECID                7  3384  M 938 T81            81
739  6 412         MLC   R2OP1,R2OSAV        SAVE OP1 FOR TRANSFER                      7  3391  M 953 T80            81
740  6 413         BCE   CHAIN,R2CHAI,1      IF CHAIN, GO OUTPUT CHAIN                  8  3398  B C49 908 1          81
741  6 420         MLC   R2CCOD,VARPAR       GET COMMENT CODE                           7  3406  M 941 T13            81
742  6 430         B     VARFLD              GO OUTPUT DECID COMMENT                    4  3413  B J51                82
743  6 440         B     P5WRIT              WRITE OUT SFL CARD                         4  3417  B !42                82
744  6 450         B     INISFL              INITIALIZE NEXT SFL CARD                   4  3421  B Z48                82
745  6 460         CW    SWPEND              SET SFL CARD PENDING                       4  3425  ) T91                82
746  6 470         BCE   PDECI1,R2PCOD,5     IS THIS EXIT TYPE                          8  3429  B E49 938 5          82
747  6 480         BCE   PDECI1,R2PCOD,6     IS THIS DECID SUBRT TYPE                   8  3437  B E49 938 6          82
748  6 490         BCE   PDECI2,R2PCOD,7     IS THIS 2 WAY COMPARE JUMP TYPE            8  3445  B E78 938 7          83
749  6 500         MLC   SFLYES,SFLBOP       NO, NORMAL YES TYPE                        7  3453  M S02 |00            83
750  6 510  PDECI3 MLC   SB1COD,VARPAR       SET FOR OP1 SUBSTITUTION                   7  3460  M S42 T13            83
751  6 520  PDECI9 B     VARFLD              GO INSERT COMMENT %OP1 OR OP1,)            4  3467  B J51                83
752  6 530         B     P5WRIT              WRITE OUT YES, NO, EXIT OR SUBRT           4  3471  B !42                83
753  6 540         BCE   READNX,R2PCOD,4     IF YES OP1 TYPE, ALL DONE                  8  3475  B U04 938 4          83
754  6 550         B     INISFL              GO SETUP FOR EXIT                          4  3483  B Z48                84
755  6 560         CW    SWPEND              SET SFL CARD PENDING                       4  3487  ) T91                84
756  6 570         MLC   R2OP2,R2OP1         RESTORE OP1                                7  3491  M 969 953            84
757  6 580         BCE   PDECI8,R2PCOD,6     IF SUBRT TYPE                              8  3498  B E24 938 6          84
758  6 590         MLC   SFLEXT,SFLBOP       SET EXIT OP                                7  3506  M /77 |00            84
759  6 600  PDECI5 MLC   L14,R2PCOD          SET TYPE TO LOOK LIKE YES FOR              7  3513  M S55 938            84
760  6 610         B     PDECI3               EXITING AFTER EXIT %OR NO)                4  3520  B D60                85
761  6 620  PDECI8 MLC   SFLSUB,SFLBOP       MOVE SUBRT TO SFL OP FIELD                 7  3524  M /97 |00            85
762  6 630         MLC   SUBCOD,VARPAR       MOVE SUBROUTINE CODE TO PARAM              7  3531  M S38 T13            85
763  6 640         MLC   L14,R2PCOD          SET TYPE TO LOOK LIKE YES                  7  3538  M S55 938            85
764  6 650         B     PDECI9              GO OUTPUT SUBRT                            4  3545  B D67                85
765  6 660  PDECI1 MLC   R2OP1,R2OP2         EXIT OR SUBRT TYPE,SAVE OP1                7  3549  M 953 969            85
766  6 670         B     INSURE              INSURE LABEL IN REC1                       4  3556  B F68                86
767  6 680         MLC   R1LABL,R2OP1        PUT REC1 LABEL FOR NO TRANSFER             7  3560  M 849 953            86
768  6 690         MLC   SFLNO,SFLBOP        PUT NO IN SFL OP FIELD                     7  3567  M S07 |00            86
769  6 700         B     PDECI3              GO OUTPUT NO %*&2)                         4  3574  B D60                86
770  6 710  PDECI2 B     P5READ              READ NEXT RECORD                           4  3578  B W33                86
771  6 720         BCE   PDECI4,R2LABL-9,    DOES REC2 HAVE A LABEL                     8  3582  B F27 922            86
772  6 730  PDECI6 B     INSURE              YES, MAKE SURE REC1 HAS LABEL              4  3590  B F68                86
773  6 740         MLC   R1LABL,SPEC3        SAVE LABEL FOR PRINTOUT                    7  3594  M 849 T49            87
774  6 750         MLC   SFLYES,SFLBOP       PUT YES IN SFL CARD                        7  3601  M S02 |00            87
775  6 760         MLC   SPCCOD,VARPAR       MAKE COMMENT CODE FOR SPECIAL-3            7  3608  M S83 T13            87
776  6 770         B     VARFLD              GO INSERT GENERATED NAME                   4  3615  B J51                87
777  6 780         B     P5WRIT              GO WRITE OUT CARD                          4  3619  B !42                87
778  6 790         B     P5EOFT              RETURN TO MAIN LINE WITHOUT READ           4  3623  B U08                87
779  6 800  PDECI4 BCE   PDECI7,R2PCOD,V     IS REC2 A GOTO TYPE                        8  3627  B F39 938 V          88
780  6 810         B     PDECI6              NO, GO TREAT LIKE REGULAR JUMP             4  3635  B E90                88
781  6 820  PDECI7 MLC   SFLNO,SFLBOP        PUT NO IN SFL CARD                         7  3639  M S07 |00            88
782  6 830         B     PDECI5              GO INSERT OPERAND-1 AND EXIT               4  3646  B E13                88
783  6 831  PDEC10 MLC   R2PSAV,R2PCOD       SAVE TYPE 4,5, OR 6                        7  3650  M T81 938            88
784  6 832         MLC   R2OSAV,R2OP1        SAVE OP1                                   7  3657  M T80 953            88
785  6 833         B     PDEC11              GO BACK TO OUTPUT DECID                    4  3664  B C84                89
786  6 840  *              THIS SUBROUTINE INSURES A LABEL IN REC1
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SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
787	6	850	INSURE	SBR	INSURX&3	SAVE EXIT		4	3668	H F83	89
788	6	860		BCE	INSUR1,R1LABL-9,	IF NO LABEL, GENERATE A LABEL		8	3672	B F84 840	89
789	6	870	INSURX	B	000	EXIT		4	3680	B 000	89
790	6	880	INSUR1	A	L3001,GENLBL	ADD ONE TO FORM NEXT LABEL		7	3684	A S42 T85	89
791	6	890		MLC	GENLBL,R1LABL-4	PUT IT IN REC1		7	3691	M T85 845	89
792	6	900		MLC	LOZENG,R1LABL-8	MOVE LOZENGE-PASS5 CHARS		7	3698	M T87 841	90
793	6	910		B	INSURX	GO EXIT		4	3705	B F80	90

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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

794  6 920         JOB   PHASE-1,PASS-5 OF FLOWCHARTER
795  6 930  *          CLEAN-UP ROUTINE
796  6 940  CLEAN  SBR   CLEANX&3            SAVE RETURN                          4  3709  H G66               91
797  6 950         MLC   L1BLNK,REC1&80      CLEAR GM IN REC1                     7  3713  M S12 898           91
798  6 960         MLC   L1BLNK,REC2&80      CLEAR GM IN REC 2                    7  3720  M S12 980           91
799  6 970         MLC   L1BLNK,SFLREC&80    CLEAR GM IN SFL CARD AREA            7  3727  M S12 |61           91
800  6 980         MLC   L1BLNK,REC1&1       CLEAR GM FROM EOF IN REC1            7  3734  M S12 819           91
801  6 990         MLC   L1BLNK,REC2&1       CLEAR GM FROM EOF IN REC2            7  3741  M S12 901           91
802  7 000         WTM   IOTP3               WRITE EOF ON SFL OUTPUT TAPE         5  3748  U %U3 M             92
803  7 010         RWD   IOTP3               REWIND SFL OUTPUT TAPE               5  3753  U %U3 R             92
804  7 020         RWD   IOTP2               REWIND TAPE %INPUT)                  5  3758  U %U2 R             92
805  7 030  CLEANX B     000                 EXIT                                 4  3763  B 000               92
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

806  7 040         JOB   PHASE-1,PASS-5 OF FLOWCHARTER
807  7 050  DDUMP  SBR   DPDUMX&3                                               *     4  3767  H 03Z                93
808  7 060         BIN   DPDUMX,D            SWITCH FOR PRINTING DUMPS                5  3771  B 03W D              93
809  7 070         B     DPDUMX                                                       4  3776  B 03W                93
810  7 080  DPINT  MLC   @B@,      DPFALL     SET DPFALL TO A BRANCH            *     7  3780  M 05Y 01V            93
811  7 090         MLC   X2,       DPX2#3                                       *     7  3787  M 094 06/            93
812  7 100         MLC   @000@,    DPCTR#3    ZERO A CTR TO BLANKS              *     7  3794  M 06U 06X            93
813  7 110         MLC   DPLOW,    DPLOOP&3   SET VALUE IN DPLOW                *     7  3801  M 04V H47            94
814  7 120         MLC   DPLOW,    DPTEST&6                                     *     7  3808  M 04V H64            94
815  7 130         MLC   DPLOW,    DPLADR#3                                     *     7  3815  M 04V 07|            94
816  7 140         MLC   @00000@,DPTAG#5                                              7  3822  M 07V 08|            94
817  7 150  DPALOP MLC   @000@,X2                                                     7  3829  M 06U 094            94
818  7 160         CS    332                 PRINT LINE                         *     4  3836  / 332                94
819  7 170         CS    299                                                    *     4  3840  / 299                95
820  7 180  DPLOOP MLC   000,      DPHOLD#1                                     *     7  3844  M 000 08/            95
821  7 190         MLC   DPHOLD,  225&X2                                        *     7  3851  M 08/ 2K5            95
822  7 200  DPTEST BWZ   DPSETW,  000,1                                         *     8  3858  V H70 000 1          95
823  7 210         B     DPSETW&4                                               *     4  3866  B H74                95
824  7 220  DPSETW SW    225&X2                                                 *     4  3870  , 2K5                95
825  7 230         MA    @001@,    DPLOOP&3                                     *     7  3874  # 05X H47            96
826  7 240         MA    @001@,    DPTEST&6                                     *     7  3881  # 05X H64            96
827  7 250         A     @001@,    X2                                           *     7  3888  A 05X 094            96
828  7 260         BCE   DPDOGO,   DPLOOP&3,Z                                   *     8  3895  B I07 H47 Z          96
829  7 270         B     DPCOMP                                                 *     4  3903  B I30                96
830  7 280  DPDOGO BCE   DPARGH,   DPLOOP&1,I                                   *     8  3907  B I19 H45 I          97
831  7 290         B     DPCOMP                                                 *     4  3915  B I30                97
832  7 300  DPARGH MLC   @N@,      DPFALL                                       *     7  3919  M 08S 01V            97
833  7 310         B     DPWRIT                                                 *     4  3926  B I46                97
834  7 320  DPCOMP C     X2,       DPWID                                        *     7  3930  C 094 04Y            97
835  7 330         BE    DPWRIT                                                 *     5  3937  B I46 S              97
836  7 340         B     DPLOOP                                                 *     4  3942  B H44                97
837  7 350  DPWRIT MLC   DPLOW,    205                                          *     7  3946  M 04V 205            98
838  7 360         MLC   @&@,      210                                          *     7  3953  M 08T 210            98
839  7 370         MLC   DPTAG-1,  215                                          *     7  3960  M 07Z 215            98
840  7 380         MLC   DPLADR,   219                                          *     7  3967  M 07| 219            98
841  7 390         W                                                            *     1  3974  2                    98
842  7 400         WM                                                           *     2  3975  2 )                  98
843  7 410         BCV   DPCH1                                                  *     5  3977  B 03/ @              98
844  7 420  DPADD  A     DPWID,    DPTAG-1                                      *     7  3982  A 04Y 07Z            99
845  7 430         MA    DPWID,DPLADR                                                 7  3989  # 04Y 07|            99
846  7 440         A     @001@,    DPCTR                                        *     7  3996  A 05X 06X            99
847  7 450         C     DPCTR,    DPNUM                                        *     7  4003  C 06X 04S            99
848  7 460         BE    *&5                                                          5  4010  B 01Z S              99
849  7 470  DPFALL B     DPALOP                                                 *     4  4015  B H29                99
850  7 480         MLC   DPX2,     X2                                           *     7  4019  M 06/ 094           100
851  7 490         CCB   DPDUMX,K            DOUBLE SPACE                             5  4026  F 03W K             100
852  7 500  DPCH1  CCB   DPADD,1                                                *     5  4031  F I82 1             100
853  7 510  DPDUMX B     000                                                    *     4  4036  B 000               100
854  7 520  DPNUM  DCW   @080@                                                        3  4042                      100
855  7 530  DPLOW  DCW   @000@                                                  *     3  4045                      100
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

856  7 540  DPWID  DCW   @100@                                                     *     3  4048                    100
857  7 550  DUMP   EQU   DDUMP                                                              3767
858  7 560  HIGH   EQU   P5CAT-4             LAST USABLE CORE ADDRESS PASS5                 4999
       382         DCW   &REC2                                                           3  4051  900         ADCON  101
                         @080@                                                           3  4054              LIT    101
                         @001@                                                           3  4057              LIT    101
                         @B@                                                             1  4058              LIT    101
       811  DPX2         #03                                                             3  4061              AREA   101
                         @000@                                                           3  4064              LIT    101
       812  DPCTR        #03                                                             3  4067              AREA   101
       815  DPLADR       #03                                                             3  4070              AREA   102
       816               @00000@                                                         5  4075              LIT    102
       816  DPTAG        #05                                                             5  4080              AREA   102
       820  DPHOLD       #01                                                             1  4081              AREA   102
                         @N@                                                             1  4082              LIT    102
                         @&@                                                             1  4083              LIT    102
859  7 570         END   START                                                                    / T96 080         103
                                                                                                                                 *****
856  7 540  DPWID  DCW   @100@                                                     *     3  4048                    100
```

```
CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                    1             4CHR1
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?   2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040  3

                          1401,1440,1460  COMMENT DICTIONARY                  4CHR1             PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101  1 01   000    JOB   1401,1440,1460  COMMENT DICTIONARY
 102  1 02          CTL   440
 103  1 025  *              VERSION 2  LEVEL 0   JULY 25,1965
 104  1 03          DCW   @$ADD     @         CARDS COMMON TO ALL DICTIONARIES     9  0341                    4
 105  1 04          DSA   LOW                 --REQUIRED TO                        3  0344  |0/               4
 106  1 05          DSA   START               --GENERATE THE APPROPRIATE           3  0347  813               4
 107  1 06          DSA   HIGH                --$ADD CARD                          3  0350  O7Y               4
 108  1 07          DCW   @042665@            ASSEMBLY DATE                        6  0356                    4
 109  1 08   LOW    EQU   P5CAT-2             FOR PASS 5 DICTIONARIES                 5001
 110  1 09   START  EQU   813                 START ADDRESS                           0813
 111  1 10          ORG   5001                                                              5001
 112  1 11   *
 113  1 12   *
 114  1 13   *              P5C000-P5C024 SPECIFY COMMENT SKELETONS COMMON TO
 115  1 14   *              ALL P5CAT DICTIONARIES
 116  1 15   *
 117  1 16   P5CAT  DSA   P5C000              ASSEMBLY SEQUENCE NUMBER             3  5003  U0T               5
 118  1 17          DSA   P5C001              OP1                                  3  5006  U0W               5
 119  1 18          DSA   P5C002-6            COMPUTE                              3  5009  U0Y               5
 120  1 19          DSA   P5C003-3            EDIT                                 3  5012  U1W               5
 121  1 20          DSA   P5C004-3            MOVE TO                              3  5015  U2/               5
 122  1 21          DSA   P5C005-2            SET                                  3  5018  U2Y               5
 123  1 22          DSA   P5C006-4            RESET                                3  5021  U3S               5
 124  1 23          DSA   P5C007-3            ZERO                                 3  5024  U3Y               6
 125  1 24          DSA   P5C008-4            SHIFT                                3  5027  U4T               6
 126  1 25          DSA   P5C009-4            CLEAR                                3  5030  U4Z               6
 127  1 26          DSA   P5C010              BCDOP  %USED FOR PREDF)              3  5033  U5V               6
 128  1 27          DSA   P5C011-6            SEGMENT OP1,OP2,OP3 %JOB CARD)       3  5036  U5Y               6
 129  1 28          DSA   P5C012              , OP1 BACKSP SEQ.  %SUBRT  EG TS     3  5039  U7/               6
 130  1 29          DSA   P5C013              BCDOP BACKSPACE, RESELT IN OP1       3  5042  U7W               6
 131  1 30          DSA   P5C014              SPEC3 %FOR DECID JUMP TYPE YES)      3  5045  U8Z               7
 132  1 31          DSA   P5C015-1            IS C%AC) EQUAL TO OP1                3  5048  U9/               7
 133  1 32          DSA   P5C016              BCDOP  OP1 OP2 OP3 BACKSPACE ,       3  5051  V0U               7
 134  1 33          DSA   P5C017              BACKSPACE AND INSERT COMMA           3  5054  V1/               7
 135  1 34          DSA   P5C018              SEQ NUMBER, NO COMMA                 3  5057  V1V               7
 136  1 35          DSA   P5C019-4            CHAIN FOR 1400 COMPUTERS             3  5060  V1X               7
 137  1 36          DSA   P5C020-1            IS D-MODIFIER CONDITION OP2 MET      3  5063  V2T               7
 138  1 37          DSA   P5C021-3            DOES COND AT 2 EQ D-MOD 3            3  5066  V4Z               8
 139  1 38          DSA   P5C022-1            NO OPERATION - SPS  N -              3  5069  V7S               8
 140  1 39          DSA   P5C023-4            CLEAR STORAGE OP1                    3  5072  V8U               8
 141  1 40          ORG   *&3                 ALLOWS FOR 1 INSERTS                              5076
 142  1 41   *
 143  1 42   *              P5C025-P5C049 SPECIFY UNIQUE BLOCK-TYPE COMMENT
 144  1 43   *              SKELETONS
 145  1 44   *
 146  1 45          DSA   P5C025-3            LOAD OP1                             3  5078  V9Y               9
 147  1 46          DSA   P5C026-3            MOVE OP1                             3  5081  W0W               9
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

148  1 47          DSA   P5C027-4            CLEAR WORD MARK AT 1,2                    3  5084  W1U                  9
149  1 48          DSA   P5C028-6            COMPR MACRO                               3  5087  W3|                  9
150  1 49          DSA   P5C029-3            BOOL MACRO                                3  5090  W6|                  9
151  1 50          DSA   P5C030-2            SET WORD MARK AT 1,2                      3  5093  W9U                  9
152  1 51          DSA   P5C031-3            MOVE OP2 TO OP1                           3  5096  X0Y                  9
153  1 52          DSA   P5C032-2            ADD OP2 TO OP1                            3  5099  X1X                 10
154  1 53          DSA   P5C033-7            SUBTRACT OP2 FROM OP1                     3  5102  X2V                 10
155  1 54          DSA   P5C034-7            MULTIPLY OP2 BY OP1                       3  5105  X4|                 10
156  1 55          DSA   P5C035-5            DIVIDE OP2 BY OP2                         3  5108  X5T                 10
157  1 56          DSA   P5C036-6            ZEROADD OP2 TO OP1                        3  5111  X6U                 10
158  1 57          DSA   P5C037-11           ZEROSUBTRACT OP2 FROM OP1                 3  5114  X7W                 10
159  1 58          DSA   P5C038-8            TRANSLATE                                 3  5117  X9V                 10
160  1 59          DSA   P5C039-5            MODIFY ADD OP2 TO OP1                     3  5120  Y1W                 11
161                DSA   P5C040-3            EDIT OP2 INTO OP1                         3  5123  Y3|                 11
162  1 60   *
163                ORG   *&27                ALLOWS FOR 9 INSERTS                               5151
164  1 62   *
165  1 63   *              P5C050-P5C099 SPECIFY COMMENTS TO BE PLACED IN
166  1 64   *              DECISIONAL BOXES
167  1 65   *
168  1 66   *
169  1 67          DSA   P5C050-3            CHARACTER EQUAL TEST       %BCE)          3  5153  Y4/                 12
170  1 68          DSA   P5C051-3            BIT EQUAL TEST                            3  5156  Y6U                 12
171  1 69          DSA   P5C052-1            INDICATOR OP 2 ON                         3  5159  Y8/                 12
172  1 70          DSA   P5C053-1            LAST CARD TEST             %BLC)          3  5162  Y9W                 12
173  1 71          DSA   P5C054-1            END OF FILE TEST           %BEF)          3  5165  Z1/                 12
174  1 72          DSA   P5C055-1            UNEQUAL COMPARE            %BU)           3  5168  Z2X                 12
175  1 73          DSA   P5C056-3            EQUAL COMPARE              %BE)           3  5171  Z4/                 12
176  1 74          DSA   P5C057-1            LOW COMPARE                %BL)           3  5174  Z5T                 13
177  1 75          DSA   P5C058-1            HIGH COMPARE               %BH)           3  5177  Z6W                 13
178  1 76          DSA   P5C059-1            INDICATOR ON TEST                         3  5180  Z8S                 13
179  1 77          DSA   P5C060-3            WORD MARK OR ZONE TEST                    3  5183  !1T                 13
180  1 78          DSA   P5C061-3            BIT CONDITION ON TEST                     3  5186  !3X                 13
181  1 79          DSA   P5C062-5            LOOP MACRO                                3  5189  !5S                 13
182  1 80          DSA   P5C063-1            BAV                                       3  5192  !6Z                 13
183  1 81          DSA   P5C064-1            BER                                       3  5195  !9/                 14
184  1 82          DSA   P5C065-1            BPB,BPCB                                  3  5198  J2|                 14
185  1 83          DSA   P5C066-1            BCV                                       3  5201  J3U                 14
186  1 84          ORG   *&99                ALLOWS FOR 33 INSERTS                              5301
187  1 85   *
188  1 86   *              P5C100-P5C133 SPECIFY COMMENTS TO BE PLACED IN
189  1 87   *              IO BOXES
190  1 88   *
191  1 89          DSA   P5C100-3            READ TAPE UNIT OP1 INTO OP2               3  5303  J6U                 15
192  1 90          DSA   P5C101-5            REWIND TAPE OP1                           3  5306  J7Z                 15
193  1 91          DSA   P5C102-4            WRITE TAPE OP1 FROM OP2                   3  5309  J9/                 15
194  1 92          DSA   P5C103-4            WRITE TAPE MARK ON OP1                    3  5312  K0X                 15
195  1 93          DSA   P5C104-8            BACKSPACE TAPE OP1                        3  5315  K2U                 15
196  1 94          DSA   P5C105-3            SKIP AND BLANK TAPE OP1                   3  5318  K3Z                 15
197  1 95          DSA   P5C106-3            READ A CARD                               3  5321  K5X                 15
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

198  1 96          DSA   P5C107-4            PUNCH A CARD                             3  5324  K6X                 16
199  1 97          DSA   P5C108-4            PRINT A LINE                             3  5327  K7Y                 16
200  1 98          DSA   P5C109-3            READ AND PUNCH                           3  5330  K8Z                 16
201  1 99          DSA   P5C110-4            WRITE,READ AND PUNCH                     3  5333  L0S                 16
202  2 00          DSA   P5C111-4            WRITE AND READ                           3  5336  L2|                 16
203  2 01          DSA   P5C112-4            WRITE AND PUNCH                          3  5339  L3T                 16
204  2 02          DSA   P5C113-4            START READ FEED                          3  5342  L4X                 16
205  2 03          DSA   P5C114-4            START PUNCH FEED                         3  5345  L6/                 17
206  2 04          DSA   P5C115-4            WRITE ONTO TYPEW FROM OP1                3  5348  L7W                 17
207  2 05          DSA   P5C116-3            READ FROM TYPEW INTO OP1                 3  5351  M0/                 17
208  2 06          DSA   P5C117-3            READ DISK                                3  5354  M2V                 17
209  2 07          DSA   P5C118-4            WRITE DISK                               3  5357  M3Z                 17
210  2 08          DSA   P5C119-6            CONTROL DISK                             3  5360  M5U                 17
211  2 09          DSA   P5C120-6            CONTROL PRINTER                          3  5363  M6W                 17
212  2 10          DSA   P5C121-5            SELECT MODE                              3  5366  M8/                 18
213  2 11          DSA   P5C122-6            CONTROL UNIT OP1                         3  5369  M9T                 18
214  2 12          DSA   P5C123-6            CONTROL PUNCH                            3  5372  N0W                 18
215  2 13          DSA   P5C124-6            CONTROL PAPER TAPE                       3  5375  N1Z                 18
216  2 14          DSA   P5C125              IOCS MACROS                              3  5378  N3W                 18
217  2 15          DSA   P5C126-4            IOCS FORCE END OF REEL, FEORL            3  5381  N4T                 18
218  2 16          DSA   P5C127-3            RELSE MACRO                              3  5384  N5Z                 18
219  2 17          DSA   P5C128-2            PUT MACRO                                3  5387  N7X                 19
220  2 18          DSA   P5C129-2            GET MACRO                                3  5390  N8Y                 19
221  2 19          DSA   P5C130-8            DISENGAGE CHARACTER READER               3  5393  N9Z                 19
222  2 20          DSA   P5C131-5            ENGAGE CHARACTER READER                  3  5396  O2U                 19
223  2 21          DSA   P5C132-3            READ UNIT OP1 INTO OP2-LU & MU           3  5399  O4W                 19
224  2 22          DSA   P5C133-4            WRIT UNIT OP1 FROM OP2-LU & MU           3  5402  O6/                 19
225  2 23   *
226  2 24   *
227  2 25   *
228  2 26   P5C000 DCW   @,@                 SUBSTITUTE SEQUENCE FIELD ,              1  5403                      19
229  2 27          DCW   @0@                                                          1  5404                      20
230  2 28          DCW   @ @                                                          1  5405                      20
231  2 29   P5C001 DCW   @1@                 SUBSTITUTE OPERAND-1                     1  5406                      20
232  2 30          DCW   @ @                                                          1  5407                      20
233  2 31   P5C002 DCW   @COMPUTE@           COMPUTE  MODE                            7  5414                      20
234  2 32          DCW   @ @                                                          1  5415                      20
235  2 33   P5C003 DCW   @EDIT@              EDIT     MODE                            4  5419                      20
236  2 34          DCW   @ @                                                          1  5420                      21
237  2 35   P5C004 DCW   @MOVE@              MOVE TO  MODE                            4  5424                      21
238  2 36          DCW   @TO@                                                         2  5426                      21
239  2 37          DCW   @ @                                                          1  5427                      21
240  2 38   P5C005 DCW   @SET@               SET      MODE                            3  5430                      21
241  2 39          DCW   @ @                                                          1  5431                      21
242  2 40   P5C006 DCW   @RESET@             RESET    MODE                            5  5436                      21
243  2 41          DCW   @ @                                                          1  5437                      22
244  2 42   P5C007 DCW   @ZERO@              ZERO                                     4  5441                      22
245  2 43          DCW   @ @                                                          1  5442                      22
246  2 44   P5C008 DCW   @SHIFT@             SHIFT                                    5  5447                      22
247  2 45          DCW   @ @                                                          1  5448                      22
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  2 46   P5C009 DCW   @CLEAR@             CLEAR                                5  5453                    22
249  2 47          DCW   @ @                                                      1  5454                    22
250  2 48   P5C010 DCW   @,@                 BCDOP, %USED FOR PREDF)              1  5455                    23
251  2 49          DCW   @4@                                                      1  5456                    23
252  2 50          DCW   @ @                                                      1  5457                    23
253  2 51   P5C011 DCW   @SEGMENT@           SEGMENT OP1,OP2,OP3 %JOB CARD)       7  5464                    23
254  2 52          DCW   @,@                                                      1  5465                    23
255  2 53          DCW   @1@                                                      1  5466                    23
256  2 54          DCW   @,@                                                      1  5467                    23
257  2 55          DCW   @2@                                                      1  5468                    24
258  2 56          DCW   @3@                                                      1  5469                    24
259  2 57          DCW   @ @                                                      1  5470                    24
260  2 58   P5C012 DCW   @,@                 OP1,BACKSPACE SEQ %SUBRT EG TSX)     1  5471                    24
261  2 59          DCW   @1@                                                      1  5472                    24
262  2 60          DCW   @-@                                                      1  5473                    24
263  2 61          DCW   @0@                                                      1  5474                    24
264  2 62          DCW   @ @                                                      1  5475                    25
265  2 63   P5C013 DCW   @,@                 BCDOP,BACKSPACE RESULT IN OP1        1  5476                    25
266  2 64          DCW   @4@                                                      1  5477                    25
267  2 65          DCW   @-@                                                      1  5478                    25
268  2 66          DCW   @RESULT@                                                 6  5484                    25
269  2 67          DCW   @IN@                                                     2  5486                    25
270  2 68          DCW   @1@                                                      1  5487                    25
271  2 69          DCW   @ @                                                      1  5488                    26
272  2 70   P5C014 DCW   @7@                 SPEC 3                               1  5489                    26
273  2 71          DCW   @ @                                                      1  5490                    26
274  2 72   P5C015 DCW   @IS@                IS AC EQUAL TO OP2                   2  5492                    26
275  2 73          DCW   @AC@                                                     2  5494                    26
276  2 74          DCW   @EQUAL@                                                  5  5499                    26
277  2 75          DCW   @TO@                                                     2  5501                    26
278  2 76          DCW   @2@                                                      1  5502                    27
279  2 77          DCW   @ @                                                      1  5503                    27
280  2 78   P5C016 DCW   @4@                 BCDOP OP1,OP2,OP3                    1  5504                    27
281  2 79          DCW   @,@                                                      1  5505                    27
282  2 80          DCW   @1@                                                      1  5506                    27
283  2 81          DCW   @,@                                                      1  5507                    27
284  2 82          DCW   @2@                                                      1  5508                    27
285  2 83          DCW   @3@                                                      1  5509                    28
286  2 84          DCW   @ @                                                      1  5510                    28
287  2 85   P5C017 DCW   @-@                 BACKSPACE                            1  5511                    28
288  2 86          DCW   @&@                 AND INSERT A COMMA                   1  5512                    28
289  2 87          DCW   @,@                                                      1  5513                    28
290  2 88          DCW   @ @                                                      1  5514                    28
291  2 89   P5C018 DCW   @0@                 SEQ. NUMBER                          1  5515                    28
292  2 90          DCW   @ @                                                      1  5516                    29
293  2 91   P5C019 DCW   @CHAIN@                                                  5  5521                    29
294  2 92          DCW   @ @                                                      1  5522                    29
295  2 93   P5C020 DCW   @IS@                IS D-MODIFIER CONDITION OP2 MET      2  5524                    29
296  2 94          DCW   @D-MODIFIER@                                            10  5534                    29
297  2 95          DCW   @CONDITION@                                              9  5543                    29
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

298  2 96          DCW   @2@                                                          1  5544                      29
299  2 97          DCW   @MET@                                                        3  5547                      30
300  2 98          DCW   @ @                                                          1  5548                      30
301  2 99   P5C021 DCW   @DOES@              DOES CHAR AT 2 EQUAL 3                   4  5552                      30
302  3 00          DCW   @CHARACTER@                                                  9  5561                      30
303  3 01          DCW   @AT@                                                         2  5563                      30
304  3 02          DCW   @2@                                                          1  5564                      30
305  3 03          DCW   @EQUAL@                                                      5  5569                      30
306  3 04          DCW   @3@                                                          1  5570                      31
307  3 05          DCW   @ @                                                          1  5571                      31
308  3 06   P5C022 DCW   @NO@                NO OPERATION   -SPS  N-                  2  5573                      31
309  3 07          DCW   @OPERATION@                                                  9  5582                      31
310  3 08          DCW   @ @                                                          1  5583                      31
311  3 09   P5C023 DCW   @CLEAR@             CLEAR STORAGE OP1                        5  5588                      31
312  3 10          DCW   @STORAGE@                                                    7  5595                      31
313  3 11          DCW   @1@                 %CS)                                     1  5596                      32
314  3 12          DCW   @ @                                                          1  5597                      32
315  3 13   P5C025 DCW   @LOAD@              LOAD OP1,OP2,OP3                         4  5601                      32
316  3 14          DCW   @1@                                                          1  5602                      32
317  3 141         DCW   @2@                                                          1  5603                      32
318  3 142         DCW   @3@                                                          1  5604                      32
319  3 15          DCW   @ @                                                          1  5605                      32
320  3 16   P5C026 DCW   @MOVE@              MOVE OP1,OP2,OP2                         4  5609                      33
321  3 17          DCW   @1@                                                          1  5610                      33
322  3 171         DCW   @2@                                                          1  5611                      33
323  3 172         DCW   @3@                                                          1  5612                      33
324  3 18          DCW   @ @                                                          1  5613                      33
325  3 19   P5C027 DCW   @CLEAR@             CLEAR WORD MARK AT OP1,OP2               5  5618                      33
326  3 191         DCW   @WORD@                                                       4  5622                      33
327  3 192         DCW   @MARK@              %CW)                                     4  5626                      34
328  3 195         DCW   @1@                                                          1  5627                      34
329  3 20          DCW   @2@                                                          1  5628                      34
330  3 21          DCW   @ @                                                          1  5629                      34
331  3 22   P5C028 DCW   @COMPARE@           COMPARE-BRANCH LOW,EQUAL,HIGH            7  5636                      34
332  3 23          DCW   @&@                                                          1  5637                      34
333  3 24          DCW   @-@                                                          1  5638                      34
334  3 25          DCW   @BRANCH@            COMPR MACRO                              6  5644                      35
335  3 26          DCW   @,@                                                          1  5645                      35
336  3 27          DCW   @LOW@                                                        3  5648                      35
337  3 28          DCW   @,@                                                          1  5649                      35
338  3 29          DCW   @EQUAL@                                                      5  5654                      35
339  3 30          DCW   @HIGH@                                                       4  5658                      35
340  3 31          DCW   @ @                                                          1  5659                      35
341  3 32   P5C029 DCW   @TEST@              TEST EXPRESSION-BR TRUE OR FLSE          4  5663                      36
342  3 33          DCW   @EXPRESSION@                                                10  5673                      36
343  3 34          DCW   @&@                                                          1  5674                      36
344  3 35          DCW   @-@                                                          1  5675                      36
345  3 36          DCW   @BRANCH@            BOOL MACRO                               6  5681                      36
346  3 37          DCW   @TRUE@                                                       4  5685                      36
347  3 38          DCW   @OR@                                                         2  5687                      36
```

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
348	3	39		DCW	@FALSE@			5	5692		37
349	3	40		DCW	@ @			1	5693		37
350	3	41	P5C030	DCW	@SET@	SET WORD MARK AT OP1,OP2		3	5696		37
351	3	411		DCW	@WORD@			4	5700		37
352	3	42		DCW	@MARK@			4	5704		37
353	3	45		DCW	@1@			1	5705		37
354	3	46		DCW	@2@			1	5706		37
355	3	47		DCW	@ @			1	5707		38
356	3	48	P5C031	DCW	@MOVE@	MOVE OP 2 TO OP1		4	5711		38
357	3	49		DCW	@2@			1	5712		38
358	3	50		DCW	@TO@			2	5714		38
359	3	51		DCW	@1@			1	5715		38
360	3	52		DCW	@ @			1	5716		38
361	3	53	P5C032	DCW	@ADD@	ADD OP2 TO OP1		3	5719		38
362	3	54		DCW	@2@			1	5720		39
363	3	55		DCW	@TO@			2	5722		39
364	3	56		DCW	@1@			1	5723		39
365	3	57		DCW	@ @			1	5724		39
366	3	58	P5C033	DCW	@SUBTRACT@	SUBTRACT OP 2 FROM OP1		8	5732		39
367	3	59		DCW	@2@			1	5733		39
368	3	60		DCW	@FROM@			4	5737		39
369	3	61		DCW	@1@			1	5738		40
370	3	62		DCW	@ @			1	5739		40
371	3	63	P5C034	DCW	@MULTIPLY@	MULTIPLY OP2 BY OP1		8	5747		40
372	3	64		DCW	@2@			1	5748		40
373	3	65		DCW	@BY@			2	5750		40
374	3	66		DCW	@1@			1	5751		40
375	3	67		DCW	@ @			1	5752		40
376	3	68	P5C035	DCW	@DIVIDE@	DIVIDE OP1 BYOP2		6	5758		41
377	3	69		DCW	@1@			1	5759		41
378	3	70		DCW	@BY@			2	5761		41
379	3	71		DCW	@2@			1	5762		41
380	3	72		DCW	@ @			1	5763		41
381	3	73	P5C036	DCW	@ZEROADD@			7	5770		41
382	3	75		DCW	@2@			1	5771		41
383	3	76		DCW	@TO@			2	5773		42
384	3	77		DCW	@1@			1	5774		42
385	3	78		DCW	@ @			1	5775		42
386	3	79	P5C037	DCW	@ZEROSUBTRACT@	ZEROSUBTRACT		12	5787		42
387	3	81		DCW	@2@			1	5788		42
388	3	82		DCW	@FROM@			4	5792		42
389	3	83		DCW	@1@			1	5793		42
390	3	84		DCW	@ @			1	5794		43
391	3	85	P5C038	DCW	@TRANSLATE@	TRANSLATE 2 FROM TABLE 1		9	5803		43
392	3	86		DCW	@2@			1	5804		43
393	3	87		DCW	@FROM@	%TR, TRW)		4	5808		43
394	3	88		DCW	@TABLE@			5	5813		43
395	3	89		DCW	@1@			1	5814		43
396	3	90		DCW	@ @			1	5815		43
397	3	91	P5C039	DCW	@MODIFY@	MODIFY ADD OP2 TO OP1		6	5821		44

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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

398  3 92          DCW   @ADD@                                                  3  5824                      44
399  3 93          DCW   @2@                 %MA)                               1  5825                      44
400  3 94          DCW   @TO@                                                   2  5827                      44
401  3 95          DCW   @1@                                                    1  5828                      44
402  3 96          DCW   @ @                                                    1  5829                      44
403         P5C040 DCW   @EDIT@              EDIT OP2 INTO OP1                  4  5833                      44
404                DCW   @2@                                                    1  5834                      45
405                DCW   @INTO@                                                 4  5838                      45
406                DCW   @1@                                                    1  5839                      45
407                DCW   @ @                                                    1  5840                      45
408  3 97   P5C050 DCW   @DOES@              %BCE)                              4  5844                      45
409  3 98          DCW   @CHARACTER@   CHARCTER EQUAL TEST                      9  5853                      45
410  3 99          DCW   @AT@                                                   2  5855                      45
411  4 00          DCW   @2@                                                    1  5856                      46
412  4 01          DCW   @EQUAL@                                                5  5861                      46
413  4 02          DCW   @3@                                                    1  5862                      46
414  4 03          DCW   @ @                                                    1  5863                      46
415  4 04   P5C051 DCW   @DOES@              BIT EQUAL TEST                     4  5867                      46
416  4 05          DCW   @BIT@               %BBE)                              3  5870                      46
417  4 06          DCW   @AT@                                                   2  5872                      46
418  4 07          DCW   @2@                                                    1  5873                      47
419  4 08          DCW   @EQUAL@                                                5  5878                      47
420  4 09          DCW   @3@                                                    1  5879                      47
421  4 10          DCW   @ @                                                    1  5880                      47
422  4 11   P5C052 DCW   @IS@                INDICATOR ON TEST   BIN,BSS        2  5882                      47
423  4 12          DCW   @INDICATOR@                                            9  5891                      47
424  4 13          DCW   @2@                                                    1  5892                      47
425  4 14          DCW   @ON@                                                   2  5894                      48
426  4 15          DCW   @ @                                                    1  5895                      48
427  4 16   P5C053 DCW   @IS@                LAST CARD TEST                     2  5897                      48
428  4 17          DCW   @THIS@                                                 4  5901                      48
429  4 18          DCW   @LAST@              %BLC)                              4  5905                      48
430  4 19          DCW   @CARD@                                                 4  5909                      48
431  4 20          DCW   @ @                                                    1  5910                      48
432  4 21   P5C054 DCW   @IS@                END OF FILE TEST                   2  5912                      49
433  4 22          DCW   @THIS@                                                 4  5916                      49
434  4 23          DCW   @END@               %BEF)                              3  5919                      49
435  4 24          DCW   @OF@                                                   2  5921                      49
436  4 25          DCW   @FILE@                                                 4  5925                      49
437  4 26          DCW   @ @                                                    1  5926                      49
438  4 27   P5C055 DCW   @IS@                UNEQUAL COMPARE                    2  5928                      49
439  4 28          DCW   @6@                                                    1  5929                      50
440  4 29          DCW   @UNEQUAL@           %BU)                               7  5936                      50
441  4 30          DCW   @TO@                                                   2  5938                      50
442  4 31          DCW   @5@                                                    1  5939                      50
443  4 32          DCW   @ @                                                    1  5940                      50
444  4 33   P5C056 DCW   @DOES@              EQUAL COMPARE                      4  5944                      50
445  4 34          DCW   @6@                                                    1  5945                      50
446  4 35          DCW   @EQUAL@             %BE)                               5  5950                      51
447  4 36          DCW   @5@                                                    1  5951                      51
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

448  4 37          DCW   @ @                                                   1  5952                      51
449  4 38   P5C057 DCW   @IS@                LOW COMPARE                       2  5954                      51
450  4 39          DCW   @6@                                                   1  5955                      51
451  4 40          DCW   @LESS@              %BL)                              4  5959                      51
452  4 41          DCW   @THAN@                                                4  5963                      51
453  4 42          DCW   @5@                                                   1  5964                      52
454  4 43          DCW   @ @                                                   1  5965                      52
455  4 44   P5C058 DCW   @IS@                HIGH COMPARE                      2  5967                      52
456  4 45          DCW   @6@                                                   1  5968                      52
457  4 46          DCW   @GREATER@           %BH)                              7  5975                      52
458  4 47          DCW   @THAN@                                                4  5979                      52
459  4 48          DCW   @5@                                                   1  5980                      52
460  4 49          DCW   @ @                                                   1  5981                      53
461  4 50   P5C059 DCW   @IS@                IS CARRIAGE CHANNEL 9 IND ON      2  5983                      53
462  4 51          DCW   @CARRIAGE@                                            8  5991                      53
463  4 52          DCW   @CHANNEL@                                             7  5998                      53
464  4 53          DCW   @&@                 BC9                               1  5999                      53
465  4 54          DCW   @9@                                                   1  6000                      53
466  4 55          DCW   @INDICATOR@                                           9  6009                      53
467  4 56          DCW   @ON@                                                  2  6011                      54
468  4 57          DCW   @ @                                                   1  6012                      54
469  4 58   P5C060 DCW   @DOES@              BR IF WORD MARK OR ZONE           4  6016                      54
470  4 59          DCW   @2@                 BWZ                               1  6017                      54
471  4 60          DCW   @EQUAL@                                               5  6022                      54
472  4 61          DCW   @BIT@                                                 3  6025                      54
473  4 62          DCW   @CONDITION@                                           9  6034                      54
474  4 63          DCW   @3@                                                   1  6035                      55
475  4 64          DCW   @ @                                                   1  6036                      55
476  4 65   P5C061 DCW   @DOES@              BR IF BIT CONDITION ON            4  6040                      55
477  4 66          DCW   @2@                 %BM,BW)                           1  6041                      55
478  4 67          DCW   @HAVE@                                                4  6045                      55
479  4 68          DCW   @BIT@                                                 3  6048                      55
480  4 69          DCW   @ON@                                                  2  6050                      55
481  4 70          DCW   @ @                                                   1  6051                      56
482  4 71   P5C062 DCW   @SHOULD@            LOOP MACRO                        6  6057                      56
483  4 72          DCW   @LOOP@                                                4  6061                      56
484  4 73          DCW   @REPEAT@                                              6  6067                      56
485  4 74          DCW   @ @                                                   1  6068                      56
486  4 75   P5C063 DCW   @IS@                IS OVERFLOW INDICATOR ON          2  6070                      56
487  4 76          DCW   @OVERFLOW@                                            8  6078                      56
488  4 77          DCW   @INDICATOR@                                           9  6087                      57
489  4 78          DCW   @ON@                BAV                               2  6089                      57
490  4 79          DCW   @ @                                                   1  6090                      57
491  4 80   P5C064 DCW   @IS@                IS THERE TAPE TRANSMISSION ERROR  2  6092                      57
492  4 81          DCW   @THERE@                                               5  6097                      57
493  4 82          DCW   @TAPE@                                                4  6101                      57
494  4 83          DCW   @TRANSMISSION@      BER                              12  6113                      57
495  4 84          DCW   @ERROR@                                               5  6118                      58
496  4 85          DCW   @ @                                                   1  6119                      58
497  4 86   P5C065 DCW   @IS@                IS PRINTER BUSY                   2  6121                      58
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

498  4 87          DCW   @PRINTER@                                               7  6128                      58
499  4 88          DCW   @BUSY@              %BPB,BPCB)                          4  6132                      58
500  4 89          DCW   @ @                                                     1  6133                      58
501  4 90   P5C066 DCW   @IS@                IS CARRIAGE OVERFLOW IND ON         2  6135                      58
502  4 91          DCW   @CARRIAGE@                                              8  6143                      59
503  4 92          DCW   @OVERFLOW@                                              8  6151                      59
504  4 93          DCW   @INDICATOR@         BCV                                 9  6160                      59
505  4 94          DCW   @ON@                                                    2  6162                      59
506  4 95          DCW   @ @                                                     1  6163                      59
507  4 96   P5C100 DCW   @READ@              READ TAPE UNIT OP1 INTO OP2         4  6167                      59
508  4 97          DCW   @TAPE@              %RT,RTB,RTW)                        4  6171                      59
509  4 98          DCW   @1@                                                     1  6172                      60
510  4 99          DCW   @INTO@                                                  4  6176                      60
511  5 00          DCW   @2@                                                     1  6177                      60
512  5 01          DCW   @ @                                                     1  6178                      60
513  5 02   P5C101 DCW   @REWIND@            REWIND TAPE UNIT OP1                6  6184                      60
514  5 03          DCW   @TAPE@              %RWD,RWU)                           4  6188                      60
515  5 04          DCW   @1@                                                     1  6189                      60
516  5 05          DCW   @ @                                                     1  6190                      61
517  5 06   P5C102 DCW   @WRITE@             WRITE TAPE UNIT OP1 FROM OP2        5  6195                      61
518  5 07          DCW   @TAPE@              %WT, WTW,WTB)                       4  6199                      61
519  5 08          DCW   @1@                                                     1  6200                      61
520  5 09          DCW   @FROM@                                                  4  6204                      61
521  5 10          DCW   @2@                                                     1  6205                      61
522  5 11          DCW   @ @                                                     1  6206                      61
523  5 12   P5C103 DCW   @WRITE@             WRITE TAPE MARK ON OP1              5  6211                      62
524  5 13          DCW   @TAPE@              %WTM)                               4  6215                      62
525  5 14          DCW   @MARK@                                                  4  6219                      62
526  5 15          DCW   @ON@                                                    2  6221                      62
527  5 16          DCW   @1@                                                     1  6222                      62
528  5 17          DCW   @ @                                                     1  6223                      62
529  5 18   P5C104 DCW   @BACKSPACE@         BACKSPACE TAPE OP1      %BSP)       9  6232                      62
530  5 19          DCW   @TAPE@                                                  4  6236                      63
531  5 20          DCW   @1@                                                     1  6237                      63
532  5 21          DCW   @ @                                                     1  6238                      63
533  5 22   P5C105 DCW   @SKIP@              SKP & BLANK TAPE OP1     %SKP)      4  6242                      63
534  5 23          DCW   @AND@               %SKP)                               3  6245                      63
535  5 24          DCW   @BLANK@                                                 5  6250                      63
536  5 25          DCW   @TAPE@                                                  4  6254                      63
537  5 26          DCW   @1@                                                     1  6255                      64
538  5 27          DCW   @ @                                                     1  6256                      64
539  5 28   P5C106 DCW   @READ@              READ A CARD      %R,RCB)            4  6260                      64
540  5 29          DCW   @A@                                                     1  6261                      64
541  5 30          DCW   @CARD@                                                  4  6265                      64
542  5 31          DCW   @ @                                                     1  6266                      64
543  5 32   P5C107 DCW   @PUNCH@             PUNCH A CARD   %P,PCB,PS)           5  6271                      64
544  5 33          DCW   @A@                                                     1  6272                      65
545  5 34          DCW   @CARD@                                                  4  6276                      65
546  5 35          DCW   @ @                                                     1  6277                      65
547  5 36   P5C108 DCW   @PRINT@             PRINT A LINE   %W,WCB,WM,WS)        5  6282                      65
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SEQ PG LIN  LABEL  OP    OPERANDS                                                   SFX CT  LOCN  INSTRUCTION TYPE  CARD

548  5 37          DCW   @A@                                                             1  6283                      65
549  5 38          DCW   @LINE@                                                          4  6287                      65
550  5 39          DCW   @ @                                                             1  6288                      65
551  5 40   P5C109 DCW   @READ@               READ AND PUNCH    %RF,P,RP)                4  6292                      66
552  5 41          DCW   @AND@                                                           3  6295                      66
553  5 42          DCW   @PUNCH@                                                         5  6300                      66
554  5 43          DCW   @ @                                                             1  6301                      66
555  5 44   P5C110 DCW   @WRITE@              WRITE READ AND PUNCH                       5  6306                      66
556  5 45          DCW   @READ@               %WRF,WP,WRP)                               4  6310                      66
557  5 46          DCW   @AND@                                                           3  6313                      66
558  5 47          DCW   @PUNCH@                                                         5  6318                      67
559  5 48          DCW   @ @                                                             1  6319                      67
560  5 49   P5C111 DCW   @WRITE@              WRITE AND READ      %WR)                   5  6324                      67
561  5 50          DCW   @AND@                                                           3  6327                      67
562  5 51          DCW   @READ@                                                          4  6331                      67
563  5 52          DCW   @ @                                                             1  6332                      67
564  5 53   P5C112 DCW   @WRITE@              WRITE AND PUNCH        %WP)                5  6337                      67
565  5 54          DCW   @AND@                                                           3  6340                      68
566  5 55          DCW   @PUNCH@                                                         5  6345                      68
567  5 56          DCW   @ @                                                             1  6346                      68
568  5 57   P5C113 DCW   @START@              START READ FEED    %SRF)                   5  6351                      68
569  5 58          DCW   @READ@                                                          4  6355                      68
570  5 59          DCW   @FEED@                                                          4  6359                      68
571  5 60          DCW   @ @                                                             1  6360                      68
572  5 61   P5C114 DCW   @START@              START PUNCH FEED      %SPF)                5  6365                      69
573  5 62          DCW   @PUNCH@                                                         5  6370                      69
574  5 63          DCW   @FEED@                                                          4  6374                      69
575  5 64          DCW   @ @                                                             1  6375                      69
576  5 65   P5C115 DCW   @WRITE@              WRITE ONTO TYPEWRITER FROM OP1             5  6380                      69
577  5 66          DCW   @ONTO@               %WCP,WCPW)                                 4  6384                      69
578  5 67          DCW   @TYPEWRITER@                                                   10  6394                      69
579  5 68          DCW   @FROM@                                                          4  6398                      70
580  5 69          DCW   @1@                                                             1  6399                      70
581  5 70          DCW   @ @                                                             1  6400                      70
582  5 71   P5C116 DCW   @READ@               READ FROM TYPEWRITER INTO OP1              4  6404                      70
583  5 72          DCW   @FROM@               %RCP,RCPW)                                 4  6408                      70
584  5 73          DCW   @TYPEWRITER@                                                   10  6418                      70
585  5 74          DCW   @INTO@                                                          4  6422                      70
586  5 75                @1@                                                             1  6423                      71
587  5 76          DCW   @ @                                                             1  6424                      71
588  5 77   P5C117 DCW   @READ@               READ DISK INTO OP1                         4  6428                      71
589  5 78          DCW   @DISK@               RDTR,RDTRW,RDTW,RDW)                       4  6432                      71
590  5 79          DCW   @INTO@               RD,RDCO,RDCOW,RDT,RDTA,RDTAW               4  6436                      71
591  5 80          DCW   @1@                                                             1  6437                      71
592  5 81          DCW   @ @                                                             1  6438                      71
593  5 82   P5C118 DCW   @WRITE@              WRITE DISK FROM OP1                        5  6443                      72
594  5 83          DCW   @DISK@               WDTAW,WDTR,WDTRW,WDTW,WDW,WDTW)            4  6447                      72
595  5 84          DCW   @FROM@               WD,WDC,WDCO,WDCOW,WDCW,WDT,WDTA            4  6451                      72
596  5 85          DCW   @1@                                                             1  6452                      72
597  5 86          DCW   @ @                                                             1  6453                      72
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SEQ PG LIN  LABEL  OP    OPERANDS                                                   SFX CT  LOCN  INSTRUCTION TYPE  CARD

598  5 87   P5C119 DCW   @CONTROL@           CONTROL DISK                                7  6460                      72
599  5 88          DCW   @DISK@              %SD,SDE,SDEW$SDH,SDHW,SDL,SDLW)             4  6464                      72
600  5 89          DCW   @ @                                                             1  6465                      73
601  5 90   P5C120 DCW   @CONTROL@           CONTROL PRINTER                             7  6472                      73
602  5 91          DCW   @PRINTER@           %CC,CCB)                                    7  6479                      73
603  5 92          DCW   @ @                                                             1  6480                      73
604  5 93   P5C121 DCW   @SELECT@            SELECT MODE      %SS,SSB)                   6  6486                      73
605  5 94          DCW   @MODE@                                                          4  6490                      73
606  5 95          DCW   @1@                                                             1  6491                      73
607  5 96          DCW   @ @                                                             1  6492                      74
608  5 97   P5C122 DCW   @CONTROL@           CONTROL UNIT OP1   %CU,LU,MU)               7  6499                      74
609  5 98          DCW   @UNIT@                                                          4  6503                      74
610  5 99          DCW   @1@                                                             1  6504                      74
611  6 00          DCW   @ @                                                             1  6505                      74
612  6 01   P5C123 DCW   @CONTROL@           CONTROL PUNCH       %PSK)                   7  6512                      74
613  6 02          DCW   @PUNCH@                                                         5  6517                      74
614  6 03          DCW   @ @                                                             1  6518                      75
615  6 04   P5C124 DCW   @CONTROL@           CONTROL PAPER TAPE                          7  6525                      75
616  6 05          DCW   @PAPER@             %K)                                         5  6530                      75
617  6 06          DCW   @TAPE@                                                          4  6534                      75
618  6 07          DCW   @ @                                                             1  6535                      75
619  6 08   P5C125 DCW   @4@                 OPEN,CLOSE,DCLOS,STACK                      1  6536                      75
620  6 09          DCW   @,@                                                             1  6537                      75
621  6 10          DCW   @1@                                                             1  6538                      76
622  6 11          DCW   @,@                 FILENAME,                                   1  6539                      76
623  6 12          DCW   @2@                                                             1  6540                      76
624  6 13          DCW   @3@                 FILENAME                                    1  6541                      76
625  6 14          DCW   @ @                                                             1  6542                      76
626  6 15   P5C126 DCW   @FORCE@             FEORL                                       5  6547                      76
627  6 16          DCW   @END@                                                           3  6550                      76
628  6 17          DCW   @OF@                                                            2  6552                      77
629  6 18          DCW   @REEL@                                                          4  6556                      77
630  6 19          DCW   @1@                                                             1  6557                      77
631  6 20          DCW   @ @                                                             1  6558                      77
632  6 21   P5C127 DCW   @SKIP@              SKIP TAPE OVER FILE OP1                     4  6562                      77
633  6 22          DCW   @TAPE@                                                          4  6566                      77
634  6 23          DCW   @OVER@                                                          4  6570                      77
635  6 24          DCW   @FILE@              RELSE MACRO                                 4  6574                      78
636  6 25          DCW   @1@                                                             1  6575                      78
637  6 26          DCW   @ @                                                             1  6576                      78
638  6 27   P5C128 DCW   @PUT@               PUT RECORD OP2                              3  6579                      78
639  6 28          DCW   @RECORD@                                                        6  6585                      78
640  6 30          DCW   @2@                 PUT MACRO                                   1  6586                      78
641  6 31          DCW   @ @                                                             1  6587                      78
642  6 32   P5C129 DCW   @GET@               GET RECORD OP1                              3  6590                      79
643  6 33          DCW   @RECORD@            GET MACRO                                   6  6596                      79
644  6 35          DCW   @1@                                                             1  6597                      79
645  6 36          DCW   @ @                                                             1  6598                      79
646  6 37   P5C130 DCW   @DISENGAGE@         DISENGAGE CHARACTER READER                  9  6607                      79
647  6 38          DCW   @CHARACTER@                                                     9  6616                      79
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

648  6 39          DCW   @READER@           DCR                                 6  6622                      79
649  6 40          DCW   @ @                                                    1  6623                      80
650  6 41   P5C131 DCW   @ENGAGE@           ENGAGE CHARACTER READER             6  6629                      80
651  6 42          DCW   @CHARACTER@                                            9  6638                      80
652  6 43          DCW   @READER@           ECR                                 6  6644                      80
653  6 44          DCW   @ @                                                    1  6645                      80
654  6 45   P5C132 DCW   @READ@             READ UNIT OP1 INTO OP2              4  6649                      80
655  6 46          DCW   @UNIT@                                                 4  6653                      80
656  6 47          DCW   @1@                LU OR MU - R AS D MODIFIER          1  6654                      81
657  6 48          DCW   @INTO@                                                 4  6658                      81
658  6 49          DCW   @2@                                                    1  6659                      81
659  6 50          DCW   @ @                                                    1  6660                      81
660  6 51   P5C133 DCW   @WRITE@            WRITE UNIT OP1 FROM OP2             5  6665                      81
661  6 52          DCW   @UNIT@                                                 4  6669                      81
662  6 53          DCW   @1@                LU OR MU - W AS D MODIFIER          1  6670                      81
663  6 54          DCW   @FROM@                                                 4  6674                      82
664  6 55          DCW   @2@                                                    1  6675                      82
665  6 56          DCW   @ @                                                    1  6676                      82
666  6 57          LTORG *&1                                                          6678
667  6 58   HIGH   EQU   *&1                HIGH POSITION FOR $ADD CARD            6678
668  6 59          END   P5CAT                                                       / |0T 080           83
651  6 42          DCW   @CHARACTER@                                            9  6638                      80           *****
652  6 43          DCW   @READER@           ECR                                 6  6644                      80
653  6 44          DCW   @ @                                                    1  6645                      80
654  6 45   P5C132 DCW   @READ@             READ UNIT OP1 INTO OP2              4  6649                      80
655  6 46          DCW   @UNIT@                                                 4  6653                      80
```

```
CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                       1             4CHR2
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?    2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040     3

                          1410/7010 COMMENT DICTIONARY PHASE5 FLOWCHART             4CHR2              PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    00   000    JOB   1410/7010 COMMENT DICTIONARY PHASE5 FLOWCHART
 102    01          CTL   440
 103    02          DCW   @$ADD     @         CARDS COMMON TO ALL DICTIONARIES     9  0341                     4
 104    03          DSA   LOW                 --REQUIRED TO                        3  0344  |0/                4
 105    04          DSA   START               --GENERATE THE APPROPRIATE           3  0347  813                4
 106    05          DSA   HIGH                --$ADD CARD                          3  0350  D2S                4
 107    06          DCW   @032065@            DATE CARD                            6  0356                     4
 108    07   LOW    EQU   P5CAT-2             FOR PASS 5 DICTIONARIES                 5001
 109    08   START  EQU   813                 START ADDRESS                           0813
 110    09          ORG   5001                                                              5001
 111    10   *
 112    11   *
 113    12   *
 114    13   *              P5C000-P5C024 SPECIFY COMMENT SKELETONS COMMON TO
 115    14   *              ALL P5CAT DICTIONARIES
 116    15   *
 117    16   P5CAT  DSA   P5C000              ASSEMBLY SEQUENCE NUMBER             3  5003  W0/                5
 118    17          DSA   P5C001              OP1                                  3  5006  W0T                5
 119    18          DSA   P5C002-6            COMPUTE                              3  5009  W0V                5
 120    19          DSA   P5C003-3            EDIT                                 3  5012  W1T                5
 121    20          DSA   P5C004-3            MOVE TO                              3  5015  W1Y                5
 122    21          DSA   P5C005-2            SET                                  3  5018  W2V                5
 123    22          DSA   P5C006-4            RESET                                3  5021  W2Z                5
 124    23          DSA   P5C007-3            ZERO                                 3  5024  W3V                6
 125    24          DSA   P5C008-4            SHIFT                                3  5027  W4|                6
 126    25          DSA   P5C009-4            CLEAR                                3  5030  W4W                6
 127    26   *
 128    27   *              P5C007-P5C009 ARE RESERVED FOR MODES
 129    28   *
 130    29          DSA   P5C010              BCDOP  %USED FOR PREDF)              3  5033  W5Z                6
 131    30          DSA   P5C011-6            SEGMENT OP1,OP2,OP3 %JOB CARD)       3  5036  W6S                6
 132    31          DSA   P5C012              , OP1 BACKSP SEQ.  %SUBRT  EG TS     3  5039  W7V                6
 133    32          DSA   P5C013              BCDOP BACKSPACE, RESELT IN OP1       3  5042  W8|                6
 134    33          DSA   P5C014              SPEC3 %FOR DECID JUMP TYPE YES)      3  5045  W9T                7
 135    34          DSA   P5C015-1            IS C%AC) EQUAL TO OP1                3  5048  W9V                7
 136    35          DSA   P5C016              BCDOP  OP1 OP2 OP3 BACKSPACE ,       3  5051  X0Y                7
 137    36          DSA   P5C017              BACKSPACE AND INSERT COMMA           3  5054  X1V                7
 138    37          DSA   P5C018              SEQ NUMBER, NO COMMA                 3  5057  X1Z                7
 139    38          DSA   P5C019-4            CHAIN                                3  5060  X2/                7
 140    39          DSA   P5C020              BCDOP,1,2,3-IS CONDITION TRUE        3  5063  X2X                7
 141    40          ORG   *&87                ALLOWS FOR 29 INSERTS                                 5151
 142    41   *
 143    42   *              P5C025-P5C049 SPECIFY UNIQUE BLOCK-TYPE COMMENT
 144    43   *
 145    44   * P5C050 THRU P5C099 SPECIFY COMMENTS TO BE PLACED IN DECISIONAL
 146    45   * BOXES
 147    46          DSA   P5C050-1            CHANNEL IND ON     BA1,BA2           3  5153  X4X                8
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

148    47          DSA   P5C051-3            BIT EQUAL       BBE                 3  5156  X7U                  8
149    48          DSA   P5C052-3            CHAR EQUAL      BCE                 3  5159  X9/                  8
150    49          DSA   P5C053-3            EQUAL           BE                  3  5162  Y1U                  8
151    50          DSA   P5C054-1            HIGH            BH                  3  5165  Y2W                  8
152    51          DSA   P5C055-1            LOW             BL                  3  5168  Y4S                  8
153    52          DSA   P5C056-1            UNEQUAL         BU                  3  5171  Y5V                  8
154    53          DSA   P5C057-3            BIT CONDITION   BM,BW               3  5174  Y6Z                  9
155    54          DSA   P5C058-3            WDMARKS/ZONE  BWZ                   3  5177  Y8X                  9
156    55          DSA   P5C059-1            READ IND ON        BCLR, BCNR,      3  5180  Z1|                  9
157    56          DSA   P5C060-1            INQ REQ INC ON     BNQ              3  5183  Z3Z                  9
158    57          DSA   P5C061-1            CARRIAGE IND ON    BCV,BC9          3  5186  Z6X                  9
159    58          DSA   P5C062-1            UNIT NOT READY     BNR              3  5189  Z9W                  9
160    59          DSA   P5C063-1            ARITH OFLOW IND ON BAV              3  5192  !1Y                  9
161    60          DSA   P5C064-1            BUSY IND ON        BCB1,BCB2        3  5195  !5|                 10
162    61          DSA   P5C065-1            INQ REQ IND ON     BPIR             3  5198  !6Y                 10
163    62          DSA   P5C066-1            CARD CO BINARY     BB1,BB2          3  5201  !9W                 10
164    63          DSA   P5C067-1            OVERLAP IN PROC    BOL              3  5204  J1V                 10
165    64          DSA   P5C068-1            OUTQUIRY REQ IND ON BOQ,BOPR        3  5207  J3U                 10
166    65          DSA   P5C069-1            DEVIDE OFLOW IND ON BDV             3  5210  J6T                 10
167    66          DSA   P5C070-1            FOR IND ON         BEF              3  5213  J9/                 10
168    67          DSA   P5C071-1            ERROR IND ON       BER              3  5216  K1U                 11
169    68          DSA   P5C072-1            EXTERNAL IND ON    BEX              3  5219  K3T                 11
170    69          DSA   P5C073-1            CARRIAGE BUZY      BPCB             3  5222  K5V                 11
171    70          DSA   P5C074-1            PRIORITY REQ IND ON  BOPR,BSPR      3  5225  K7|                 11
172    71          DSA   P5C075-1            NO TRANSFER IND ON BNT              3  5228  K9Z                 11
173    72          DSA   P5C076-1            RD BACK CK IND ON  BCR              3  5231  L2T                 11
174    73          DSA   P5C077-1            LONG REC IND ON    BWL              3  5234  L4V                 11
175    74          DSA   P5C078-1            EXPONENT IND ON    BXO              3  5237  L7/                 12
176    75          DSA   P5C079-1            EXP UFLOW IND ON   BXU              3  5240  M0/                 12
177    76          DSA   P5C080-1            ZERO BAL IND ON    BZ               3  5243  M3S                 12
178    77          DCW   P5C081-4            CLEAR STORAGE      CS               3  5246  M5X                 12
179    78          DSA   P5C082-3            ALL MOVE INSTR                      3  5249  M7/                 12
180    79          DSA   P5C083-6            ZERO AND ADD       ZA               3  5252  M8|                 12
181    80          DSA   P5C084-11           ZERO AND SUBTRACT  ZS               3  5255  M9S                 12
182    81          DSA   P5C085-2            ADD                A                3  5258  N1/                 13
183    82          DSA   P5C086-7            SUBTRACT           S                3  5261  N1Z                 13
184    83          DSA   P5C087-5            DIVIDE             D                3  5264  N3U                 13
185    84          DSA   P5C088-7            MULTIPLY           M                3  5267  N4V                 13
186    85          DSA   P5C089-3            SCAN DATA                           3  5270  N5Y                 13
187    86          DSA   P5C090-2            SET WORDMARK       SW               3  5273  N6Y                 13
188    87          DSA   P5C091-4            CLEAR WORD MARK    CW               3  5276  N8S                 13
189    88          ORG   *&24                ALLOWS FOR 8 INSERTS                          5301
190    89   *
191    90   * P5C100 THRU P5C149 SPECIFY COMMENTS TO BE PLACED IN I/O BOXES
192    91   *
193    92          DSA   P5C100-8            BACKSPACE       BSP,HBSF            3  5303  N9Y                 14
194    93          DSA   P5C101-6            CARRIAGE CTL    CC*                 3  5306  O1T                 14
195    94          DSA   P5C102              TAPE IO         CLOS,OPN,GET,PUT    3  5309  O2Z                 14
196    95          DSA   P5C103-6            TAPE IO         CU,MU,LU            3  5312  O3W                 14
197    96          DCW   #3                                                      3  5315                      14
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

198    97          DSA   P5C105-4            PUNCH           P*,P*O,P*W,P*WO,     3  5318  O4Z                 14
199    98          DSA   P5C106-6            DISK-CONTROL    PSC,PSCO             3  5321  O6|                 14
200    99          DSA   P5C107-3            READ A CARD     R,R*O,R*W,R*WO       3  5324  O8/                 15
201  1 00          DCW   #3                                                       3  5327                      15
202  1 01          DSA   P5C109-3            DISK READ       RCY,ETC              3  5330  O9/                 15
203  1 02          DSA   P5C110-4            DISK WRITE      WCY,ETC              3  5333  P0W                 15
204  1 03          DSA   P5C111-3            RD TELEGRAPH    RL,RLO               3  5336  P2S                 15
205  1 04          DSA   P5C112-4            WT TELEGRAPH    WL,WLO               3  5339  P4S                 15
206  1 05          DSA   P5C113-3            RD PAPER TAPE   RPT-O-W-WO           3  5342  P6T                 15
207  1 06          DSA   P5C114-3            RD INQUIRY REQ  RQ-O-W-WO            3  5345  P8T                 16
208  1 07          DSA   P5C115-4            WT INQUIRY RESP WQ-O-W-WO            3  5348  Q0/                 16
209  1 08          DSA   P5C116-6            CONTL CPU STAT  RSCPU,RTCPU          3  5351  Q2|                 16
210  1 09          DSA   P5C117-3            RD TAPE         RT,ETC               3  5354  Q3V                 16
211  1 10          DSA   P5C118-4            WT TAPE         WT,ETC               3  5357  Q5|                 16
212  1 11          DSA   P5C119-5            REWIND TAPE     RWD                  3  5360  Q6W                 16
213  1 12          DSA   P5C120-6            CONTRO I/O DEVIC SCK-O,SCL-O,SCM     3  5363  Q7Y                 16
214  1 13          DSA   P5C121-3            SCAN DISK       SDE,SDH,SDL          3  5366  Q9S                 17
215  1 14          DSA   P5C122-4            STORE FILE ADDR SFA                  3  5369  R0X                 17
216  1 15          DSA   P5C123-3            SKIP/BLANK TAPE SKP-O-W-WO           3  5372  R2Z                 17
217  1 16          DSA   P5C124-3            RD I/O DEVICE                        3  5375  R4X                 17
218  1 17          DSA   P5C125-5            STACKER SELECT  SSF,SSF*             3  5378  R5Y                 17
219  1 18          DSA   P5C126-4            SENSE I/O DEVIC SSK,                 3  5381  R7T                 17
220  1 19          DSA   P5C127-4            STORE TM CLOCK  STC                  3  5384  R8V                 17
221  1 20          DSA   P5C128-4            WT DEVICE       SWK,SWKE,SWK0        3  5387  ?0V                 18
222  1 21          DSA   P5C129-4            WRITE A LINE    W,W*M-0,W*W-0        3  5390  ?1X                 18
223  1 22          DSA   P5C130-4            WRITE TAPE MARK ON                   3  5393  ?3T                 18
224  1 23          DSA   P5C131-4            STORE STATUS    STATS MACRO,SR       3  5396  ?5|                 18
225  1 24          DSA   P5C132-3            READ TP LABEL   RTLBL                3  5399  ?6X                 18
226  1 25          DSA   P5C133-4            WRITE TP LABEL  WTLBL                3  5402  ?9W                 18
227  1 26          DSA   P5C134-3            RD TAPE MACRO   RTAPE                3  5405  A2W                 18
228  1 27          DSA   P5C135-4            WRITE TAPE MACRO WTAPE               3  5408  A4|                 19
229  1 28          DSA   P5C136-5            ENGAGE CHARACTER READER              3  5411  A5V                 19
230  1 29          DSA   P5C137-8            DISENGAGE CHARACTER READER           3  5414  A7X                 19
231  1 30          DSA   P5C138-3            READ CHARACTER READER                3  5417  B0T                 19
232  1 31          DSA   P5C139-3            READ CONSOLE                         3  5420  B2V                 19
233  1 32          DSA   P5C140-4            WRITE CONSOLE                        3  5423  B4S                 19
234  1 33          DSA   P5C141-3            READ I/O DEVICE    MU,LU-R           3  5426  B6|                 19
235  1 34          DSA   P5C142-4            WRITE I/O DEVICE   MU,LU-W           3  5429  B7/                 20
236  1 35          DSA   P5C143-5            REWIND AND UNLOAD TP  RWU            3  5432  B8T                 20
237  1 36          DSA   P5C144-6            STACK SELECT & FEED  SSF             3  5435  C0U                 20
238  1 37          DSA   P5C145-6           RELEASE DISK        REL               3  5438  C2V                 20
239  1 38          DSA   P5C146-2           SET ACCESS ARM INOP SAI-O             3  5441  C3Y                 20
240  1 39          DSA   P5C147-4            ENTER PRIORITY ALERT MODE            3  5444  C5X                 20
241  1 40          DSA   P5C148-3            EXIT PRIORITY ALERT MODE             3  5447  C8|                 20
242  1 41          DSA   P5C149-4            STORE ADDRESS REGISTERS              3  5450  D0S                 21
243  1 42          ORG   *&150               ALLOWS 50 INSERTS                          5601
244  1 43   *
245  1 44   *
246  1 45   *            SKELETONS
247  1 46   *
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SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
248	1	47	P5C000	DCW	@0@	SUBSTITUTE SEQUENCE FIELD		1	5601		22
249	1	48		DCW	@ @			1	5602		22
250	1	49	P5C001	DCW	@1@	SUBSTITUTE OPERAND-1		1	5603		22
251	1	50		DCW	@ @			1	5604		22
252	1	51	P5C002	DCW	@COMPUTE@	COMPUTE MODE		7	5611		22
253	1	52		DCW	@ @			1	5612		22
254	1	53	P5C003	DCW	@EDIT@	EDIT MODE		4	5616		22
255	1	54		DCW	@ @			1	5617		23
256	1	55	P5C004	DCW	@MOVE@	MOVE TO MODE		4	5621		23
257	1	56		DCW	@TO@			2	5623		23
258	1	57		DCW	@ @			1	5624		23
259	1	58	P5C005	DCW	@SET@	SET MODE		3	5627		23
260	1	59		DCW	@ @			1	5628		23
261	1	60	P5C006	DCW	@RESET@	RESET MODE		5	5633		23
262	1	61		DCW	@ @			1	5634		24
263	1	62	P5C007	DCW	@ZERO@	ZERO		4	5638		24
264	1	63		DCW	@ @			1	5639		24
265	1	64	P5C008	DCW	@SHIFT@	SHIFT		5	5644		24
266	1	65		DCW	@ @			1	5645		24
267	1	66	P5C009	DCW	@CLEAR@	CLEAR		5	5650		24
268	1	67		DCW	@STORAGE@			7	5657		24
269	1	68		DCW	@ @			1	5658		25
270	1	69	P5C010	DCW	@,@	BCDOP, %USED FOR PREDF)		1	5659		25
271	1	70		DCW	@4@			1	5660		25
272	1	71		DCW	@ @			1	5661		25
273	1	72	P5C011	DCW	@SEGMENT@	SEGMENT OP1,OP2,OP3 %JOB CARD)		7	5668		25
274	1	73		DCW	@,@			1	5669		25
275	1	74		DCW	@1@			1	5670		25
276	1	75		DCW	@,@			1	5671		26
277	1	76		DCW	@2@			1	5672		26
278	1	77		DCW	@3@			1	5673		26
279	1	78		DCW	@ @			1	5674		26
280	1	79	P5C012	DCW	@,@	OP1,BACKSPACE SEQ %SUBRT EG TSX)		1	5675		26
281	1	80		DCW	@1@			1	5676		26
282	1	81		DCW	@-@			1	5677		26
283	1	82		DCW	@0@			1	5678		27
284	1	83		DCW	@ @			1	5679		27
285	1	84	P5C013	DCW	@,@	BCDOP,BACKSPACE RESULT IN OP1		1	5680		27
286	1	85		DCW	@4@			1	5681		27
287	1	86		DCW	@-@			1	5682		27
288	1	87		DCW	@RESULT@			6	5688		27
289	1	88		DCW	@IN@			2	5690		27
290	1	89		DCW	@1@			1	5691		28
291	1	90		DCW	@ @			1	5692		28
292	1	91	P5C014	DCW	@7@	SPEC 3		1	5693		28
293	1	92		DCW	@ @			1	5694		28
294	1	93	P5C015	DCW	@IS@	IS AC EQUAL TO OP2		2	5696		28
295	1	94		DCW	@AC@			2	5698		28
296	1	95		DCW	@EQUAL@			5	5703		28
297	1	96		DCW	@TO@			2	5705		29

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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

298  1 97          DCW   @2@                                                      1  5706                      29
299  1 98          DCW   @ @                                                      1  5707                      29
300  1 99   P5C016 DCW   @4@                 BCDOP OP1,OP2,OP3                    1  5708                      29
301  2 00          DCW   @,@                                                      1  5709                      29
302  2 01          DCW   @1@                                                      1  5710                      29
303  2 02          DCW   @,@                                                      1  5711                      29
304  2 03          DCW   @2@                                                      1  5712                      30
305  2 04          DCW   @3@                                                      1  5713                      30
306  2 05          DCW   @ @                                                      1  5714                      30
307  2 06   P5C017 DCW   @-@                 BACKSPACE                            1  5715                      30
308  2 07          DCW   @&@                 AND INSERT A COMMA                   1  5716                      30
309  2 08          DCW   @,@                                                      1  5717                      30
310  2 09          DCW   @ @                                                      1  5718                      30
311  2 10   P5C018 DCW   @0@                 SEQ. NUMBER                          1  5719                      31
312  2 11          DCW   @ @                                                      1  5720                      31
313  2 12   P5C019 DCW   @CHAIN@             FOR CHAINING                         5  5725                      31
314  2 13          DCW   @ @                                                      1  5726                      31
315  2 14   P5C020 DCW   @4@                 BCDOP OP1 OP2 OP3                    1  5727                      31
316  2 15          DCW   @1@                                                      1  5728                      31
317  2 16          DCW   @2@                 IS CONDITION TRUE                    1  5729                      31
318  2 17          DCW   @3@                                                      1  5730                      32
319  2 18          DCW   @IS@                                                     2  5732                      32
320  2 19          DCW   @CONDITION@                                              9  5741                      32
321  2 20          DCW   @TRUE@                                                   4  5745                      32
322  2 21          DCW   @ @                                                      1  5746                      32
323  2 22   *
324  2 23   *
325  2 24   P5C050 DCW   @IS@                CHANNEL IND ON                       2  5748                      32
326  2 25          DCW   @CHANNEL@                                                7  5755                      32
327  2 26          DCW   @STATUS@                                                 6  5761                      33
328  2 27          DCW   @INDICATOR@         BA1,BA2                              9  5770                      33
329  2 28          DCW   @ON@                                                     2  5772                      33
330  2 29          DCW   @ @                                                      1  5773                      33
331  2 30   P5C051 DCW   @DOES@              BIT EQUAL TEST                       4  5777                      33
332  2 31          DCW   @BIT@               BBE                                  3  5780                      33
333  2 32          DCW   @AT@                                                     2  5782                      33
334  2 33          DCW   @2@                                                      1  5783                      34
335  2 34          DCW   @EQUAL@                                                  5  5788                      34
336  2 35          DCW   @3@                                                      1  5789                      34
337  2 36          DCW   @ @                                                      1  5790                      34
338  2 37   P5C052 DCW   @DOES@              CHARACTER EQUAL                      4  5794                      34
339  2 38          DCW   @CHARACTER@         BCE                                  9  5803                      34
340  2 39          DCW   @AT@                                                     2  5805                      34
341  2 40          DCW   @2@                                                      1  5806                      35
342  2 41          DCW   @EQUAL@                                                  5  5811                      35
343  2 42          DCW   @3@                                                      1  5812                      35
344  2 43          DCW   @ @                                                      1  5813                      35
345  2 44   P5C053 DCW   @DOES@              BRANCH EQUAL                         4  5817                      35
346  2 45          DCW   @6@                 BE                                   1  5818                      35
347  2 46          DCW   @EQUAL@                                                  5  5823                      35
```

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
348	2	47		DCW	@5@			1	5824		36
349	2	48		DCW	@ @			1	5825		36
350	2	49	P5C054	DCW	@IS@	BRANCH HIGH		2	5827		36
351	2	50		DCW	@6@	BH		1	5828		36
352	2	51		DCW	@GREATER@			7	5835		36
353	2	52		DCW	@THAN@			4	5839		36
354	2	53		DCW	@5@			1	5840		36
355	2	54		DCW	@ @			1	5841		37
356	2	55	P5C055	DCW	@IS@	BRANCH LOW		2	5843		37
357	2	56		DCW	@6@	BL		1	5844		37
358	2	57		DCW	@LESS@			4	5848		37
359	2	58		DCW	@THAN@			4	5852		37
360	2	59		DCW	@5@			1	5853		37
361	2	60		DCW	@ @			1	5854		37
362	2	61	P5C056	DCW	@IS@	BRANCH UNEQUAL		2	5856		38
363	2	62		DCW	@6@	BU		1	5857		38
364	2	63		DCW	@UNEQUAL@			7	5864		38
365	2	64		DCW	@TO@			2	5866		38
366	2	65		DCW	@5@			1	5867		38
367	2	66		DCW	@ @			1	5868		38
368	2	67	P5C057	DCW	@DOES@	BRANCH ON WORDMARK		4	5872		38
369	2	68		DCW	@2@	BW		1	5873		39
370	2	69		DCW	@HAVE@			4	5877		39
371	2	70		DCW	@WORDMARK@			8	5885		39
372	2	71		DCW	@ @			1	5886		39
373	2	72	P5C058	DCW	@DOES@	WDMARK/ZONE TEST		4	5890		39
374	2	73		DCW	@2@	BWZ,BZN		1	5891		39
375	2	74		DCW	@HAVE@			4	5895		39
376	2	75		DCW	@BIT@			3	5898		40
377	2	76		DCW	@CONDITION@			9	5907		40
378	2	77		DCW	@3@			1	5908		40
379	2	78		DCW	@ @			1	5909		40
380	2	79	P5C059	DCW	@IS@	IS READ INDICATOR IN		2	5911		40
381	2	80		DCW	@DOCUMENT@	BCLR,BCNR,BCRC,BCAF,BCPC		8	5919		40
382	2	81		DCW	@READER@	BCAN,BCRT,BCDC		6	5925		40
383	2	82		DCW	@1@			1	5926		41
384	2	83		DCW	@INDICATOR@			9	5935		41
385	2	84		DCW	@ON@			2	5937		41
386	2	85		DCW	@ @			1	5938		41
387	2	86	P5C060	DCW	@IS@	IS INQUIRY REQUEST IND ON		2	5940		41
388	2	87		DCW	@INQUIRY@	BNQ		7	5947		41
389	2	88		DCW	@REQUEST@			7	5954		41
390	2	89		DCW	@INDICATOR@			9	5963		42
391	2	90		DCW	@ON@			2	5965		42
392	2	91		DCW	@ @			1	5966		42
393	2	92	P5C061	DCW	@IS@	IS CARRIAGE CHANNEL IND ON		2	5968		42
394	2	93		DCW	@CARRIAGE@	BCV,BC9		8	5976		42
395	2	94		DCW	@CHANNEL@			7	5983		42
396	2	95		DCW	@INDICATOR@			9	5992		42
397	2	96		DCW	@ON@			2	5994		43

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
398	2	97		DCW	@ @			1	5995		43
399	2	98	P5C062	DCW	@IS@	IS UNIT NOT READY		2	5997		43
400	2	99		DCW	@NOT@	BNR		3	6000		43
401	3	00		DCW	@READY@			5	6005		43
402	3	01		DCW	@INDICATOR@			9	6014		43
403	3	02		DCW	@ON@			2	6016		43
404	3	03		DCW	@ @			1	6017		44
405	3	04	P5C063	DCW	@IS@	IS ARITH OFLOW IND ON		2	6019		44
406	3	05		DCW	@ARITHMATIC@	BAV		10	6029		44
407	3	06		DCW	@OVERFLOW@			8	6037		44
408	3	07		DCW	@INDICATOR@			9	6046		44
409	3	08		DCW	@ON@			2	6048		44
410	3	09		DCW	@ @			1	6049		44
411	3	10	P5C064	DCW	@IS@	IS BUSY IND ON		2	6051		45
412	3	11		DCW	@BUSY@	BCB1,BCB2		4	6055		45
413	3	12		DCW	@INDICATOR@			9	6064		45
414	3	13		DCW	@ON@			2	6066		45
415	3	14		DCW	@ @			1	6067		45
416	3	15	P5C065	DCW	@IS@	IS INQUIRY IND ON		2	6069		45
417	3	16		DCW	@INQUIRY@	BPIR		7	6076		45
418	3	17		DCW	@REQUEST@			7	6083		46
419	3	18		DCW	@INDICATOR@			9	6092		46
420	3	19		DCW	@ON@			2	6094		46
421	3	20		DCW	@ @			1	6095		46
422	3	21	P5C066	DCW	@IS@	IS CARD COLUMN BINARY		2	6097		46
423	3	22		DCW	@CARD@	BB1,BBI		4	6101		46
424	3	23		DCW	@COLOMN@			6	6107		46
425	3	24		DCW	@BINARY@			6	6113		47
426	3	25		DCW	@ @			1	6114		47
427	3	26	P5C067	DCW	@IS@	IS OVERLAP IN PROCESS		2	6116		47
428	3	27		DCW	@OVERLAP@	BOL		7	6123		47
429	3	28		DCW	@IN@			2	6125		47
430	3	29		DCW	@PROCESS@			7	6132		47
431	3	30		DCW	@ @			1	6133		47
432	3	31	P5C068	DCW	@IS@	IS OUTQUIRY REQUEST IND ON		2	6135		48
433	3	32		DCW	@OUTQUIRY@	BOQ		8	6143		48
434	3	33		DCW	@REQUEST@			7	6150		48
435	3	34		DCW	@INDICATOR@			9	6159		48
436	3	35		DCW	@ON@			2	6161		48
437	3	36		DCW	@ @			1	6162		48
438	3	37	P5C069	DCW	@IS@	IS DIVIDE OVERFLOW IND ON		2	6164		48
439	3	38		DCW	@DIVIDE@	BDV		6	6170		49
440	3	39		DCW	@OVERFLOW@			8	6178		49
441	3	40		DCW	@INDICATOR@			9	6187		49
442	3	41		DCW	@ON@			2	6189		49
443	3	42		DCW	@ @			1	6190		49
444	3	43	P5C070	DCW	@IS@	IS EOF IND ON		2	6192		49
445	3	44		DCW	@END@	BEF		3	6195		49
446	3	45		DCW	@OF@			2	6197		50
447	3	46		DCW	@FILE@			4	6201		50

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
448	3	47		DCW	@INDICATOR@			9	6210		50
449	3	48		DCW	@ON@			2	6212		50
450	3	49		DCW	@ @			1	6213		50
451	3	50	P5C071	DCW	@IS@	IS ERROR IND ON		2	6215		50
452	3	51		DCW	@ERROR@	BER		5	6220		50
453	3	52		DCW	@INDICATOR@			9	6229		51
454	3	53		DCW	@ON@			2	6231		51
455	3	54		DCW	@ @			1	6232		51
456	3	55	P5C072	DCW	@IS@	IS EXTERNAL IND ON		2	6234		51
457	3	56		DCW	@EXTERNAL@	BEX		8	6242		51
458	3	57		DCW	@INDICATOR@			9	6251		51
459	3	58		DCW	@ON@			2	6253		51
460	3	59		DCW	@ @			1	6254		52
461	3	60	P5C073	DCW	@IS@	IS CARRIAGE BUSY		2	6256		52
462	3	61		DCW	@CARRIAGE@	BPCB		8	6264		52
463	3	62		DCW	@BUSY@			4	6268		52
464	3	63		DCW	@ @			1	6269		52
465	3	64	P5C074	DCW	@IS@	IS OVERLAP PRIORITY REQ IND ON		2	6271		52
466	3	65		DCW	@PRIORITY@	BOPR,BSPR		8	6279		52
467	3	66		DCW	@REQUEST@			7	6286		53
468	3	67		DCW	@INDICATOR@			9	6295		53
469	3	68		DCW	@ON@			2	6297		53
470	3	69		DCW	@ @			1	6298		53
471	3	70	P5C075	DCW	@IS@	IS NO TRANSFER IND ON		2	6300		53
472	3	71		DCW	@NO@	BNT		2	6302		53
473	3	72		DCW	@TRANSFER@			8	6310		53
474	3	73		DCW	@INDICATOR@			9	6319		54
475	3	74		DCW	@ON@			2	6321		54
476	3	75		DCW	@ @			1	6322		54
477	3	76	P5C076	DCW	@IS@	IS READ BACK CHECK IND ON		2	6324		54
478	3	77		DCW	@READ@	BRC		4	6328		54
479	3	78		DCW	@BACK@			4	6332		54
480	3	79		DCW	@INDICATOR@			9	6341		54
481	3	80		DCW	@ON@			2	6343		55
482	3	81		DCW	@ @			1	6344		55
483	3	82	P5C077	DCW	@IS@	IS RECORD LENGTH IND ON		2	6346		55
484	3	83		DCW	@RECORD@	BWL		6	6352		55
485	3	84		DCW	@LENGTH@			6	6358		55
486	3	85		DCW	@INDICATOR@			9	6367		55
487	3	86		DCW	@ON@			2	6369		55
488	3	87		DCW	@ @			1	6370		56
489	3	88	P5C078	DCW	@IS@	EXPONENT OVERFLOW IND ON		2	6372		56
490	3	89		DCW	@EXPONENT@	BXO		8	6380		56
491	3	90		DCW	@OVERFLOW@			8	6388		56
492	3	91		DCW	@INDICATOR@			9	6397		56
493	3	92		DCW	@ON@			2	6399		56
494	3	93		DCW	@ @			1	6400		56
495	3	94	P5C079	DCW	@IS@	IS EXPONENT UNDERFLOW IND ON		2	6402		57
496	3	95		DCW	@EXPONENT@	BXU		8	6410		57
497	3	96		DCW	@UNDERFLOW@			9	6419		57

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
498	3	97		DCW	@INDICATOR@			9	6428		57
499	3	98		DCW	@ON@			2	6430		57
500	3	99		DCW	@ @			1	6431		57
501	4	00	P5C080	DCW	@IS@	IS ZERO BALANCE IND ON		2	6433		57
502	4	01		DCW	@ZERO@	BZ		4	6437		58
503	4	02		DCW	@BALANCE@			7	6444		58
504	4	03		DCW	@INDICATOR@			9	6453		58
505	4	04		DCW	@ON@			2	6455		58
506	4	05		DCW	@ @			1	6456		58
507	4	06	P5C081	DCW	@CLEAR@	CLEAR STORAGE		5	6461		58
508	4	07		DCW	@STORAGE@	CS		7	6468		58
509	4	08		DCW	@1@			1	6469		59
510	4	09		DCW	@ @			1	6470		59
511	4	10	P5C082	DCW	@MOVE@	ALL MOVE INSTRUCTIONS		4	6474		59
512	4	11		DCW	@2@			1	6475		59
513	4	12		DCW	@TO@			2	6477		59
514	4	13		DCW	@1@			1	6478		59
515	4	14		DCW	@ @			1	6479		59
516	4	15	P5C083	DCW	@ZEROADD@	ZERO AND ADD INSTR		7	6486		60
517	4	16		DCW	@2@			1	6487		60
518	4	17		DCW	@TO@			2	6489		60
519	4	18		DCW	@1@			1	6490		60
520	4	19		DCW	@ @			1	6491		60
521	4	20	P5C084	DCW	@ZEROSUBTRACT@	ZERO AND SUBTRACT INSTR		12	6503		60
522	4	21		DCW	@2@			1	6504		60
523	4	22		DCW	@FROM@			4	6508		61
524	4	23		DCW	@1@			1	6509		61
525	4	24		DCW	@ @			1	6510		61
526	4	25	P5C085	DCW	@ADD@	ADD INSTR		3	6513		61
527	4	26		DCW	@2@			1	6514		61
528	4	27		DCW	@TO@			2	6516		61
529	4	28		DCW	@1@			1	6517		61
530	4	29		DCW	@ @			1	6518		62
531	4	30	P5C086	DCW	@SUBTRACT@	SUBTRACT INSTR		8	6526		62
532	4	31		DCW	@2@			1	6527		62
533	4	32		DCW	@FROM@			4	6531		62
534	4	33		DCW	@1@			1	6532		62
535	4	34		DCW	@ @			1	6533		62
536	4	35	P5C087	DCW	@DIVIDE@	DIVIDE INSTR		6	6539		62
537	4	36		DCW	@1@			1	6540		63
538	4	37		DCW	@BY@			2	6542		63
539	4	38		DCW	@2@			1	6543		63
540	4	39		DCW	@ @			1	6544		63
541	4	40	P5C088	DCW	@MULTIPLY@	MULTIPLY INSTR		8	6552		63
542	4	41		DCW	@2@			1	6553		63
543	4	42		DCW	@BY@			2	6555		63
544	4	43		DCW	@1@			1	6556		64
545	4	44		DCW	@ @			1	6557		64
546	4	45	P5C089	DCW	@SCAN@	SCAN DATA		4	6561		64
547	4	46		DCW	@DATA@	SCNL		4	6565		64

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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

548  4 47          DCW   @1@                                                   1  6566                     64
549  4 48          DCW   @ @                                                   1  6567                     64
550  4 49   P5C090 DCW   @SET@              SET WORDMARK                       3  6570                     64
551  4 50          DCW   @WORD@             SW                                 4  6574                     65
552  4 51          DCW   @MARK@                                                4  6578                     65
553  4 52          DCW   @1@                                                   1  6579                     65
554  4 53          DCW   @2@                                                   1  6580                     65
555  4 54          DCW   @ @                                                   1  6581                     65
556  4 55   P5C091 DCW   @CLEAR@            CLEAR WORDMARK                     5  6586                     65
557  4 56          DCW   @WORD@             CW                                 4  6590                     65
558  4 57          DCW   @MARK@                                                4  6594                     66
559  4 58          DCW   @1@                                                   1  6595                     66
560  4 59          DCW   @2@                                                   1  6596                     66
561  4 60          DCW   @ @                                                   1  6597                     66
562  4 61   *
563  4 62   P5C100 DCW   @BACKSPACE@        BACKSPACE TAPE                     9  6606                     66
564  4 63          DCW   @TAPE@             HBSF,BSP                           4  6610                     66
565  4 64          DCW   @1@                                                   1  6611                     66
566  4 65          DCW   @ @                                                   1  6612                     67
567  4 66   P5C101 DCW   @CONTROL@          CONTROL PRINTER                    7  6619                     67
568  4 67          DCW   @PRINTER@                                             7  6626                     67
569  4 68          DCW   @1@                                                   1  6627                     67
570  4 69          DCW   @ @                                                   1  6628                     67
571  4 70   P5C102 DCW   @4@                CLOSE & OPEN MACROS                1  6629                     67
572  4 71          DCW   @,@                GET & PUT                          1  6630                     67
573  4 72          DCW   @1@                                                   1  6631                     68
574  4 73          DCW   @,@                                                   1  6632                     68
575  4 74          DCW   @2@                                                   1  6633                     68
576  4 75          DCW   @3@                                                   1  6634                     68
577  4 76          DCW   @ @                                                   1  6635                     68
578  4 77   P5C103 DCW   @CONTROL@         CONTROL I/O DEVICE                  7  6642                     68
579  4 78          DCW   @UNIT@             CU                                 4  6646                     68
580  4 79          DCW   @1@                                                   1  6647                     69
581  4 80          DCW   @ @                                                   1  6648                     69
582  4 81   P5C105 DCW   @PUNCH@            PUNCH A CARD                       5  6653                     69
583  4 82          DCW   @A@                P*, P*O, P*W,PB*,PB*O              1  6654                     69
584  4 83          DCW   @CARD@                                                4  6658                     69
585  4 84          DCW   @ @                                                   1  6659                     69
586  4 85   P5C106 DCW   @PREVENT@          PREVENT SEEK COMPLETE              7  6666                     69
587  4 86          DCW   @SEEK@             PSC,PSCO                           4  6670                     70
588  4 87          DCW   @COMPLETE@                                            8  6678                     70
589  4 88          DCW   @1@                                                   1  6679                     70
590  4 89          DCW   @ @                                                   1  6680                     70
591  4 90   P5C107 DCW   @READ@             READ A CARD                        4  6684                     70
592  4 91          DCW   @A@                R1O, R2O,R1, R2                    1  6685                     70
593  4 92          DCW   @CARD@                                                4  6689                     70
594  4 93          DCW   @ @                                                   1  6690                     71
595  4 94   P5C109 DCW   @READ@             READ DISK                          4  6694                     71
596  4 95          DCW   @DISK@             RDT-W-O, RDTG-W, RFT-W-O, RFTG-W   4  6698                     71
597  4 96          DCW   @1@                RTR-W-O, RTRG-W                    1  6699                     71
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SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
598	4	97		DCW	@INTO@	RD-W-O, RDG-W, RDV-W, RDVG-W		4	6703		71
599	4	98		DCW	@2@	SD-O		1	6704		71
600	4	99		DCW	@ @			1	6705		71
601	5	00	P5C110	DCW	@WRITE@	WRITE DISK		5	6710		72
602	5	01		DCW	@DISK@	WDT-W-O, WDTE-W, WFT-W, WFTE-W		4	6714		72
603	5	02		DCW	@1@	WCY-W-O, WCYE-W, WD-W-O, WDE-W		1	6715		72
604	5	03		DCW	@FROM@	WHA-W-O, WHAE-W, WDW-W-O, WDE-W		4	6719		72
605	5	04		DCW	@2@	WTR-W-O, WTRE-W		1	6720		72
606	5	05		DCW	@ @	WDV-W-O, WDVE-W, WFO-O, WFOE		1	6721		72
607	5	06	P5C111	DCW	@READ@	READ TELEGRAPH		4	6725		72
608	5	07		DCW	@TELEGRAPH@	RL-O		9	6734		73
609	5	08		DCW	@1@			1	6735		73
610	5	09		DCW	@INTO@			4	6739		73
611	5	10		DCW	@2@			1	6740		73
612	5	11		DCW	@ @			1	6741		73
613	5	12	P5C112	DCW	@WRITE@	WRITE TELEGRAPH		5	6746		73
614	5	13		DCW	@TELEGRAPH@	WL-O		9	6755		73
615	5	14		DCW	@1@			1	6756		74
616	5	15		DCW	@FROM@			4	6760		74
617	5	16		DCW	@2@			1	6761		74
618	5	17		DCW	@ @			1	6762		74
619	5	18	P5C113	DCW	@READ@	READ PAPER TAPE		4	6766		74
620	5	19		DCW	@PAPER@	RPT-W-O		5	6771		74
621	5	20		DCW	@TAPE@			4	6775		74
622	5	21		DCW	@1@			1	6776		75
623	5	22		DCW	@INTO@			4	6780		75
624	5	23		DCW	@2@			1	6781		75
625	5	24		DCW	@ @			1	6782		75
626	5	25	P5C114	DCW	@READ@	READ INQUIRY REQUEST		4	6786		75
627	5	26		DCW	@INQUIRY@	RQ-W-O		7	6793		75
628	5	27		DCW	@1@			1	6794		75
629	5	28		DCW	@INTO@			4	6798		76
630	5	29		DCW	@2@			1	6799		76
631	5	30		DCW	@ @			1	6800		76
632	5	31	P5C115	DCW	@WRITE@	WRITE INQUIRY RESPONSE		5	6805		76
633	5	32		DCW	@INQUIRY@	WQ-W-O		7	6812		76
634	5	33		DCW	@1@			1	6813		76
635	5	34		DCW	@FROM@			4	6817		76
636	5	35		DCW	@2@			1	6818		77
637	5	36		DCW	@ @			1	6819		77
638	5	37	P5C116	DCW	@RESTORE@	RESTORE STATUS		7	6826		77
639	5	38		DCW	@STATUS@	RSCPU - RESTORE STATUS		6	6832		77
640	5	39		DCW	@1@			1	6833		77
641	5	40		DCW	@ @			1	6834		77
642	5	41	P5C117	DCW	@READ@	READ TAPE		4	6838		77
643	5	42		DCW	@TAPE@	RTB-W-O, RTBG-W		4	6842		78
644	5	43		DCW	@1@	RT-W-O, RTG-W		1	6843		78
645	5	44		DCW	@INTO@			4	6847		78
646	5	45		DCW	@2@			1	6848		78
647	5	46		DCW	@ @			1	6849		78

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
648	5	47	P5C118	DCW	@WRITE@	WRITE TAPET		5	6854		78
649	5	48		DCW	@TAPE@	WT-W-O, WTE-W		4	6858		78
650	5	49		DCW	@1@	RT-W-O, RTG-W		1	6859		79
651	5	50		DCW	@FROM@			4	6863		79
652	5	51		DCW	@2@			1	6864		79
653	5	52		DCW	@ @			1	6865		79
654	5	53	P5C119	DCW	@REWIND@	REWIND TAPE		6	6871		79
655	5	54		DCW	@TAPE@	RWD		4	6875		79
656	5	55		DCW	@1@			1	6876		79
657	5	56		DCW	@ @			1	6877		80
658	5	57	P5C120	DCW	@CONTROL@	CONTROL I/O DEVICE		7	6884		80
659	5	58		DCW	@1@	SCK-O,SCL-O,SCM-O		1	6885		80
660	5	59		DCW	@INTO@			4	6889		80
661	5	60		DCW	@2@			1	6890		80
662	5	61		DCW	@ @			1	6891		80
663	5	62	P5C121	DCW	@SCAN@	SCAN DISK		4	6895		80
664	5	63		DCW	@DISK@	SDL-W,SDE-W, SDH-W		4	6899		81
665	5	64		DCW	@1@			1	6900		81
666	5	65		DCW	@FROM@			4	6904		81
667	5	66		DCW	@2@			1	6905		81
668	5	67		DCW	@ @			1	6906		81
669	5	68	P5C122	DCW	@STORE@	STORE FILE ADDRESS		5	6911		81
670	5	69		DCW	@FILE@			4	6915		81
671	5	70		DCW	@ADDRESS@			7	6922		82
672	5	71		DCW	@INTO@			4	6926		82
673	5	72		DCW	@2@			1	6927		82
674	5	73		DCW	@ @			1	6928		82
675	5	74	P5C123	DCW	@SKIP@	SKIP FORWARD AND ERASE TAPE		4	6932		82
676	5	75		DCW	@AND@	SKP		3	6935		82
677	5	76		DCW	@BLANK@			5	6940		82
678	5	77		DCW	@TAPE@			4	6944		83
679	5	78		DCW	@1@			1	6945		83
680	5	79		DCW	@ @			1	6946		83
681	5	80	P5C124	DCW	@READ@	READ I/O DEVICE		4	6950		83
682	5	81		DCW	@1@	SRK-O,SRL-O,SRM-O,SRLG,SRMG,SRKG		1	6951		83
683	5	82		DCW	@FROM@	SRLG		4	6955		83
684	5	83		DCW	@2@			1	6956		83
685	5	84		DCW	@ @			1	6957		84
686	5	85	P5C125	DCW	@SELECT@	SELECT STACKER		6	6963		84
687	5	86		DCW	@STACKER@	SS*		7	6970		84
688	5	87		DCW	@1@			1	6971		84
689	5	88		DCW	@ @			1	6972		84
690	5	89	P5C126	DCW	@SENSE@	SENSE I/O DEVICE		5	6977		84
691	5	90		DCW	@1@	SSM-O,SSK-O,SSL-O		1	6978		84
692	5	91		DCW	@INTO@			4	6982		85
693	5	92		DCW	@2@			1	6983		85
694	5	93		DCW	@ @			1	6984		85
695	5	94	P5C127	DCW	@STORE@	STORE TIME CLOCK		5	6989		85
696	5	95		DCW	@TIME@	STC		4	6993		85
697	5	96		DCW	@CLOCK@			5	6998		85

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SEQ PG LIN  LABEL  OP    OPERANDS                                                   SFX CT  LOCN  INSTRUCTION TYPE  CARD

698  5 97          DCW   @INTO@                                                          4  7002                      85
699  5 98          DCW   @1@                                                             1  7003                      86
700  5 99          DCW   @ @                                                             1  7004                      86
701  6 00   P5C128 DCW   @WRITE@              WRITE I/O DEVICE                           5  7009                      86
702  6 01          DCW   @1@                  SWM-O,SWK-O,SWL-O,SWKE,SWLE,SWME           1  7010                      86
703  6 02          DCW   @FROM@                                                          4  7014                      86
704  6 03          DCW   @2@                                                             1  7015                      86
705  6 04          DCW   @ @                                                             1  7016                      86
706  6 05   P5C129 DCW   @PRINT@              PRINT A LINE                               5  7021                      87
707  6 06          DCW   @A@                  W*, W,O,  WM*O                             1  7022                      87
708  6 07          DCW   @LINE@                                                          4  7026                      87
709  6 08          DCW   @FROM@                                                          4  7030                      87
710  6 09          DCW   @1@                                                             1  7031                      87
711  6 10          DCW   @ @                                                             1  7032                      87
712  6 11   P5C130 DCW   @WRITE@              WRITE TAPE MARK                            5  7037                      87
713  6 12          DCW   @TAPE@               WTM                                        4  7041                      88
714  6 13          DCW   @MARK@                                                          4  7045                      88
715  6 14          DCW   @ON@                                                            2  7047                      88
716  6 15          DCW   @1@                                                             1  7048                      88
717  6 16          DCW   @ @                                                             1  7049                      88
718  6 17   P5C131 DCW   @STORE@              STORE STATUS                               5  7054                      88
719  6 18          DCW   @STATUS@             SR,STCPU,STATS MACRO                       6  7060                      88
720  6 19          DCW   @INTO@                                                          4  7064                      89
721  6 20          DCW   @1@                                                             1  7065                      89
722  6 21          DCW   @ @                                                             1  7066                      89
723  6 22   P5C132 DCW   @READ@              READ NON STANDARD TAPE LABEL                4  7070                      89
724  6 23          DCW   @NON-STANDARD@       RTLBL                                     12  7082                      89
725  6 24          DCW   @TAPE@                                                          4  7086                      89
726  6 25          DCW   @LABEL@                                                         5  7091                      89
727  6 26          DCW   @ON@                                                            2  7093                      90
728  6 27          DCW   @1@                                                             1  7094                      90
729  6 28          DCW   @ @                                                             1  7095                      90
730  6 29   P5C133 DCW   @WRITE@              WRITE NON STANDARD TAPE LABEL              5  7100                      90
731  6 30          DCW   @NON-STANDARD@       WTLBL                                     12  7112                      90
732  6 31          DCW   @TAPE@                                                          4  7116                      90
733  6 32          DCW   @LABEL@                                                         5  7121                      90
734  6 33          DCW   @ON@                                                            2  7123                      91
735  6 34          DCW   @1@                                                             1  7124                      91
736  6 35          DCW   @ @                                                             1  7125                      91
737  6 36   P5C134 DCW   @READ@              READ TAPE MACRO                             4  7129                      91
738  6 37          DCW   @TAPE@               RTAPE                                      4  7133                      91
739  6 38          DCW   @,@                                                             1  7134                      91
740  6 39          DCW   @1@                                                             1  7135                      91
741  6 40          DCW   @,@                                                             1  7136                      92
742  6 41          DCW   @2@                                                             1  7137                      92
743  6 42          DCW   @3@                                                             1  7138                      92
744  6 43          DCW   @ @                                                             1  7139                      92
745  6 44   P5C135 DCW   @WRITE@              WRITE TAPE MACRO                           5  7144                      92
746  6 45          DCW   @TAPE@               WTAPE                                      4  7148                      92
747  6 46          DCW   @,@                                                             1  7149                      92
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

748  6 47          DCW   @1@                                                  1  7150                      93
749  6 48          DCW   @,@                                                  1  7151                      93
750  6 49          DCW   @2@                                                  1  7152                      93
751  6 50          DCW   @3@                                                  1  7153                      93
752  6 51          DCW   @ @                                                  1  7154                      93
753  6 52   P5C136 DCW   @ENGAGE@            ENGAGE CHARACTER READER          6  7160                      93
754  6 53          DCW   @CHARACTER@         ECR                              9  7169                      93
755  6 54          DCW   @READER@                                             6  7175                      94
756  6 55          DCW   @ @                                                  1  7176                      94
757  6 56   P5C137 DCW   @DISENGAGE@         DISENGAGE CHARACTER READER       9  7185                      94
758  6 57          DCW   @CHARACTER@         DCR                              9  7194                      94
759  6 58          DCW   @READER@                                             6  7200                      94
760  6 59          DCW   @1@                                                  1  7201                      94
761  6 60          DCW   @ @                                                  1  7202                      94
762  6 61   P5C138 DCW   @READ@              READ CHARACTER READER            4  7206                      95
763  6 62          DCW   @CHAR-READER@       RCR,RCRW, RCRO, RCRWO           11  7217                      95
764  6 63          DCW   @1@                                                  1  7218                      95
765  6 64          DCW   @INTO@                                               4  7222                      95
766  6 65          DCW   @2@                                                  1  7223                      95
767  6 66          DCW   @ @                                                  1  7224                      95
768  6 67   P5C139 DCW   @READ@              READ CONSOLE                     4  7228                      95
769  6 68          DCW   @CONSOLE@           RPC,RPCO, RPCWO                  7  7235                      96
770  6 69          DCW   @INTO@                                               4  7239                      96
771  6 70          DCW   @1@                                                  1  7240                      96
772  6 71          DCW   @ @                                                  1  7241                      96
773  6 72   P5C140 DCW   @WRITE@            WRITE CONSOLE                     5  7246                      96
774  6 73          DCW   @CONSOLE@           WCP,WCPO,WCPWO                   7  7253                      96
775  6 74          DCW   @FROM@                                               4  7257                      96
776  6 75          DCW   @1@                                                  1  7258                      97
777  6 76          DCW   @ @                                                  1  7259                      97
778  6 77   P5C141 DCW   @READ@              READ I/O DEVICE                  4  7263                      97
779  6 78          DCW   @1@                 MU,LU - R D MODIFIER             1  7264                      97
780  6 79          DCW   @FROM@                                               4  7268                      97
781  6 80          DCW   @2@                                                  1  7269                      97
782  6 81          DCW   @ @                                                  1  7270                      97
783  6 82   P5C142 DCW   @WRITE@             WRITE I/O DEVICE                 5  7275                      98
784  6 83          DCW   @1@                 MU,LU - W D-MODIFIER             1  7276                      98
785  6 84          DCW   @FROM@                                               4  7280                      98
786  6 85          DCW   @2@                                                  1  7281                      98
787  6 86          DCW   @ @                                                  1  7282                      98
788  6 87   P5C143 DCW   @REWIND@            REWIND AND UNLOAD TAPE           6  7288                      98
789  6 88          DCW   @AND@               RWU                              3  7291                      98
790  6 89          DCW   @UNLOAD@                                             6  7297                      99
791  6 90          DCW   @TAPE@                                               4  7301                      99
792  6 91          DCW   @1@                                                  1  7302                      99
793  6 92          DCW   @ @                                                  1  7303                      99
794  6 93   P5C144 DCW   @STACKER@           STACKER SELECT AND FEED          7  7310                      99
795  6 94          DCW   @SELECT@            SSF                              6  7316                      99
796  6 95          DCW   @AND@                                                3  7319                      99
797  6 96          DCW   @FEED@                                               4  7323                     100
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

798  6 97          DCW   @ @                                                  1  7324                     100
799  6 98   P5C145 DCW   @RELEASE@           RELEASE DISK                     7  7331                     100
800  6 99          DCW   @DISK@              REL-O                            4  7335                     100
801  7 00          DCW   @1@                                                  1  7336                     100
802  7 01          DCW   @ @                                                  1  7337                     100
803  7 02   P5C146 DCW   @SET@               SER ACCESS ARM INOPERATIVE       3  7340                     100
804  7 03          DCW   @ARM@               SAI-O                            3  7343                     101
805  7 04          DCW   @INOPERATIVE@                                       11  7354                     101
806  7 05          DCW   @1@                                                  1  7355                     101
807  7 06          DCW   @ @                                                  1  7356                     101
808  7 07   P5C147 DCW   @ENTER@             ENTER PRIORITY ALERT MODE        5  7361                     101
809  7 08          DCW   @PRIORITY@          BEPA                             8  7369                     101
810  7 09          DCW   @ALERT@                                              5  7374                     101
811  7 10          DCW   @MODE@                                               4  7378                     102
812  7 11          DCW   @ @                                                  1  7379                     102
813  7 12   P5C148 DCW   @EXIT@              EXIT PRIORITY ALERT MODE         4  7383                     102
814  7 13          DCW   @PRIORITY@          BXPA                             8  7391                     102
815  7 14          DCW   @ALERT@                                              5  7396                     102
816  7 15          DCW   @MODE@                                               4  7400                     102
817  7 16          DCW   @ @                                                  1  7401                     102
818  7 17   P5C149 DCW   @STORE@             STORE ADDRESS REGISTERS          5  7406                     103
819  7 18          DCW   @REGISTER@          SAR,SBR,SER,SFR                  8  7414                     103
820  7 19          DCW   @2@                                                  1  7415                     103
821  7 20          DCW   @INTO@                                               4  7419                     103
822  7 21          DCW   @1@                 SER                              1  7420                     103
823  7 22          DCW   @ @                 SFR                              1  7421                     103
824  7 23   HIGH   EQU   *&1                 HIGH POSITION FOR $ADD CARD         7422
825  7 24          END   START                                                      / 813 080         104
808  7 07   P5C147 DCW   @ENTER@             ENTER PRIORITY ALERT MODE        5  7361                     101                *****
```

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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                     1             4CHR3
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?  2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040   3

                          1620/1710 COMMENT DICTIONARY - PASS 5                     4CHR3              PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    10   000    JOB   1620/1710 COMMENT DICTIONARY - PASS 5
 102    20          CTL   440
 103    30          DCW   @$ADD     @         CARDS COMMON TO ALL DICTIONARIES     9  0341                        4
 104    40          DSA   LOW                 --REQUIRED TO                        3  0344  |0/                   4
 105    50          DSA   START               --GENERATE THE APPROPRIATE           3  0347  813                   4
 106    60          DSA   HIGH                --$ADD CARD                          3  0350  A8Z                   4
 107    70          DCW   @040565@           ASSEMBLY DATE                         6  0356                        4
 108    80          ORG   5001                                                           5001
 109    90   *
 110  1 00   *
 111  1 10   *
 112  1 20   *              P5C000-P5C024 SPECIFY COMMENT SKELETONS COMMON TO
 113  1 30   *              ALL P5CAT DICTIONARIES
 114  1 40   *
 115  1 50   *              P5C025-P5C049 SPECIFY UNIQUE BLOCK-TYPE COMMENT
 116  1 60   *              SKELETONS
 117  1 70   *
 118  1 80   *
 119  1 90   P5CAT  DSA   P5C000              ASSEMBLY SEQUENCE NUMBER             3  5003  U6Z                   5
 120  2 00          DSA   P5C001              OP1                                  3  5006  U7S                   5
 121  2 10          DSA   P5C002-6            COMPUTE                              3  5009  U7U                   5
 122  2 20          DSA   P5C003-3            EDIT                                 3  5012  U8S                   5
 123  2 30          DSA   P5C004-3            MOVE TO                              3  5015  U8X                   5
 124  2 40          DSA   P5C005-2            SET                                  3  5018  U9U                   5
 125  2 50          DSA   P5C006-4            RESET                                3  5021  U9Y                   5
 126  2 60          DSA   P5C007-3            ZERO                                 3  5024  V0U                   6
 127  2 70          DSA   P5C008-4            SHIFT                                3  5027  V0Z                   6
 128  2 80          DSA   P5C009-4            CLEAR                                3  5030  V1V                   6
 129  2 90   *
 130  3 00   *              P5C007-P5C009 ARE RESERVED FOR MODES
 131  3 10   *
 132  3 20          DSA   P5C010              BCDOP  %USED FOR PREDF)              3  5033  V2/                   6
 133  3 30          DSA   P5C011-6            SEGMENT OP1,OP2,OP3 %JOB CARD)       3  5036  V2U                   6
 134  3 40          DSA   P5C012              , OP1 BACKSP SEQ.  %SUBRT  EG TS     3  5039  V3X                   6
 135  3 50          DSA   P5C013              BCDOP BACKSPACE, RESELT IN OP1       3  5042  V4S                   6
 136  3 60          DSA   P5C014              SPEC3 %FOR DECID JUMP TYPE YES)      3  5045  V5V                   7
 137  3 70          DSA   P5C015-1            IS C%AC) EQUAL TO OP1                3  5048  V5X                   7
 138  3 80          DSA   P5C016              BCDOP  OP1 OP2 OP3 BACKSPACE ,       3  5051  V7|                   7
 139  3 90          DSA   P5C017              BACKSPACE AND INSERT COMMA           3  5054  V7X                   7
 140  4 00          DSA   P5C018              SEQ NUMBER, NO COMMA                 3  5057  V8/                   7
 141  4 10          DSA   P5C019-4            CHAIN FOR 1400 COMPUTERS             3  5060  V8T                   7
 142  4 20          DSA   P5C020              BCDOP,1,2,3-IS CONDITION TRUE        3  5063  V8Z                   7
 143  4 30          ORG   *&12                                                           5076
 144  4 40          DSA   P5C025-2           ADD INSTRUCTIONS A,AM                 3  5078  W0Z                   8
 145  4 50          DSA   P5C026-7           SUBTRACT INST S,SM                    3  5081  W1X                   8
 146  4 60          DSA   P5C027-7           MULTIPY M,MM                          3  5084  W3S                   8
 147  4 70          DSA   P5C028-5           DIVIDE INSTRUCTIONS D,DM              3  5087  W4V                   8
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SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD

148  4 80          DSA   P5C029-3                                                  3  5090  W5W                  8
149  4 90          DSA   P5C030-1          BC1 TEST                                3  5093  W6V                  8
150  5 00          DSA   P5C031-1          BC2 TEST                                3  5096  W8V                  8
151  5 10          DSA   P5C032-1          BC3 TEST                                3  5099  X0V                  9
152  5 20          DSA   P5C033-1          BC4 TEST                                3  5102  X2V                  9
153  5 30          DSA   P5C034-1          BNC1 TEST                               3  5105  X4V                  9
154  5 40          DSA   P5C035-1          BNC2 TEST                               3  5108  X6W                  9
155  5 50          DSA   P5C036-1          BNC3 TEST                               3  5111  X8X                  9
156  5 60          DSA   P5C037-1          BNC4 TEST                               3  5114  Y0Y                  9
157  5 70          DSA   P5C038-1          BANS TEST                               3  5117  Y2Z                  9
158  5 80          DSA   P5C039-1          BBNS TEST                               3  5120  Y5|                 10
159  5 90          DSA   P5C040-1          BBAS TEST                               3  5123  Y7/                 10
160  6 00          DSA   P5C041-1          BBBS TEST                               3  5126  Y8Z                 10
161  6 10          DSA   P5C042-1          BNBS TEST                               3  5129  Z0X                 10
162  6 20          DSA   P5C043-1          BEBS TEST                               3  5132  Z2W                 10
163  6 30          DSA   P5C044-1          BV, BXV TEST                            3  5135  Z4W                 10
164  6 40          DSA   P5C045-1          BNV, BNXV TEST                          3  5138  Z6W                 10
165  6 50          DSA   P5C046-3          BCX, BCXM                               3  5141  Z8X                 11
166  6 60          DSA   P5C047-1          BMK TEST                                3  5144  !1U                 11
167  6 70          DSA   P5C048-1          BBT TEST                                3  5147  !2Z                 11
168  6 80          ORG   *&3                                                              5151
169  6 90   *
170  7 00   *
171  7 10   *
172  7 20   *
173  7 30   *           P5C050-P5C100 ARE COMMENT SKELETONS TO BE PLACED
174  7 40   *           IN DECISIONAL BOXES
175  7 50   *
176  7 60          DSA   P5C050-1           INDICATOR ON TEST %BI)                 3  5153  !4T                 12
177  7 70          DSA   P5C051-1          IS INDICATOR OFF                        3  5156  !5Y                 12
178  7 80          DSA   P5C052-1           FLAG TEST         %BNF)                3  5159  !7T                 12
179  7 90          DSA   P5C053-1           INDICATOR OFF TEST%BNI)                3  5162  !8Z                 12
180  8 00          DSA   P5C054             INDICATOR OFF TEST%UNIQUE MNEMS)       3  5165  J0V                 12
181  8 10          DSA   P5C055-1           BIT EQUAL TEST    %BBT,BMK)            3  5168  J2S                 12
182  8 20          ORG   *&3                                                              5172
183  8 30          DSA   P5C057-1           NON-ZERO DIGIT TEST%BD)                3  5174  J4T                 13
184  8 40          DSA   P5C058-1           LAST CARD TEST    %BLC)                3  5177  J6S                 13
185  8 50          DSA   P5C059-2           NO LAST CARD TEST %BNLC)               3  5180  J7X                 13
186  8 60          DSA   P5C060-1           GROUP MARK TEST   %BNG)                3  5183  J9V                 13
187  8 70          DSA   P5C061-1           RECORD MARK TEST  %BNR)                3  5186  K1W                 13
188  8 80          DSA   P5C062-1          BR ON HIGH COMPARE                      3  5189  K3Y                 13
189  8 90          DSA   P5C063-1          BR ON NOT HIGH COMPARE                  3  5192  K5U                 13
190  9 00          DSA   P5C064-1          BR ON EQUAL COMPARE                     3  5195  K7T                 14
191  9 10          DSA   P5C065-1          BR NO EQUAL COMPARE                     3  5198  K8V                 14
192  9 20          DSA   P5C066-1          BR ON LOW COMPARE                       3  5201  L0|                 14
193  9 30          DSA   P5C067-1          BR NO LOW COMPARE                       3  5204  L1T                 14
194  9 40          DSA   P5C068-1            BP                                    3  5207  L2Z                 14
195  9 50          DSA   P5C069-1            BNP                                   3  5210  L4W                 14
196  9 60          DSA   P5C070-1            BZ                                    3  5213  L6W                 14
197  9 70          DSA   P5C071-1            BNZ                                   3  5216  L7Z                 15
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

198  9 80          DSA   P5C072-1             BN                               3  5219  L9V                 15
199  9 90          DSA   P5C073-1             BNN                              3  5222  M1S                 15
200 10 00          DSA   P5C074-1           BA                                 3  5225  M3S                 15
201 10 10          DSA   P5C075-1           BNA                                3  5228  M5S                 15
202 10 20          ORG   *&72                                                        5301
203 10 30   *
204 10 40   *          P5C100-P5C124 SPECIFY COMMENTS TO BE PLACED IN
205 10 50   *          I/O BOXES
206 10 60   *
207 10 70          DSA   P5C100-3            I/O READ %RN,RA)                  3  5303  M7/                 16
208 10 80          DSA   P5C101-4            I/O WRITE %WN,WA,DN)              3  5306  M8W                 16
209 10 90          DSA   P5C102-3            TYPEWRITER READ                   3  5309  N0S                 16
210 11 00          DSA   P5C103-3            PAPER TAPE READ                   3  5312  N2S                 16
211 11 10          DSA   P5C104-3            CARD READER READ                  3  5315  N4/                 16
212 11 20          DSA   P5C105-3            DISK READ AND CHECK               3  5318  N5V                 16
213 11 30          DSA   P5C106-4            TYPEWRITER WRITE OR DUMP          3  5321  N6Z                 16
214 11 40          DSA   P5C107-4            PAPER TAPE WRITE OR DUMP          3  5324  N9|                 17
215 11 50          DSA   P5C108-4            CARD PUNCH OR DUMP                3  5327  O1|                 17
216 11 60          DSA   P5C109-6           CONTROL TYPEWRITER                 3  5330  O2Z                 17
217 11 70          DSA   P5C110-6           CONTROL PRINTER                    3  5333  O4X                 17
218 11 80          DSA   P5C111-4            PRINTER WRITE OR DUMP             3  5336  O6S                 17
219 11 90          DSA   P5C112-6           SK,SEEK                            3  5339  O8U                 17
220 12 00          DSA   P5C113-4            DISK WRITE                        3  5342  P0/                 17
221 12 10          DSA   P5C114-5           SLIC                               3  5345  P1W                 18
222 12 20          DSA   P5C115-6           SIOC-1710                          3  5348  P3V                 18
223 12 30          DSA   P5C116-5           SIOC-1710                          3  5351  P5/                 18
224 12 40          DSA   P5C117-3           READ CHANNEL                       3  5354  P7X                 18
225 12 50          DSA   P5C118-4           WRITE CHANNEL                      3  5357  P9U                 18
226 12 60          DSA   P5C119-6           CONTROL                            3  5360  Q1S                 18
227 12 70          DSA   P5C120-3           GET                                3  5363  Q2V                 18
228 12 80          DSA   P5C121-4           PUT                                3  5366  Q3V                 19
229 12 90          DSA   P5C122              BT,BTA,BTM,BTAM,BTFL,BTFS         3  5369  Q4W                 19
230 12 950         DSA   P5C123             NOP                                3  5372  Q5X                 19
231 13 000         ORG   *&3                                                         5376
232 13 10   *
233 13 20   *          P5C125-P5C135 SPECIFY COMMENTS TO BE PLACED IN
234 13 30   *          MODIFICATION BOXES
235 13 40   *
236 13 50          DSA   P5C125-5            ADDRESS MODIFICATION   %MA)       3  5378  Q7/                 20
237 13 60   *
238 13 70   *          P5C126-P5C135 SPECIFY COMMENTS TO BE PLACED IN A
239 13 80   *          MODIFICATION BOX PRECEDING A GOTO--RESULTS FROM
240 13 90   *          IN UNCONDITIONAL BRANCH AND DO SOMETHING INSTRUCTION
241 14 00   *
242 14 10   *
243 14 20          DSA   P5C126-5            MODFY- SELECT BEFORE BRANCHING    3  5381  Q7Z                 20
244 14 30          DSA   P5C127-5            MODFY- SELECT INDIRECT ADDRESS    3  5384  Q8X                 20
245 14 40          DSA   P5C128-5            MODFY- SELECT NO IND. ADDRESSING  3  5387  R1S                 20
246 14 50          DSA   P5C129-5            MODFY- SELECT BAND A              3  5390  R3Z                 20
247 14 60          DSA   P5C130-5            MODFY- SELECT BAND B              3  5393  R5/                 20
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

248 14 70          DSA   P5C131-5             MODFY- SELECT NO INDEX                 3  5396  R6T                 20
249 14 80          DSA   P5C132-5            BX,BXM                                  3  5399  R8V                 21
250 14 90          DSA   P5C133-3            BLX,BLXM                                3  5402  R9X                 21
251 15 000         DSA   P5C134-4            BSX, STORE XR AND BRANCH                3  5405  ?0X                 21
252 15 10          DSA   P5C135-5                                                    3  5408  ?1Y                 21
253 15 20          ORG   *&27                                                              5436
254 15 30          DSA   P5C145-1      BOR                                           3  5438  ?2Z                 22
255 15 40          DSA   P5C146-1                                                    3  5441  ?4Y                 22
256 15 50          DSA   P5C147-1              BMC                                   3  5444  ?6X                 22
257 15 60          DSA   P5C148-1              BIR                                   3  5447  ?8T                 22
258 15 70          DSA   P5C149-1              BCNB                                  3  5450  ?9V                 22
259 15 80          DSA   P5C150-1              BNOR                                  3  5453  A1|                 22
260 15 90          DSA   P5C150-1              BNOR                                  3  5456  A1|                 22
261 16 00          DSA   P5C151-1              BNRE                                  3  5459  A3W                 23
262 16 10          DSA   P5C152-1              BNMC                                  3  5462  A5/                 23
263 16 20          DSA   P5C153-1              BNIR                                  3  5465  A6T                 23
264 16 30          DSA   P5C154-1              BCB                                   3  5468  A7V                 23
265 16 40   *
266 16 50   *
267 16 60   P5C000 DCW   @,@                  SUBSTITUTE SEQUENCE FIELD ,            1  5469                      23
268 16 70          DCW   @0@                                                         1  5470                      23
269 16 80          DCW   @ @                                                         1  5471                      23
270 16 90   P5C001 DCW   @1@                  SUBSTITUTE OPERAND-1                   1  5472                      24
271 17 00          DCW   @ @                                                         1  5473                      24
272 17 10   P5C002 DCW   @COMPUTE@            COMPUTE  MODE                          7  5480                      24
273 17 20          DCW   @ @                                                         1  5481                      24
274 17 30   P5C003 DCW   @EDIT@               EDIT     MODE                          4  5485                      24
275 17 40          DCW   @ @                                                         1  5486                      24
276 17 50   P5C004 DCW   @MOVE@               MOVE TO  MODE                          4  5490                      24
277 17 60          DCW   @TO@                                                        2  5492                      25
278 17 70          DCW   @ @                                                         1  5493                      25
279 17 80   P5C005 DCW   @SET@                SET      MODE                          3  5496                      25
280 17 90          DCW   @ @                                                         1  5497                      25
281 18 00   P5C006 DCW   @RESET@              RESET    MODE                          5  5502                      25
282 18 10          DCW   @ @                                                         1  5503                      25
283 18 20   P5C007 DCW   @ZERO@               ZERO                                   4  5507                      25
284 18 30          DCW   @ @                                                         1  5508                      26
285 18 40   P5C008 DCW   @SHIFT@              SHIFT                                  5  5513                      26
286 18 50          DCW   @ @                                                         1  5514                      26
287 18 60   P5C009 DCW   @CLEAR@              CLEAR                                  5  5519                      26
288 18 70          DCW   @ @                                                         1  5520                      26
289 18 80   P5C010 DCW   @,@                  BCDOP, %USED FOR PREDF)                1  5521                      26
290 18 90          DCW   @4@                                                         1  5522                      26
291 19 00          DCW   @ @                                                         1  5523                      27
292 19 10   P5C011 DCW   @SEGMENT@            SEGMENT OP1,OP2,OP3 %JOB CARD)         7  5530                      27
293 19 20          DCW   @,@                                                         1  5531                      27
294 19 30          DCW   @1@                                                         1  5532                      27
295 19 40          DCW   @,@                                                         1  5533                      27
296 19 50          DCW   @2@                                                         1  5534                      27
297 19 60          DCW   @3@                                                         1  5535                      27
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SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD

298 19 70          DCW   @ @                                                       1  5536                     28
299 19 80   P5C012 DCW   @,@                  OP1,BACKSPACE SEQ %SUBRT EG TSX)     1  5537                     28
300 19 90          DCW   @1@                                                       1  5538                     28
301 20 00          DCW   @-@                                                       1  5539                     28
302 20 10          DCW   @0@                                                       1  5540                     28
303 20 20          DCW   @ @                                                       1  5541                     28
304 20 30   P5C013 DCW   @,@                  BCDOP,BACKSPACE RESULT IN OP1        1  5542                     28
305 20 40          DCW   @4@                                                       1  5543                     29
306 20 50          DCW   @-@                                                       1  5544                     29
307 20 60          DCW   @RESULT@                                                  6  5550                     29
308 20 70          DCW   @IN@                                                      2  5552                     29
309 20 80          DCW   @1@                                                       1  5553                     29
310 20 90          DCW   @ @                                                       1  5554                     29
311 21 00   P5C014 DCW   @7@                  SPEC 3                               1  5555                     29
312 21 10          DCW   @ @                                                       1  5556                     30
313 21 20   P5C015 DCW   @IS@                 IS AC EQUAL TO OP2                   2  5558                     30
314 21 30          DCW   @AC@                                                      2  5560                     30
315 21 40          DCW   @EQUAL@                                                   5  5565                     30
316 21 50          DCW   @TO@                                                      2  5567                     30
317 21 60          DCW   @2@                                                       1  5568                     30
318 21 70          DCW   @ @                                                       1  5569                     30
319 21 80   P5C016 DCW   @4@                  BCDOP OP1,OP2,OP3                    1  5570                     31
320 21 90          DCW   @,@                                                       1  5571                     31
321 22 00          DCW   @1@                                                       1  5572                     31
322 22 10          DCW   @,@                                                       1  5573                     31
323 22 20          DCW   @2@                                                       1  5574                     31
324 22 30          DCW   @3@                                                       1  5575                     31
325 22 40          DCW   @ @                                                       1  5576                     31
326 22 50   P5C017 DCW   @-@                  BACKSPACE                            1  5577                     32
327 22 60          DCW   @&@                  AND INSERT A COMMA                   1  5578                     32
328 22 70          DCW   @,@                                                       1  5579                     32
329 22 80          DCW   @ @                                                       1  5580                     32
330 22 90   P5C018 DCW   @0@                  SEQ. NUMBER                          1  5581                     32
331 23 00          DCW   @ @                                                       1  5582                     32
332 23 10   P5C019 DCW   @CHAIN@                                                   5  5587                     32
333 23 20          DCW   @ @                                                       1  5588                     33
334 23 30   P5C020 DCW   @4@                  BCDOP OP1 OP2 OP3                    1  5589                     33
335 23 40          DCW   @1@                                                       1  5590                     33
336 23 50          DCW   @2@                  IS CONDITION TRUE                    1  5591                     33
337 23 60          DCW   @3@                                                       1  5592                     33
338 23 70          DCW   @IS@                                                      2  5594                     33
339 23 80          DCW   @CONDITION@                                               9  5603                     33
340 23 90          DCW   @TRUE@                                                    4  5607                     34
341 24 00          DCW   @ @                                                       1  5608                     34
342 24 10   P5C025 DCW   @ADD@               BLOCK FOR ADD A,AM                    3  5611                     34
343 24 20          DCW   @2@                                                       1  5612                     34
344 24 30          DCW   @TO@                                                      2  5614                     34
345 24 40          DCW   @1@                                                       1  5615                     34
346 24 50          DCW   @ @                                                       1  5616                     34
347 24 60   P5C026 DCW   @SUBTRACT@          BLOCK FOR SUBTRACT S,SM               8  5624                     35
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SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

348 24 70          DCW   @2@                                                            1  5625                     35
349 24 80          DCW   @FROM@                                                         4  5629                     35
350 24 90          DCW   @1@                                                            1  5630                     35
351 25 00          DCW   @ @                                                            1  5631                     35
352 25 10   P5C027 DCW   @MULTIPLY@          BLOCK FOR MULTIPLY                         8  5639                     35
353 25 20          DCW   @1@                                                            1  5640                     35
354 25 30          DCW   @BY@                                                           2  5642                     36
355 25 40          DCW   @2@                                                            1  5643                     36
356 25 50          DCW   @ @                                                            1  5644                     36
357 25 60   P5C028 DCW   @DIVIDE@            BLOCK FOR DIVIDE                           6  5650                     36
358 25 70          DCW   @1@                                                            1  5651                     36
359 25 80          DCW   @BY@                                                           2  5653                     36
360 25 90          DCW   @2@                                                            1  5654                     36
361 26 00          DCW   @ @                                                            1  5655                     37
362 26 10   P5C029 DCW   @MOVE@              COMMENT FOR MOVE INSTRUCTIONS              4  5659                     37
363 26 20          DCW   @2@                                                            1  5660                     37
364 26 30          DCW   @TO@                                                           2  5662                     37
365 26 40          DCW   @1@                                                            1  5663                     37
366 26 50          DCW   @ @                                                            1  5664                     37
367 26 60   P5C030 DCW   @IS@                %BC1)                                      2  5666                     37
368 26 70          DCW   @CONSOLE@                                                      7  5673                     38
369 26 80          DCW   @SWITCH@            YES EXIT, IF BC1 IS ON                     6  5679                     38
370 26 90          DCW   @&@                                                            1  5680                     38
371 27 00          DCW   @1@                                                            1  5681                     38
372 27 10          DCW   @ON@                                                           2  5683                     38
373 27 20          DCW   @ @                                                            1  5684                     38
374 27 30   P5C031 DCW   @IS@                %BC2)                                      2  5686                     38
375 27 40          DCW   @CONSOLE@                                                      7  5693                     39
376 27 50          DCW   @SWITCH@            YES EXIT, IF CONSOLE SWITCH 2              6  5699                     39
377 27 60          DCW   @&@                 IS ON                                      1  5700                     39
378 27 70          DCW   @2@                                                            1  5701                     39
379 27 80          DCW   @ON@                                                           2  5703                     39
380 27 90          DCW   @ @                                                            1  5704                     39
381 28 00   P5C032 DCW   @IS@                %BC3)                                      2  5706                     39
382 28 10          DCW   @CONSOLE@                                                      7  5713                     40
383 28 20          DCW   @SWITCH@            YES EXIT, IF CONSOLE SWITCH 3              6  5719                     40
384 28 30          DCW   @&@                 IS ON                                      1  5720                     40
385 28 40          DCW   @3@                                                            1  5721                     40
386 28 50          DCW   @ON@                                                           2  5723                     40
387 28 60          DCW   @ @                                                            1  5724                     40
388 28 70   P5C033 DCW   @IS@                %BC4)                                      2  5726                     40
389 28 80          DCW   @CONSOLE@                                                      7  5733                     41
390 28 90          DCW   @SWITCH@            YES EXIT IF CONSOLE SWITCH 4 IS            6  5739                     41
391 29 00          DCW   @&@                 ON                                         1  5740                     41
392 29 10          DCW   @4@                                                            1  5741                     41
393 29 20          DCW   @ON@                                                           2  5743                     41
394 29 30          DCW   @ @                                                            1  5744                     41
395 29 40   P5C034 DCW   @IS@                YES EXIT IF CONSOLE SWITCH 1               2  5746                     41
396 29 50          DCW   @CONSOLE@           IS OFF                                     7  5753                     42
397 29 60          DCW   @SWITCH@                                                       6  5759                     42
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SEQ PG LIN  LABEL  OP    OPERANDS                                       SFX CT  LOCN  INSTRUCTION TYPE  CARD

398 29 70          DCW   @&@               %BNC1)                            1  5760                      42
399 29 80          DCW   @1@                                                 1  5761                      42
400 29 90          DCW   @OFF@                                               3  5764                      42
401 30 00          DCW   @ @                                                 1  5765                      42
402 30 10   P5C035 DCW   @IS@              YES EXIT IF CONSOLE SWITCH 2      2  5767                      42
403 30 20          DCW   @CONSOLE@         IS OFF                            7  5774                      43
404 30 30          DCW   @SWITCH@                                            6  5780                      43
405 30 40          DCW   @&@               %BNC2)                            1  5781                      43
406 30 50          DCW   @2@                                                 1  5782                      43
407 30 60          DCW   @OFF@                                               3  5785                      43
408 30 70          DCW   @ @                                                 1  5786                      43
409 30 80   P5C036 DCW   @IS@              %BNC3)                            2  5788                      43
410 30 90          DCW   @CONSOLE@                                           7  5795                      44
411 31 00          DCW   @SWITCH@          YES EXIT IF CONSOLE SWITCH 3      6  5801                      44
412 31 10          DCW   @&@               IS OFF                            1  5802                      44
413 31 20          DCW   @3@                                                 1  5803                      44
414 31 30          DCW   @OFF@                                               3  5806                      44
415 31 40          DCW   @ @                                                 1  5807                      44
416 31 50   P5C037 DCW   @IS@                                                2  5809                      44
417 31 60          DCW   @CONSOLE@                                           7  5816                      45
418 31 70          DCW   @SWITCH@                                            6  5822                      45
419 31 80          DCW   @&@               YES EXIT IF CONSOLE SWITCH 4 IS   1  5823                      45
420 31 90          DCW   @4@               OFF                               1  5824                      45
421 32 00          DCW   @OFF@                                               3  5827                      45
422 32 10          DCW   @ @                                                 1  5828                      45
423 32 20   P5C038 DCW   @IS@              %BANS)                            2  5830                      45
424 32 30          DCW   @XR@                                                2  5832                      46
425 32 40          DCW   @BAND@            YES EXIT IF INDEX REGISTER BAND   4  5836                      46
426 32 50          DCW   @A@               A IS NOT SELECTED                 1  5837                      46
427 32 60          DCW   @NOT@                                               3  5840                      46
428 32 70          DCW   @SELECTED@                                          8  5848                      46
429 32 80          DCW   @ @                                                 1  5849                      46
430 32 90   P5C039 DCW   @IS@              %BBNS)                            2  5851                      46
431 33 00          DCW   @XR@                                                2  5853                      47
432 33 10          DCW   @BAND@            YES EXIT IF INDEX REGISTER BAND   4  5857                      47
433 33 20          DCW   @B@               B IS NOT SELECTED                 1  5858                      47
434 33 30          DCW   @NOT@                                               3  5861                      47
435 33 40          DCW   @SELECTED@                                          8  5869                      47
436 33 50          DCW   @ @                                                 1  5870                      47
437 33 60   P5C040 DCW   @IS@              %BBAS)                            2  5872                      47
438 33 70          DCW   @XR@                                                2  5874                      48
439 33 80          DCW   @BAND@            YES EXIT IF INDEX REGISTER BAND   4  5878                      48
440 33 90          DCW   @A@               A IS SELECTED                     1  5879                      48
441 34 00          DCW   @SELECTED@                                          8  5887                      48
442 34 10          DCW   @ @                                                 1  5888                      48
443 34 20   P5C041 DCW   @IS@              %BBBS)                            2  5890                      48
444 34 30          DCW   @XR@                                                2  5892                      48
445 34 40          DCW   @BAND@            YES EXIT IF INDEX REGISTER BAND   4  5896                      49
446 34 50          DCW   @B@               B IS SELECTED                     1  5897                      49
447 34 60          DCW   @SELECTED@                                          8  5905                      49
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

448 34 70          DCW   @ @                                                      1  5906                      49
449 34 80   P5C042 DCW   @IS@               %BNBS)                                2  5908                      49
450 34 90          DCW   @NO@                                                     2  5910                      49
451 35 00          DCW   @XR@               YES EXIT IF NO XR BAND IS             2  5912                      49
452 35 10          DCW   @BAND@             SELECTED                              4  5916                      50
453 35 20          DCW   @SELECTED@                                               8  5924                      50
454 35 30          DCW   @ @                                                      1  5925                      50
455 35 40   P5C043 DCW   @IS@               %BEBS)                                2  5927                      50
456 35 50          DCW   @ANY@                                                    3  5930                      50
457 35 60          DCW   @XR@               YES EXIT IF INDEX REGISTER            2  5932                      50
458 35 70          DCW   @BAND@             BAND A OR B IS SELECTED               4  5936                      50
459 35 80          DCW   @SELECTED@                                               8  5944                      51
460 35 90          DCW   @ @                                                      1  5945                      51
461 36 00   P5C044 DCW   @IS@               %BV,BXV)                              2  5947                      51
462 36 10          DCW   @COMPUTE@                                                7  5954                      51
463 36 20          DCW   @OVERFLOW@         YES EXIT IF OVERFLOW OR               8  5962                      51
464 36 30          DCW   @ON@               EXPONENTIAL CHECK IND ON.             2  5964                      51
465 36 40          DCW   @ @                                                      1  5965                      51
466 36 50   P5C045 DCW   @IS@               %BNV,BNXV)                            2  5967                      52
467 36 60          DCW   @COMPUTE@                                                7  5974                      52
468 36 70          DCW   @OVERFLOW@         YES EXIT IF OVERFLOW, EXPONENTIAL     8  5982                      52
469 36 80          DCW   @OFF@              CHECK INDICATOR NOT ON                3  5985                      52
470 36 90          DCW   @ @                                                      1  5986                      52
471 37 00   P5C046 DCW   @VARY@             %BCX,BCXM)                            4  5990                      52
472 37 10          DCW   @XR@                                                     2  5992                      52
473 37 20          DCW   @BY@               YES EXIT IF CONTENTS OF INDEX         2  5994                      53
474 37 30          DCW   @,@                                                      1  5995                      53
475 37 40          DCW   @2@                REGISTER SPECIFIED IN OPERAND-2       1  5996                      53
476 37 50          DCW   @IS@                                                     2  5998                      53
477 37 60          DCW   @XR@               ZERO.                                 2  6000                      53
478 37 70          DCW   @SAME@                                                   4  6004                      53
479 37 80          DCW   @SIGN@                                                   4  6008                      53
480 37 90          DCW   @OR@                                                     2  6010                      54
481 38 00          DCW   @NZ@                                                     2  6012                      54
482 38 10          DCW   @ @                                                      1  6013                      54
483 38 20   P5C047 DCW   @IS@               %BMK)                                 2  6015                      54
484 38 30          DCW   @MASK@                                                   4  6019                      54
485 38 40          DCW   @EQUAL@            YES EXIT IF MASK IN OPERAND-2 IS      5  6024                      54
486 38 50          DCW   @IN@               EQUAL TO MASK SPECIFIED BY            2  6026                      54
487 38 60          DCW   @2@                OPERAND-2                             1  6027                      55
488 38 70          DCW   @ @                                                      1  6028                      55
489 38 80   P5C048 DCW   @IS@               %BBT)                                 2  6030                      55
490 38 90          DCW   @BIT@                                                    3  6033                      55
491 39 00          DCW   @EQUAL@                                                  5  6038                      55
492 39 10          DCW   @IN@               YES EXIT IF BITS SPECIFIED ARE        2  6040                      55
493 39 20          DCW   @2@                EQUAL                                 1  6041                      55
494 39 30          DCW   @ @                                                      1  6042                      56
495 39 40   P5C050 DCW   @IS@                TESTS OPERAND 2 %Q8-Q9)              2  6044                      56
496 39 50          DCW   @INDICATOR@         YES EXIT, IF ON                      9  6053                      56
497 39 60          DCW   @2@                                                      1  6054                      56
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SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
498	39	70		DCW	@ON@	%BI)		2	6056		56
499	39	80		DCW	@ @			1	6057		56
500	39	90	P5C051	DCW	@IS@	IS INDICATOR ON		2	6059		56
501	40	20		DCW	@INDICATOR@	YES EXIT, IF ON %BNBS,BXV,BCH9,		9	6068		57
502	40	250		DCW	@2@			1	6069		57
503	40	30		DCW	@ON@	BC3,BV,BBAS,BBBS,BC1,BC2,BCOV,		2	6071		57
504	40	40		DCW	@ @	BC4-BOR,BRE,BMC,BIR,BCNB-		1	6072		57
505	40	50	P5C052	DCW	@IS@	TESTS FLAG IN OP2		2	6074		57
506	40	60		DCW	@FLAG@			4	6078		57
507	40	70		DCW	@ABSENT@	YES EXIT,IF NO FLAG		6	6084		57
508	40	80		DCW	@IN@			2	6086		58
509	40	90		DCW	@2@	%BNF)		1	6087		58
510	41	00		DCW	@ @			1	6088		58
511	41	10	P5C053	DCW	@IS@	TESTS OPERAND 2 %Q8-Q9)		2	6090		58
512	41	20		DCW	@INDICATOR@	YES EXIT, IF OFF		9	6099		58
513	41	30		DCW	@2@			1	6100		58
514	41	40		DCW	@OFF@	%BNI)		3	6103		58
515	41	50		DCW	@ @			1	6104		59
516	41	60	P5C054	DCW	@,@	TESTS INDICATOR CONDITION		1	6105		59
517	41	70		DCW	@4@			1	6106		59
518	41	80		DCW	@IS@			2	6108		59
519	41	90		DCW	@INDICATOR@	YES EXIT,IF OFF %BNXV,BNC4,BNC3,		9	6117		59
520	42	00		DCW	@OFF@	%BANS,BBNS,BEBS,BNA,BNV,BNC1,		3	6120		59
521	42	10		DCW	@ @	BNC2-BNOR,BNRE,BNMC,BNIR,BCB-		1	6121		59
522	42	20	P5C055	DCW	@IS@	BCH9,BCOV INSTRUCTIONS		2	6123		60
523	42	30		DCW	@PRINTER@			7	6130		60
524	42	40		DCW	@INDICATOR@			9	6139		60
525	42	50		DCW	@ON@			2	6141		60
526	42	60		DCW	@ @			1	6142		60
527	42	70	P5C057	DCW	@IS@	TESTS FOR NON-ZERO DIGIT IN OP2		2	6144		60
528	42	80		DCW	@DIGIT@	YES EXIT, IF NON-ZERO DIGIT		5	6149		60
529	42	90		DCW	@AT@			2	6151		61
530	43	00		DCW	@2@	%BD)		1	6152		61
531	43	10		DCW	@NON-ZERO@			8	6160		61
532	43	20		DCW	@ @			1	6161		61
533	43	30	P5C058	DCW	@IS@	TESTS LAST CARD		2	6163		61
534	43	40		DCW	@THIS@	YES EXIT, IF LAST CARD		4	6167		61
535	43	50		DCW	@LAST@			4	6171		61
536	43	60		DCW	@CARD@	%BLC)		4	6175		62
537	43	70		DCW	@ @			1	6176		62
538	43	80	P5C059	DCW	@ARE@	TESTS LAST CARD		3	6179		62
539	43	90		DCW	@THERE@	YES EXIT, IF NOT LAST CARD		5	6184		62
540	44	00		DCW	@MORE@			4	6188		62
541	44	10		DCW	@CARDS@	%BNLC)		5	6193		62
542	44	20		DCW	@ @			1	6194		62
543	44	30	P5C060	DCW	@IS@	TESTS GROUP MARK AT OP2		2	6196		63
544	44	40		DCW	@GROUP@			5	6201		63
545	44	50		DCW	@MARK@	YES EXIT, IF NO GROUP MARK		4	6205		63
546	44	60		DCW	@ABSENT@			6	6211		63
547	44	70		DCW	@AT@	%BNG)		2	6213		63

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SEQ PG LIN  LABEL  OP    OPERANDS                                                     SFX CT  LOCN  INSTRUCTION TYPE  CARD

548 44 80          DCW   @2@                                                               1  6214                      63
549 44 90          DCW   @ @                                                               1  6215                      63
550 45 00   P5C061 DCW   @IS@                TESTS RECORD MARK AT OP2                      2  6217                      64
551 45 10          DCW   @RECORD@                                                          6  6223                      64
552 45 20          DCW   @MARK@              YES EXIT, IF NO RECORD MARK                   4  6227                      64
553 45 30          DCW   @ABSENT@                                                          6  6233                      64
554 45 40          DCW   @AT@                %BNR)                                         2  6235                      64
555 45 50          DCW   @2@                                                               1  6236                      64
556 45 60          DCW   @ @                                                               1  6237                      64
557 45 70   P5C062 DCW   @IS@               BH BR ON HIGH COMPARE                          2  6239                      65
558 45 80          DCW   @5@                                                               1  6240                      65
559 45 90          DCW   @GREATER@                                                         7  6247                      65
560 46 00          DCW   @THAN@                                                            4  6251                      65
561 46 10          DCW   @6@                                                               1  6252                      65
562 46 20          DCW   @ @                                                               1  6253                      65
563 46 30   P5C063 DCW   @IS@               BR ON NOT HIGH                                 2  6255                      65
564 46 40          DCW   @5@                                                               1  6256                      66
565 46 50          DCW   @NOT@                                                             3  6259                      66
566 46 60          DCW   @GREATER@                                                         7  6266                      66
567 46 70          DCW   @THAN@                                                            4  6270                      66
568 46 80          DCW   @6@                                                               1  6271                      66
569 46 90          DCW   @ @                                                               1  6272                      66
570 47 00   P5C064 DCW   @IS@               BE BR ON EQUAL COMPARE                         2  6274                      66
571 47 10          DCW   @5@                                                               1  6275                      67
572 47 20          DCW   @EQUAL@                                                           5  6280                      67
573 47 30          DCW   @TO@                                                              2  6282                      67
574 47 40          DCW   @6@                                                               1  6283                      67
575 47 50          DCW   @ @                                                               1  6284                      67
576 47 60   P5C065 DCW   @IS@               BNE BR NO EQUAL COMPARE                        2  6286                      67
577 47 70          DCW   @5@                                                               1  6287                      67
578 47 80          DCW   @NOT@                                                             3  6290                      68
579 47 90          DCW   @EQUAL@                                                           5  6295                      68
580 48 00          DCW   @TO@                                                              2  6297                      68
581 48 10          DCW   @6@                                                               1  6298                      68
582 48 20          DCW   @ @                                                               1  6299                      68
583 48 30   P5C066 DCW   @IS@               BL BR ON LOW COMPARE                           2  6301                      68
584 48 40          DCW   @5@                                                               1  6302                      68
585 48 50          DCW   @LESS@                                                            4  6306                      69
586 48 60          DCW   @THAN@                                                            4  6310                      69
587 48 70          DCW   @6@                                                               1  6311                      69
588 48 80          DCW   @ @                                                               1  6312                      69
589 48 90   P5C067 DCW   @IS@               BNL BR NOT LOW COMPARE                         2  6314                      69
590 49 00          DCW   @5@                                                               1  6315                      69
591 49 10          DCW   @NOT@                                                             3  6318                      69
592 49 20          DCW   @LESS@                                                            4  6322                      70
593 49 30          DCW   @THAN@                                                            4  6326                      70
594 49 40          DCW   @6@                                                               1  6327                      70
595 49 50          DCW   @ @                                                               1  6328                      70
596 49 60   P5C068 DCW   @IS@               %BP)                                           2  6330                      70
597 49 70          DCW   @RESULT@                                                          6  6336                      70
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                      SFX CT  LOCN  INSTRUCTION TYPE  CARD

598 49 80          DCW   @POSITIVE@                                          8  6344                     70
599 49 90          DCW   @ @                                                 1  6345                     71
600 50 00   P5C069 DCW   @IS@              %BNP)                             2  6347                     71
601 50 10          DCW   @RESULT@                                            6  6353                     71
602 50 20          DCW   @NOT@                                               3  6356                     71
603 50 30          DCW   @POSITIVE@                                          8  6364                     71
604 50 40          DCW   @ @                                                 1  6365                     71
605 50 50   P5C070 DCW   @IS@              %BZ)                              2  6367                     71
606 50 60          DCW   @RESULT@                                            6  6373                     72
607 50 70          DCW   @ZERO@                                              4  6377                     72
608 50 80          DCW   @ @                                                 1  6378                     72
609 50 90   P5C071 DCW   @IS@              %BNZ)                             2  6380                     72
610 51 00          DCW   @RESULT@                                            6  6386                     72
611 51 10          DCW   @NOT@                                               3  6389                     72
612 51 20          DCW   @ZERO@                                              4  6393                     72
613 51 30          DCW   @ @                                                 1  6394                     73
614 51 40   P5C072 DCW   @IS@              %BN)                              2  6396                     73
615 51 50          DCW   @RESULT@                                            6  6402                     73
616 51 60          DCW   @NEGATIVE@                                          8  6410                     73
617 51 70          DCW   @ @                                                 1  6411                     73
618 51 80   P5C073 DCW   @IS@              BNN                               2  6413                     73
619 51 90          DCW   @RESULT@                                            6  6419                     73
620 52 00          DCW   @NOT@                                               3  6422                     74
621 52 10          DCW   @NEGATIVE@                                          8  6430                     74
622 52 20          DCW   @ @                                                 1  6431                     74
623 52 30   P5C074 DCW   @IS@              BR ANY DAT CHECK                  2  6433                     74
624 52 40          DCW   @THERE@                                             5  6438                     74
625 52 50          DCW   @ANY@                                               3  6441                     74
626 52 60          DCW   @DATA@                                              4  6445                     74
627 52 70          DCW   @CHECK@                                             5  6450                     75
628 52 80          DCW   @ @                                                 1  6451                     75
629 52 90   P5C075 DCW   @IS@              BR NOT ANY DATA CHECK             2  6453                     75
630 53 00          DCW   @THERE@                                             5  6458                     75
631 53 10          DCW   @NO@                                                2  6460                     75
632 53 20          DCW   @DATA@                                              4  6464                     75
633 53 30          DCW   @CHECK@                                             5  6469                     75
634 53 40          DCW   @ @                                                 1  6470                     76
635 53 50   P5C100 DCW   @READ@             READ FROM I/O UNIT %OP2)         4  6474                     76
636 53 60          DCW   @FROM@             INTO AREA %OP1)                  4  6478                     76
637 53 70          DCW   @2@                                                 1  6479                     76
638 53 80          DCW   @INTO@             NUMERIC OR ALPHAMERIC   %RN,RA)  4  6483                     76
639 53 90          DCW   @1@                                                 1  6484                     76
640 54 00          DCW   @ @                                                 1  6485                     76
641 54 10   P5C101 DCW   @WRITE@            WRITE OR DUMP ONTO I/O UNIT%OP2) 5  6490                     77
642 54 20          DCW   @ONTO@             FROM AREA %OP1)                  4  6494                     77
643 54 30          DCW   @2@                                                 1  6495                     77
644 54 40          DCW   @FROM@             NUMERIC OR ALPHAMERIC   %WN,WA,  4  6499                     77
645 54 50          DCW   @1@                                        DN)      1  6500                     77
646 54 60          DCW   @ @                                                 1  6501                     77
647 54 70   P5C102 DCW   @READ@             TYPEWRITER READ                  4  6505                     77
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

648 54 80          DCW   @TYPEWRITER@          %NUMERIC OR ALPHANUMERIC)           10  6515                      78
649 54 90          DCW   @INTO@                                                     4  6519                      78
650 55 00          DCW   @1@                  %RNTY,RATY)                           1  6520                      78
651 55 10          DCW   @ @                                                        1  6521                      78
652 55 20   P5C103 DCW   @READ@               PAPER TAPE READ                       4  6525                      78
653 55 30          DCW   @PAPER@                %NUMERIC,ALPHANUMERIC,BINARY)       5  6530                      78
654 55 40          DCW   @TAPE@                                                     4  6534                      78
655 55 50          DCW   @INTO@               %RNPT,RAPT,RBPT)                      4  6538                      79
656 55 60          DCW   @1@                                                        1  6539                      79
657 55 70          DCW   @ @                                                        1  6540                      79
658 55 80   P5C104 DCW   @READ@               CARD READER READ                      4  6544                      79
659 55 90          DCW   @CARD@                 %NUMERIC OR ALPHANUMERIC)           4  6548                      79
660 56 00          DCW   @INTO@                                                     4  6552                      79
661 56 10          DCW   @1@                  %RNCD,RACD)                           1  6553                      79
662 56 20          DCW   @ @                                                        1  6554                      80
663 56 30   P5C105 DCW   @READ@               DISK  READ AND CHECK                  4  6558                      80
664 56 40          DCW   @DISK@                 %FROM CONTROL OP1)                  4  6562                      80
665 56 50          DCW   @FROM@                                                     4  6566                      80
666 56 60          DCW   @1@                  %RDGN,CDGN,RTGN,CTGN,RDN,CDN,         1  6567                      80
667 56 70          DCW   @ @                  RTN,CTN)                              1  6568                      80
668 56 80   P5C106 DCW   @WRITE@              TYPEWRITER WRITE OR DUMP              5  6573                      80
669 56 90          DCW   @TYPEWRITER@           %NUMERIC OR ALPHANUMERIC)          10  6583                      81
670 57 00          DCW   @FROM@                                                     4  6587                      81
671 57 10          DCW   @1@                  %WNTY,WATY,DNTY)                      1  6588                      81
672 57 20          DCW   @ @                                                        1  6589                      81
673 57 30   P5C107 DCW   @WRITE@              PAPER TAPE WRITE OR DUMP              5  6594                      81
674 57 40          DCW   @PAPER@                %NUMERIC,ALPHANUMERIC,BINARY)       5  6599                      81
675 57 50          DCW   @TAPE@                                                     4  6603                      81
676 57 60          DCW   @FROM@               %WNPT,WAPT,WBPT,DNPT)                 4  6607                      82
677 57 70          DCW   @1@                                                        1  6608                      82
678 57 80          DCW   @ @                                                        1  6609                      82
679 57 90   P5C108 DCW   @PUNCH@              CARD PUNCH OR DUMP                    5  6614                      82
680 58 00          DCW   @ONTO@                 %NUMERIC OR ALPHANUMERIC)           4  6618                      82
681 58 10          DCW   @CARD@                                                     4  6622                      82
682 58 20          DCW   @FROM@               %WNCD,WACD,DNCD)                      4  6626                      82
683 58 30          DCW   @1@                                                        1  6627                      83
684 58 40          DCW   @ @                                                        1  6628                      83
685 58 50   P5C109 DCW   @CONTROL@           CONTROL TYPEWRITER                     7  6635                      83
686 58 60          DCW   @TYPEWRITER@                                              10  6645                      83
687 58 70          DCW   @ @                                                        1  6646                      83
688 58 80   P5C110 DCW   @CONTROL@           CONTROL PRINTER                        7  6653                      83
689 58 90          DCW   @PRINTER@                                                  7  6660                      83
690 59 00          DCW   @ @                                                        1  6661                      84
691 59 10   P5C111 DCW   @WRITE@              PRINTER WRITE OR DUMP                 5  6666                      84
692 59 20          DCW   @ONTO@                 %NUMERIC OR ALPHANUMERIC)           4  6670                      84
693 59 30          DCW   @PRINTER@                                                  7  6677                      84
694 59 40          DCW   @FROM@               %PRA,PRAS,PRN,PRNS,PRD,PRDS)          4  6681                      84
695 59 50          DCW   @1@                                                        1  6682                      84
696 59 60          DCW   @ @                                                        1  6683                      84
697 59 70   P5C112 DCW   @CONTROL@           SK,SEEK                                7  6690                      85
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

698 59 80          DCW   @DISK@                                                 4  6694                      85
699 59 90          DCW   @FROM@                                                 4  6698                      85
700 60 00          DCW   @1@                                                    1  6699                      85
701 60 10          DCW   @ @                                                    1  6700                      85
702 60 20   P5C113 DCW   @WRITE@              DISK WRITE FROM OP1               5  6705                      85
703 60 30          DCW   @DISK@                                                 4  6709                      85
704 60 40          DCW   @FROM@               %WDGN,WDN,WTGN,WTN)               4  6713                      86
705 60 50          DCW   @1@                                                    1  6714                      86
706 60 60          DCW   @ @                                                    1  6715                      86
707 60 70   P5C114 DCW   @SELECT@            SLIC                               6  6721                      86
708 60 80          DCW   @CHANNEL@            %SLIC)                            7  6728                      86
709 60 90          DCW   @FROM@                                                 4  6732                      86
710 61 00          DCW   @2@                                                    1  6733                      86
711 61 10          DCW   @ @                                                    1  6734                      87
712 61 20   P5C115 DCW   @CONTROL@           SA,SACO,SAOS,SAO                   7  6741                      87
713 61 50          DCW   @CHANNEL@                                              7  6748                      87
714 61 60          DCW   @2@                  %SA,SACO,SAOS,SAO)                1  6749                      87
715 61 70          DCW   @ @                                                    1  6750                      87
716 61 80   P5C116 DCW   @SELECT@            SLTA,SLAR,SLCB,SLTC,SLAD,SLME      6  6756                      87
717 61 90          DCW   @INTO@               %SLTA,SLAR,SLCB,SLTC,SLAD,SLME,   4  6760                      87
718 62 00          DCW   @1@                  SLRN)                             1  6761                      88
719 62 10          DCW   @AND@                                                  3  6764                      88
720 62 20          DCW   @READ@                                                 4  6768                      88
721 62 30          DCW   @CHANNEL@                                              7  6775                      88
722 62 40          DCW   @ @                                                    1  6776                      88
723 62 50   P5C117 DCW   @READ@              RNIC,RAIC                          4  6780                      88
724 62 60          DCW   @CHANNEL@            %RNIC,RAIC)                       7  6787                      88
725 62 70          DCW   @FROM@                                                 4  6791                      89
726 62 80          DCW   @1@                                                    1  6792                      89
727 62 90          DCW   @ @                                                    1  6793                      89
728 63 00   P5C118 DCW   @WRITE@             WNOC,WAOC                          5  6798                      89
729 63 10          DCW   @CHANNEL@            %WNOC,WAOC)                       7  6805                      89
730 63 20          DCW   @FROM@                                                 4  6809                      89
731 63 30          DCW   @1@                                                    1  6810                      89
732 63 40          DCW   @ @                                                    1  6811                      90
733 63 50   P5C119 DCW   @CONTROL@           K                                  7  6818                      90
734 63 60          DCW   @UNIT@                                                 4  6822                      90
735 63 70          DCW   @2@                                                    1  6823                      90
736 63 80          DCW   @ @                                                    1  6824                      90
737 63 90   P5C120 DCW   @READ@              GET                                4  6828                      90
738 64 00          DCW   @FROM@                                                 4  6832                      90
739 64 10          DCW   @1@                                                    1  6833                      91
740 64 20          DCW   @ @                                                    1  6834                      91
741 64 30   P5C121 DCW   @WRITE@             PUT                                5  6839                      91
742 64 40          DCW   @FROM@                                                 4  6843                      91
743 64 50          DCW   @1@                                                    1  6844                      91
744 64 60          DCW   @ @                                                    1  6845                      91
745 64 70   P5C122 DCW   @,@                  BRANCH AND TRANSMIT               1  6846                      91
746 64 80          DCW   @1@                                                    1  6847                      92
747 64 90          DCW   @-@                                                    1  6848                      92
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

748 65 00          DCW   @,@                                                          1  6849                      92
749 65 10          DCW   @0@                                                          1  6850                      92
750 65 20          DCW   @MOVE@                                                       4  6854                      92
751 65 30          DCW   @2@                                                          1  6855                      92
752 65 40          DCW   @ @                                                          1  6856                      92
753 65 405  P5C123 DCW   @,@                 NOP                                      1  6857                      93
754 65 410         DCW   @0@                                                          1  6858                      93
755 65 415         DCW   @NO@                                                         2  6860                      93
756 65 420         DCW   @OPERATION@                                                  9  6869                      93
757 65 425         DCW   @ @                                                          1  6870                      93
758 65 50   P5C125 DCW   @MODIFY@             ADDRESS MODIFICATION                    6  6876                      93
759 65 60          DCW   @1@                  %MA)                                    1  6877                      93
760 65 70          DCW   @ @                                                          1  6878                      94
761 65 80   P5C126 DCW   @SELECT@             SELECT CONDITION IN OP2                 6  6884                      94
762 65 90          DCW   @2@                  BEFORE BRANCHING       %BS)             1  6885                      94
763 66 00          DCW   @ @                                                          1  6886                      94
764 66 10   P5C127 DCW   @SELECT@             SELECT INDIRECT ADDRESSING              6  6892                      94
765 66 20          DCW   @INDIRECT@                                  %BSIA)           8  6900                      94
766 66 30          DCW   @ADDRESSING@                                                10  6910                      94
767 66 40          DCW   @ @                                                          1  6911                      95
768 66 50   P5C128 DCW   @SELECT@             SELECT NO INDIRECT ADDRESSING           6  6917                      95
769 66 60          DCW   @NO@                                        %BSNI)           2  6919                      95
770 66 70          DCW   @INDIRECT@                                                   8  6927                      95
771 66 80          DCW   @ADDRESSING@                                                10  6937                      95
772 66 90          DCW   @ @                                                          1  6938                      95
773 67 00   P5C129 DCW   @SELECT@             SELECT BAND A                           6  6944                      95
774 67 10          DCW   @BAND@                                      %BSBA)           4  6948                      96
775 67 20          DCW   @A@                                                          1  6949                      96
776 67 30          DCW   @ @                                                          1  6950                      96
777 67 40   P5C130 DCW   @SELECT@             SELECT BAND B                           6  6956                      96
778 67 50          DCW   @BAND@                                      %BSBB)           4  6960                      96
779 67 60          DCW   @B@                                                          1  6961                      96
780 67 70          DCW   @ @                                                          1  6962                      96
781 67 80   P5C131 DCW   @SELECT@            SELECT NO INDEXING                       6  6968                      97
782 67 90          DCW   @NO@                                                         2  6970                      97
783 68 00          DCW   @INDEX@                                                      5  6975                      97
784 68 10          DCW   @REGISTER@                                                   8  6983                      97
785 68 20          DCW   @ @                                                          1  6984                      97
786 68 30   P5C132 DCW   @MODIFY@            MODIFY INDEX REGISTER                    6  6990                      97
787 68 40          DCW   @XR@                                                         2  6992                      97
788 68 50          DCW   @BY@                                                         2  6994                      98
789 68 60          DCW   @2@                                                          1  6995                      98
790 68 70          DCW   @ @                                                          1  6996                      98
791 68 80   P5C133 DCW   @LOAD@              LOAD INDEX REGISTER                      4  7000                      98
792 68 90          DCW   @XR@                                                         2  7002                      98
793 69 00          DCW   @BY@                                                         2  7004                      98
794 69 10          DCW   @2@                                                          1  7005                      98
795 69 20          DCW   @ @                                                          1  7006                      99
796 69 30   P5C134 DCW   @STORE@             STORE INDEX REGISTER                     5  7011                      99
797 69 40          DCW   @XR@                                                         2  7013                      99
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

798 69 50          DCW   @AT@                                                       2  7015                      99
799 69 60          DCW   @2@                                                        1  7016                      99
800 69 70          DCW   @ @                                                        1  7017                      99
801 69 80   P5C135 DCW   @MODIFY@            MODIFY MODE                            6  7023                      99
802 70 10          DCW   @MODE@               %BO,BOLD,MK,UMK)                      4  7027                     100
803 70 20          DCW   @ @                                                        1  7028                     100
804 70 30   P5C145 DCW   @IS@                BOR                                    2  7030                     100
805 70 40          DCW   @OUTPUT@                                                   6  7036                     100
806 70 50          DCW   @RECORD@                                                   6  7042                     100
807 70 70          DCW   @MARK@                                                     4  7046                     100
808 70 80          DCW   @ @                                                        1  7047                     100
809 70 90   P5C146 DCW   @IS@                BRE                                    2  7049                     101
810 71 00          DCW   @THIS@                                                     4  7053                     101
811 71 10          DCW   @END@                                                      3  7056                     101
812 71 20          DCW   @OF@                                                       2  7058                     101
813 71 30          DCW   @MESSAGE@                                                  7  7065                     101
814 71 40          DCW   @ @                                                        1  7066                     101
815 71 50   P5C147 DCW   @IS@                BMC                                    2  7068                     101
816 71 60          DCW   @THIS@                                                     4  7072                     102
817 71 70          DCW   @MODE@                                                     4  7076                     102
818 71 80          DCW   @SHIFT@                                                    5  7081                     102
819 71 90          DCW   @ @                                                        1  7082                     102
820 72 00   P5C148 DCW   @IS@                BIR                                    2  7084                     102
821 72 10          DCW   @DATA@                                                     4  7088                     102
822 72 20          DCW   @READY@                                                    5  7093                     102
823 72 30          DCW   @ @                                                        1  7094                     103
824 72 40   P5C149 DCW   @IS@                BCNB                                   2  7096                     103
825 72 50          DCW   @SIOC@                                                     4  7100                     103
826 72 60          DCW   @NOT@                                                      3  7103                     103
827 72 70          DCW   @READY@                                                    5  7108                     103
828 72 80          DCW   @ @                                                        1  7109                     103
829 72 90   P5C150 DCW   @IS@                BNOR                                   2  7111                     103
830 73 00          DCW   @THERE@                                                    5  7116                     104
831 73 10          DCW   @NO@                                                       2  7118                     104
832 73 20          DCW   @OUTPUT@                                                   6  7124                     104
833 73 30          DCW   @RECORD@                                                   6  7130                     104
834 73 40          DCW   @MARK@                                                     4  7134                     104
835 73 50          DCW   @ @                                                        1  7135                     104
836 73 60   P5C151 DCW   @NO@                BNRE                                   2  7137                     104
837 73 70          DCW   @END@                                                      3  7140                     105
838 73 80          DCW   @OF@                                                       2  7142                     105
839 73 90          DCW   @MESSAGE@                                                  7  7149                     105
840 74 00          DCW   @ @                                                        1  7150                     105
841 74 10   P5C152 DCW   @NO@                BNMC                                   2  7152                     105
842 74 20          DCW   @MODE@                                                     4  7156                     105
843 74 30          DCW   @SHIFT@                                                    5  7161                     105
844 74 40          DCW   @ @                                                        1  7162                     106
845 74 50   P5C153 DCW   @NO@                BNIR                                   2  7164                     106
846 74 60          DCW   @DATA@                                                     4  7168                     106
847 74 70          DCW   @READY@                                                    5  7173                     106
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

848 74 80          DCW   @ @                                                        1  7174                     106
849 74 90   P5C154 DCW   @NO@              BCB                                      2  7176                     106
850 75 00          DCW   @SIOC@                                                     4  7180                     106
851 75 10          DCW   @NOT@                                                      3  7183                     107
852 75 20          DCW   @BUSY@                                                     4  7187                     107
853 75 30          DCW   @ @                                                        1  7188                     107
854 75 40   LOW    EQU   P5CAT-2            FOR PASS 5 DICTIONARIES                    5001
855 75 50   START  EQU   813                START ADDRESS                              0813
856 75 60   HIGH   EQU   *&1                HIGH POSITION FOR $ADD CARD                7189
857 75 70          END   P5CAT                                                              / |0T 080           108
843 74 30          DCW   @SHIFT@                                                    5  7161                     105           *****
844 74 40          DCW   @ @                                                        1  7162                     106
```

```
CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                            1             4CHR4
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?          2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039              ,0010011040          3

                          705/7080       COMMENT DICTIONARY    PASS5 FLOWCHART       4CHR4              PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    010  000    JOB   705/7080       COMMENT DICTIONARY    PASS5 FLOWCHART
 102    020         CTL   440
 103    030         DCW   @$ADD     @         CARDS COMMON TO ALL DICTIONARIES     9  0341                      4
 104    040         DSA   LOW                 --REQUIRED TO                        3  0344  |0/                 4
 105    050         DSA   START               --GENERATE THE APPROPRIATE           3  0347  813                 4
 106    060         DSA   HIGH                --$ADD CARD                          3  0350  B6/                 4
 107    070         DCW   @042565@            DATE OF ASSEMBLY                     6  0356                      4
 108    080         ORG   5001                                                           5001
 109    090  *
 110    100  *              P5C000-P5C024 SPECIFY COMMENT SKELETONS COMMON TO
 111    110  *              ALL P5CAT DICTIONARIES
 112    120  *
 113    130  P5CAT  DSA   P5C000              ASSEMBLY SEQUENCE NUMBER             3  5003  W0/                 5
 114    140         DSA   P5C001              OP1                                  3  5006  W0U                 5
 115    150         DSA   P5C002-6            COMPUTE                              3  5009  W0W                 5
 116    160         DSA   P5C003-3            EDIT                                 3  5012  W1U                 5
 117    170         DSA   P5C004-3            MOVE TO                              3  5015  W1Z                 5
 118    180         DSA   P5C005-2            SET                                  3  5018  W2W                 5
 119    190         DSA   P5C006-4            RESET                                3  5021  W3|                 5
 120    200         DSA   P5C007-3            ZERO                                 3  5024  W3W                 6
 121    210         DSA   P5C008-4            SHIFT                                3  5027  W4/                 6
 122    220         DSA   P5C009-4            CLEAR                                3  5030  W4X                 6
 123    230         DSA   P5C010              BCDOP  %USED FOR PREDF)              3  5033  W5T                 6
 124    240         DSA   P5C011-6            SEGMENT OP1,OP2,OP3 %JOB CARD)       3  5036  W5W                 6
 125    250         DSA   P5C012              , OP1 BACKSP SEQ.  %SUBRT  EG TS     3  5039  W6Z                 6
 126    260         DSA   P5C013              BCDOP BACKSPACE, RESELT IN OP1       3  5042  W7U                 6
 127    270         DSA   P5C014              SPEC3 %FOR DECID JUMP TYPE YES)      3  5045  W8X                 7
 128    280         DSA   P5C015-1            IS C%AC) EQUAL TO OP1                3  5048  W8Z                 7
 129    290         DSA   P5C016              BCDOP  OP1 OP2 OP3 BACKSPACE ,       3  5051  X0S                 7
 130    300         DSA   P5C017              BACKSPACE AND INSERT COMMA           3  5054  X0Z                 7
 131    310         DSA   P5C018              SEQ NUMBER, NO COMMA                 3  5057  X1T                 7
 132    320         DSA   P5C019-4            CHAIN FOR 1400 COMPUTERS             3  5060  X1V                 7
 133    330         DSA   P5C020              BCDOP,1,2,3-IS CONDITION TRUE        3  5063  X2/                 7
 134    340         ORG   *&12                                                           5076
 135    350  *
 136    360  * PKC025-P5C049 SPECIFY UNIQUE BLOCK-TYPE BOX COMMENTS
 137    370  *
 138    380         DSA   P5C025-3            LOAD OP1 INTO REGISTER XX            3  5078  X4/                 8
 139    390         DSA   P5C026-2            ADD  OP1 TO STORAGE                  3  5081  X6|                 8
 140    400         DSA   P5C027-7            SUBTRACT OP1 FROM STORAGE            3  5084  X7W                 8
 141    410         DSA   P5C028-5            DIVIDE   REGISTER BY OP1             3  5087  X9Z                 8
 142    420         DSA   P5C029-3            LOAD ZONE OF OP1 INTO REG. XX        3  5090  Y1X                 8
 143    430         DSA   P5C030-2            SET REG XX TO OP1                    3  5093  Y4S                 8
 144    440         DSA   P5C031-3            MOVE BLANKS TO OP1, OP2              3  5096  Y5T                 8
 145    450         DSA   P5C032-3            MOVE ZEROES TO OP1, OP2              3  5099  Y6Z                 9
 146    460         DSA   P5C033-4            BLANK MEMORY                         3  5102  Y8U                 9
 147    470         DSA   P5C034-7            MULTIPLY REGISTER BY OP1             3  5105  Y9/                 9
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SEQ PG LIN  LABEL  OP    OPERANDS                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

148    480         DSA   P5C035-3            LOAD OP1 INTO REGISTER             3  5108  Z1/                  9
149    490         DSA   P5C036-4            STORE REGISTER XX INTO OP1         3  5111  Z2Z                  9
150    500         DSA   P5C037-4            STORE REGISTER INTO OP1            3  5114  Z4Z                  9
151    510         DSA   P5C038-3            MOVE OP1 TO MEMORY                 3  5117  Z6Y                  9
152    520         DSA   P5C039-2            ADD REGISTER XX TO OP1             3  5120  Z7X                 10
153    530         DSA   P5C040-3            MOVE OP1 TO OP2                    3  5123  Z9T                 10
154    540         ORG   *&27                ALLOW FOR  9 ENTRIES                         5151
155    550  *
156    560  *          P5C050-P5C099 SPECIFY COMMENTS TO BE PRINTED IN
157    570  *          DECISIONAL BOXES
158    580  *
159    590         DSA   P5C050-1            IS INDICATOR ON              TXX     3  5153  !0S                 11
160    600         DSA   P5C051-1            IS STORAGE POSITIVE          TRP     3  5156  !1W                 11
161    610         DSA   P5C052-1            IS STORAGE ZERO      TRZ NTR TZB     3  5159  !3W                 11
162    620         DSA   P5C053-1            TEST OP1 SWITCH FOR ON      IFON     3  5162  !6T                 11
163    630         DSA   P5C054-1            IS REGISTER EQUAL TO OP1             3  5165  !7V                 11
164    640         DSA   P5C055-1            TEST OP1 SWITCH FOR OFF    IFOFF     3  5168  !9V                 11
165    650         DCW   #3                  P5C056 HAS BEEN REMOVED              3  5171                      11
166    660         DCW   #3                  P5C057 HAS BEEN REMOVED              3  5174                      12
167    670         DSA   P5C058-1            IS PROGRAM SWITCH ON     SWN SWT     3  5177  J0Y                 12
168    680         DSA   P5C059-7            TRANSFER ALTERNATELY ALTTR ALTNP     3  5180  J2W                 12
169    690         DSA   P5C060-4            FIRST TIME THRU       FTTRB FTTR     3  5183  J4W                 12
170    700         DSA   P5C061-4            AFTER FIRST TIME THR FTNOP FTNPB     3  5186  J6|                 12
171    710         DSA   P5C062-1            IS CONSOLE SWITCH ON                 3  5189  J7Z                 12
172    720         DSA   P5C063-1            IS CHECK INDICATOR ON                3  5192  J9X                 12
173    730         DSA   P5C064-1            IS REGISTER XX ZERO                  3  5195  K1W                 13
174    740         DSA   P5C065-1            IS BIT ZERO                          3  5198  K3S                 13
175    750         DSA   P5C066-1            IS REGISTER GREATER THAN OP1         3  5201  K4W                 13
176    760         ORG   *&99                ALLOW FOR 33 ENTRIES                           5301
177    770  *
178    780  * P5C100-P5C139 SPECIFY COMMENTS FOR I/O BOXES
179    790  *
180    800         DSA   P5C100-3            READ INTO OP1, RD FSP RMA            3  5303  K7|                 14
181    810         DSA   P5C101-5            SELECT I/O DEVICE, SEL               3  5306  K8|                 14
182    820         DSA   P5C102-4            ALTER DENSITY, SDL SDH               3  5309  K8Y                 14
183    830         DSA   P5C103-7            SUPPRESS OUTPUT, SUP                 3  5312  L0/                 14
184    840         DSA   P5C104-4            WRITE TAPE MARK, TWM                 3  5315  L1W                 14
185    850         DSA   P5C105-3            READ OP1 INTO OP2,  IOGET IORDS      3  5318  L3|                 14
186    860         DSA   P5C106-3            HOLD TAPE OP1                        3  5321  L4/                 14
187    870         DSA   P5C107-3            TURN OFF I/O INDICATOR               3  5324  L5T                 15
188    880         DSA   P5C108-4            CLOSE FILES, IOMFC IOCLS CLOSE       3  5327  L7T                 15
189    890         DSA   P5C109-3            OPEN FILES, IOMFC OPEN               3  5330  L8U                 15
190    900         DSA   P5C110-5            CHANGE FUNCTION OF OP1, IOMOP        3  5333  L9U                 15
191    910         DSA   P5C111-7            POSITION TAPE FILE                   3  5336  M1W                 15
192    920         DSA   P5C112-4            FORCE OUTPUT END OF REEL             3  5339  M3Y                 15
193    930         DSA   P5C113-3            READ OP1 FILE, IORD                  3  5342  M6W                 15
194    940         DSA   P5C114-5            CHANGE RETURN POINT, IORET           3  5345  M7W                 16
195    950         DSA   P5C115-8            BACKSPACE TAPE FILE OP1              3  5348  M9W                 16
196    960         DSA   P5C116-3            TYPE MESSAGE, IOTYP IODEC            3  5351  N1/                 16
197    970         DSA   P5C117-4            WRITE OP1 FILE, IOWR                 3  5354  N2U                 16
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SEQ PG LIN  LABEL  OP    OPERANDS                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD

198    980         DSA   P5C118-4            WRITE OP1 FROM OP2, IOWRS IODMP      3  5357  N3V                 16
199    990         DSA   P5C119-4            SPACE FORWARD TAPE FILE OP1          3  5360  N4X                 16
200  1 000         DSA   P5C120-3            TURN ON I/O INDICATOR                3  5363  N6V                 16
201  1 010         DSA   P5C121-4            WRITE FROM OP1, WR WRE               3  5366  N8U                 17
202  1 020         DSA   P5C122-5            REWIND TAPE FILE OP1                 3  5369  N9V                 17
203  1 030         DSA   P5C123-6            PROCESS ALL MESSAGES                 3  5372  O0X                 17
204  1 040         DSA   P5C124-4            LEAVE REAL TIME ROUTINE              3  5375  O2W                 17
205  1 050         DSA   P5C125-6            RELEASE 7750 LOAD STATUS             3  5378  O4X                 17
206  1 060         DSA   P5C126-3            SEND OP1 CONTROL ORDER               3  5381  O6V                 17
207  1 070         DSA   P5C127-3            MOVE OP1 TO STACK AREA               3  5384  O8T                 17
208  1 080         DSA   P5C128-4            FORCE SEQUENTIAL PROCESSING          3  5387  P0|                 18
209  1 090         DSA   P5C129-3            READ OR WRITE & PRINT                3  5390  P2W                 18
210  1 100         DSA   P5C130-4            RESET 760 COUNTER                    3  5393  P4X                 18
211  1 110         DSA   P5C131-5            BYPASS TRC                           3  5396  P6|                 18
212  1 120         DSA   P5C132-4            WRITE CLOCK                          3  5399  P7|                 18
213  1 130         ORG   *&21                ALLOW FOR  7 ENTRIES                          5421
214  1 140  *
215  1 150  * P5C140-P5C149 SPECIFY COMMENTS FOR SUBROUTINE BOXES
216  1 160  *
217  1 170         DSA   P5C140              SUBROUTINE LINKAGE                   3  5423  P8/                 19
218  1 180         ORG   *&27                ALLOW FOR 9  ENTRIES                          5451
219  1 190  *
220  1 200  * P5C150-P5C174 SPECIFY COMMENTS FOR MODIFY BOXES
221  1 210  *
222  1 220         DSA   P5C150-2            SET OFF SWITCHES OP1, OP2            3  5453  P8Y                 20
223  1 230         DSA   P5C151-5            ENABLE INDIRECT ADDRESS              3  5456  Q0W                 20
224  1 240         DSA   P5C152-2            SET RECORD COUNTER TO OP1            3  5459  Q2Y                 20
225  1 250         DSA   P5C153-2            SET  ON SWITCHES OP1, OP2            3  5462  Q4Y                 20
226  1 260         DSA   P5C154-2            SET SPC TO OP1                       3  5465  Q6V                 20
227  1 270         DSA   P5C155-4            RESET CHANNEL CHECK INDICATORS       3  5468  Q7V                 20
228  1 280         DSA   P5C156-5            ENABLE BACKWARD COMPAR       ECB     3  5471  R1S                 20
229  1 290         DSA   P5C157-5            CHANGE BIT AT OP1                    3  5474  R3U                 21
230  1 300         DSA   P5C158-4            SHIFT SPC OP1 PLACES & ROUND         3  5477  R4X                 21
231  1 310         DSA   P5C159-4            ALTER MACHINE OPERATION MODE         3  5480  R7U                 21
232  1 320         DSA   P5C160-9            INITIALIZE OP1 WITH OP2              3  5483  ?0|                 21
233  1 330         DSA   P5C161-4            SHIFT SPC OP1 POSITIONS              3  5486  ?1X                 21
234  1 340         DSA   P5C162-5            MODIFY TABLE OP1 WITH OP2            3  5489  ?3W                 21
235  1 350         DSA   P5C163-8            DECREMENT OP1 WITH OP2               3  5492  ?5U                 21
236  1 360         DSA   P5C164-8            INCREMENT OP1 WITH OP2               3  5495  ?7|                 22
237  1 370         DSA   P5C165-4            ALTER INTERRUPT MODE                 3  5498  ?8W                 22
238  1 380         DSA   P5C166-5            CHANGE MESSAGE CLASS CODE            3  5501  A0V                 22
239  1 390         DSA   P5C167-3            MOVE ADDRESS OF OP1 TO OP2           3  5504  A2Z                 22
240  1 400         ORG   *&21                ALLOW FOR 7 ENTRIES                           5526
241  1 410  *
242  1 420  * P5C175-P5C199 SPECIFY COMMENTS FOR PRE-DEFINED BOXES
243  1 430  *
244  1 440         DSA   P5C175-3            TEST OP1 & BRANCH MINUS,ZERO,PLS     3  5528  A4X                 23
245  1 450         DSA   P5C176-5            SERCH TABLE                          3  5531  A7V                 23
246  1 460         DCW   #3                  P5C177 HAS BEEN REMOVED              3  5534                      23
247  1 470         DSA   P5C178-1            TEST IF WITHIN RANGE                 3  5537  A8X                 23
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SEQ PG LIN  LABEL  OP    OPERANDS                                                 SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  1 480         DSA   P5C179-5            COMPAR OP1 TO OP2 AND BRANCH             3  5540  B1W                 23
249  1 490         DSA   P5C180-1            IS OP1 NUMERIC-BRANCH YES OR NO          3  5543  B3W                 23
250  1 500         ORG   *&57                ALLOW FOR 19 ENTRIES                             5601
251  1 510  *
252  1 520  *
253  1 530  P5C000 DCW   @,@                 SUBSTITUTE SEQUENCE FIELD ,              1  5601                      24
254  1 540         DCW   @0@                                                          1  5602                      24
255  1 550         DCW   @ @                                                          1  5603                      24
256  1 560  P5C001 DCW   @1@                 SUBSTITUTE OPERAND-1                     1  5604                      24
257  1 570         DCW   @ @                                                          1  5605                      24
258  1 580  P5C002 DCW   @COMPUTE@           COMPUTE  MODE                            7  5612                      24
259  1 590         DCW   @ @                                                          1  5613                      24
260  1 600  P5C003 DCW   @EDIT@              EDIT     MODE                            4  5617                      25
261  1 610         DCW   @ @                                                          1  5618                      25
262  1 620  P5C004 DCW   @MOVE@              MOVE TO  MODE                            4  5622                      25
263  1 630         DCW   @TO@                                                         2  5624                      25
264  1 640         DCW   @ @                                                          1  5625                      25
265  1 650  P5C005 DCW   @SET@               SET      MODE                            3  5628                      25
266  1 660         DCW   @ @                                                          1  5629                      25
267  1 670  P5C006 DCW   @RESET@             RESET    MODE                            5  5634                      26
268  1 680         DCW   @ @                                                          1  5635                      26
269  1 690  P5C007 DCW   @ZERO@              ZERO                                     4  5639                      26
270  1 700         DCW   @ @                                                          1  5640                      26
271  1 710  P5C008 DCW   @SHIFT@             SHIFT                                    5  5645                      26
272  1 720         DCW   @ @                                                          1  5646                      26
273  1 730  P5C009 DCW   @CLEAR@             CLEAR                                    5  5651                      26
274  1 740         DCW   @ @                                                          1  5652                      27
275  1 750  P5C010 DCW   @,@                 BCDOP, %USED FOR PREDF)                  1  5653                      27
276  1 760         DCW   @4@                                                          1  5654                      27
277  1 770         DCW   @ @                                                          1  5655                      27
278  1 780  P5C011 DCW   @SEGMENT@           SEGMENT OP1,OP2,OP3 %JOB CARD)           7  5662                      27
279  1 790         DCW   @,@                                                          1  5663                      27
280  1 800         DCW   @1@                                                          1  5664                      27
281  1 810         DCW   @,@                                                          1  5665                      28
282  1 820         DCW   @2@                                                          1  5666                      28
283  1 830         DCW   @3@                                                          1  5667                      28
284  1 840         DCW   @ @                                                          1  5668                      28
285  1 850  P5C012 DCW   @,@                 OP1,BACKSPACE SEQ %SUBRT EG TSX)         1  5669                      28
286  1 860         DCW   @1@                                                          1  5670                      28
287  1 870         DCW   @-@                                                          1  5671                      28
288  1 880         DCW   @0@                                                          1  5672                      29
289  1 890         DCW   @ @                                                          1  5673                      29
290  1 900  P5C013 DCW   @,@                 BCDOP,BACKSPACE RESULT IN OP1            1  5674                      29
291  1 910         DCW   @4@                                                          1  5675                      29
292  1 920         DCW   @-@                                                          1  5676                      29
293  1 930         DCW   @RESULT@                                                     6  5682                      29
294  1 940         DCW   @IN@                                                         2  5684                      29
295  1 950         DCW   @1@                                                          1  5685                      30
296  1 960         DCW   @ @                                                          1  5686                      30
297  1 970  P5C014 DCW   @7@                 SPEC 3                                   1  5687                      30
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SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD

298  1 980         DCW   @ @                                                      1  5688                      30
299  1 990  P5C015 DCW   @IS@               IS AC EQUAL TO OP2                    2  5690                      30
300  2 000         DCW   @AC@                                                     2  5692                      30
301  2 010         DCW   @EQUAL@                                                  5  5697                      30
302  2 020         DCW   @TO@                                                     2  5699                      31
303  2 030         DCW   @2@                                                      1  5700                      31
304  2 040         DCW   @ @                                                      1  5701                      31
305  2 050  P5C016 DCW   @4@                BCDOP OP1,OP2,OP3                     1  5702                      31
306  2 060         DCW   @,@                                                      1  5703                      31
307  2 070         DCW   @1@                                                      1  5704                      31
308  2 080         DCW   @,@                                                      1  5705                      31
309  2 090         DCW   @2@                                                      1  5706                      32
310  2 100         DCW   @3@                                                      1  5707                      32
311  2 110         DCW   @ @                                                      1  5708                      32
312  2 120  P5C017 DCW   @-@                BACKSPACE                             1  5709                      32
313  2 130         DCW   @&@                AND INSERT A COMMA                    1  5710                      32
314  2 140         DCW   @,@                                                      1  5711                      32
315  2 150         DCW   @ @                                                      1  5712                      32
316  2 160  P5C018 DCW   @0@                SEQ. NUMBER                           1  5713                      33
317  2 170         DCW   @ @                                                      1  5714                      33
318  2 180  P5C019 DCW   @CHAIN@                                                  5  5719                      33
319  2 190         DCW   @ @                                                      1  5720                      33
320  2 200  P5C020 DCW   @4@                BCDOP OP1 OP2 OP3                     1  5721                      33
321  2 210         DCW   @1@                                                      1  5722                      33
322  2 220         DCW   @2@                IS CONDITION TRUE                     1  5723                      33
323  2 230         DCW   @3@                                                      1  5724                      34
324  2 240         DCW   @IS@                                                     2  5726                      34
325  2 250         DCW   @CONDITION@                                              9  5735                      34
326  2 260         DCW   @TRUE@                                                   4  5739                      34
327  2 270         DCW   @ @                                                      1  5740                      34
328  2 280  P5C025 DCW   @LOAD@             LOAD OP1 INTO REGISTER XX             4  5744                      34
329  2 290         DCW   @1@                                                      1  5745                      34
330  2 300         DCW   @INTO@             LOD LDA                               4  5749                      35
331  2 310         DCW   @REGISTER@         RAD RSU                               8  5757                      35
332  2 320         DCW   @8@                                                      1  5758                      35
333  2 330         DCW   @ @                                                      1  5759                      35
334  2 340  P5C026 DCW   @ADD@              ADD OP1 TO REGISTER                   3  5762                      35
335  2 350         DCW   @1@                ADD                                   1  5763                      35
336  2 360         DCW   @TO@                                                     2  5765                      35
337  2 370         DCW   @REGISTER@                                               8  5773                      36
338  2 380         DCW   @8@                                                      1  5774                      36
339  2 390         DCW   @ @                                                      1  5775                      36
340  2 400  P5C027 DCW   @SUBTRACT@         SUBTRACT OP1 FROM REGISTER XX         8  5783                      36
341  2 410         DCW   @1@                SUB                                   1  5784                      36
342  2 420         DCW   @FROM@                                                   4  5788                      36
343  2 430         DCW   @REGISTER@                                               8  5796                      36
344  2 440         DCW   @8@                                                      1  5797                      37
345  2 450         DCW   @ @                                                      1  5798                      37
346  2 460  P5C028 DCW   @DIVIDE@           DIVIDE REGISTER BY OP1                6  5804                      37
347  2 470         DCW   @REGISTER@                                               8  5812                      37
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

348  2 480         DCW   @BY@              DIV                                  2  5814                      37
349  2 490         DCW   @1@                                                    1  5815                      37
350  2 500         DCW   @ @                                                    1  5816                      37
351  2 510  P5C029 DCW   @LOAD@            LOAD ZONE OF OP1 INTO REG. XX        4  5820                      38
352  2 520         DCW   @ZONE@                                                 4  5824                      38
353  2 530         DCW   @OF@              SGN                                  2  5826                      38
354  2 540         DCW   @1@                                                    1  5827                      38
355  2 550         DCW   @INTO@                                                 4  5831                      38
356  2 560         DCW   @REGISTER@                                             8  5839                      38
357  2 570         DCW   @8@                                                    1  5840                      38
358  2 580         DCW   @ @                                                    1  5841                      39
359  2 590  P5C030 DCW   @SET@             SET REG XX TO OP1                    3  5844                      39
360  2 600         DCW   @REG@                                                  3  5847                      39
361  2 610         DCW   @8@               SET                                  1  5848                      39
362  2 620         DCW   @TO@              ASU                                  2  5850                      39
363  2 630         DCW   @1@               CASU                                 1  5851                      39
364  2 640         DCW   @ @                                                    1  5852                      39
365  2 650  P5C031 DCW   @MOVE@            MOVE BLANKS TO OP1, OP2, OP3         4  5856                      40
366  2 660         DCW   @BLANKS@                                               6  5862                      40
367  2 670         DCW   @TO@              BLANK                                2  5864                      40
368  2 680         DCW   @,@                                                    1  5865                      40
369  2 690         DCW   @1@                                                    1  5866                      40
370  2 700         DCW   @2@                                                    1  5867                      40
371  2 710         DCW   @ @                                                    1  5868                      40
372  2 720  P5C032 DCW   @MOVE@            MOVE ZEROS TO OP1, OP2, OP3          4  5872                      41
373  2 730         DCW   @ZEROS@                                                5  5877                      41
374  2 740         DCW   @TO@              ZERO                                 2  5879                      41
375  2 750         DCW   @,@                                                    1  5880                      41
376  2 760         DCW   @1@                                                    1  5881                      41
377  2 770         DCW   @2@                                                    1  5882                      41
378  2 780         DCW   @ @                                                    1  5883                      41
379  2 790  P5C033 DCW   @BLANK@           BLANK MEMORY                         5  5888                      42
380  2 800         DCW   @9@               BLM BLMS                             1  5889                      42
381  2 810         DCW   @ @                                                    1  5890                      42
382  2 820  P5C034 DCW   @MULTIPLY@        MULTIPLY REGISTER BY OP1             8  5898                      42
383  2 830         DCW   @REGISTER@                                             8  5906                      42
384  2 840         DCW   @BY@              MPY                                  2  5908                      42
385  2 850         DCW   @1@                                                    1  5909                      42
386  2 860         DCW   @ @                                                    1  5910                      43
387  2 870  P5C035 DCW   @LOAD@            LOAD OP1 INTO REGISTER               4  5914                      43
388  2 880         DCW   @1@                                                    1  5915                      43
389  2 890         DCW   @INTO@            LFC                                  4  5919                      43
390  2 900         DCW   @REGISTER@        LSB                                  8  5927                      43
391  2 910         DCW   @ @                                                    1  5928                      43
392  2 920  P5C036 DCW   @STORE@           STORE REGISTER XX INTO OP1           5  5933                      43
393  2 930         DCW   @REGISTER@                                             8  5941                      44
394  2 940         DCW   @8@               UNL ST                               1  5942                      44
395  2 950         DCW   @INTO@            ULA                                  4  5946                      44
396  2 960         DCW   @1@                                                    1  5947                      44
397  2 970         DCW   @ @                                                    1  5948                      44
```

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
398	2	980	P5C037	DCW	@STORE@	STORE REGISTER INTO OP1		5	5953		44
399	2	990		DCW	@REGISTER@			8	5961		44
400	3	000		DCW	@INTO@	UFC USB		4	5965		45
401	3	010		DCW	@1@			1	5966		45
402	3	020		DCW	@ @			1	5967		45
403	3	030	P5C038	DCW	@MOVE@	MOVE OP1 TO MEMORY		4	5971		45
404	3	040		DCW	@1@			1	5972		45
405	3	050		DCW	@TO@	SND		2	5974		45
406	3	060		DCW	@9@	TMT TMTS TCT		1	5975		45
407	3	070		DCW	@ @			1	5976		46
408	3	080	P5C039	DCW	@ADD@	ADD REGISTER XX TO OP1		3	5979		46
409	3	090		DCW	@REGISTER@			8	5987		46
410	3	100		DCW	@8@	ADM		1	5988		46
411	3	110		DCW	@TO@	AAM		2	5990		46
412	3	120		DCW	@1@			1	5991		46
413	3	130		DCW	@ @			1	5992		46
414	3	140	P5C040	DCW	@MOVE@	MOVE OP1 TO OP2		4	5996		47
415	3	150		DCW	@1@			1	5997		47
416	3	160		DCW	@TO@	MOVE		2	5999		47
417	3	170		DCW	@2@			1	6000		47
418	3	180		DCW	@ @			1	6001		47
419	3	190	P5C050	DCW	@IS@	IS INDICATOR ON		2	6003		47
420	3	200		DCW	@INDICATOR@			9	6012		47
421	3	210		DCW	@ON@	TAR TSA TTC TRR TRS		2	6014		48
422	3	220		DCW	@ @			1	6015		48
423	3	230	P5C051	DCW	@IS@	IS REGISTER POSITIVE		2	6017		48
424	3	240		DCW	@8@			1	6018		48
425	3	250		DCW	@REGISTER@			8	6026		48
426	3	260		DCW	@POSITIVE@	TRP		8	6034		48
427	3	270		DCW	@ @			1	6035		48
428	3	280	P5C052	DCW	@IS@	IS CHARACTER ZERO		2	6037		49
429	3	290		DCW	@CHARACTER@	NTR		9	6046		49
430	3	300		DCW	@IN@			2	6048		49
431	3	310		DCW	@REGISTER@			8	6056		49
432	3	320		DCW	@8@			1	6057		49
433	3	330		DCW	@ZERO@			4	6061		49
434	3	340		DCW	@ @			1	6062		49
435	3	350	P5C053	DCW	@IS@	IS OP2 SWITCH ON		2	6064		50
436	3	360		DCW	@2@	IFON		1	6065		50
437	3	370		DCW	@SWITCH@			6	6071		50
438	3	380		DCW	@ON@			2	6073		50
439	3	390		DCW	@ @			1	6074		50
440	3	400	P5C054	DCW	@IS@	IS REGISTER EQUAL TO OP1		2	6076		50
441	3	410		DCW	@REGISTER@			8	6084		50
442	3	420		DCW	@6@			1	6085		51
443	3	430		DCW	@EQUAL@	TRE		5	6090		51
444	3	440		DCW	@TO@			2	6092		51
445	3	450		DCW	@5@			1	6093		51
446	3	460		DCW	@ @			1	6094		51
447	3	470	P5C055	DCW	@IS@	IS OP2 SWITCH OFF		2	6096		51

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SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

448  3 480         DCW   @2@                 IFOFF                                    1  6097                      51
449  3 490         DCW   @SWITCH@                                                     6  6103                      52
450  3 500         DCW   @OFF@                                                        3  6106                      52
451  3 510         DCW   @ @                                                          1  6107                      52
452  3 520  P5C058 DCW   @IS@                IS PROGRAM SWITCH ON                     2  6109                      52
453  3 530         DCW   @PROGRAM@                                                    7  6116                      52
454  3 540         DCW   @SWITCH@            SWN                                      6  6122                      52
455  3 550         DCW   @ON@                SWT                                      2  6124                      52
456  3 560         DCW   @ @                                                          1  6125                      53
457  3 570  P5C059 DCW   @TRANSFER@          TRANSFER ALTERNATELY                     8  6133                      53
458  3 580         DCW   @ALTERNATELY@       ALTTR                                   11  6144                      53
459  3 590         DCW   @ @                 ALTNP                                    1  6145                      53
460  3 600  P5C060 DCW   @FIRST@             FIRST TIME THRU                          5  6150                      53
461  3 610         DCW   @TIME@              FTTRB                                    4  6154                      53
462  3 620         DCW   @THRU@              FTTR                                     4  6158                      53
463  3 630         DCW   @ @                                                          1  6159                      54
464  3 640  P5C061 DCW   @AFTER@             AFTER FIRST TIME THRU                    5  6164                      54
465  3 650         DCW   @FIRST@                                                      5  6169                      54
466  3 660         DCW   @TIME@              FTNOP                                    4  6173                      54
467  3 670         DCW   @THRU@              FTNPB                                    4  6177                      54
468  3 680         DCW   @ @                                                          1  6178                      54
469  3 690  P5C062 DCW   @IS@                IS CONSOLE SWITCH ON                     2  6180                      54
470  3 700         DCW   @CONSOLE@                                                    7  6187                      55
471  3 710         DCW   @SWITCH@            TAA TAB TAC TAD TAE TAF TNS              6  6193                      55
472  3 720         DCW   @ON@                                                         2  6195                      55
473  3 730         DCW   @ @                                                          1  6196                      55
474  3 740  P5C063 DCW   @IS@                IS CHECK INDICATOR ON                    2  6198                      55
475  3 750         DCW   @CHECK@                                                      5  6203                      55
476  3 760         DCW   @INDICATOR@         TIC TMC TRC TEC TOC TSC TRA              9  6212                      55
477  3 770         DCW   @ON@                                                         2  6214                      56
478  3 780         DCW   @ @                                                          1  6215                      56
479  3 790  P5C064 DCW   @IS@                IS REGISTER XX ZERO                      2  6217                      56
480  3 800         DCW   @REGISTER@                                                   8  6225                      56
481  3 810         DCW   @8@                 TRZ                                      1  6226                      56
482  3 820         DCW   @ZERO@                                                       4  6230                      56
483  3 830         DCW   @ @                                                          1  6231                      56
484  3 840  P5C065 DCW   @IS@                IS BIT ZERO                              2  6233                      57
485  3 850         DCW   @8@                                                          1  6234                      57
486  3 860         DCW   @BIT@                                                        3  6237                      57
487  3 870         DCW   @OF@                                                         2  6239                      57
488  3 880         DCW   @9@                                                          1  6240                      57
489  3 890         DCW   @ZERO@              TZB                                      4  6244                      57
490  3 900         DCW   @ @                                                          1  6245                      57
491  3 910  P5C066 DCW   @IS@                IS REGISTER GREATER THAN OP1             2  6247                      58
492  3 920         DCW   @REGISTER@                                                   8  6255                      58
493  3 930         DCW   @6@                                                          1  6256                      58
494  3 940         DCW   @GREATER@           TRH                                      7  6263                      58
495  3 950         DCW   @THAN@                                                       4  6267                      58
496  3 960         DCW   @5@                                                          1  6268                      58
497  3 970         DCW   @ @                                                          1  6269                      58
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

498  3 980  P5C100 DCW   @READ@              READ INTO OP1                          4  6273                      59
499  3 990         DCW   @INTO@              RD FSP RMA  RD 01 THRU RD 05           4  6277                      59
500  4 000         DCW   @1@                 SST CRD RMB RWW                        1  6278                      59
501  4 010         DCW   @ @                 DUMP  RTS                              1  6279                      59
502  4 020  P5C101 DCW   @SELECT@            SELECT I/O DEVICE                      6  6285                      59
503  4 030         DCW   @1@                 SEL                                    1  6286                      59
504  4 040         DCW   @ @                                                        1  6287                      59
505  4 050  P5C102 DCW   @ALTER@             ALTER DENSITY                          5  6292                      60
506  4 060         DCW   @DENSITY@           SDL SDH                                7  6299                      60
507  4 070         DCW   @ @                                                        1  6300                      60
508  4 080  P5C103 DCW   @SUPPRESS@          SUPPRESS OUTPUT                        8  6308                      60
509  4 090         DCW   @OUTPUT@            SUP                                    6  6314                      60
510  4 100         DCW   @ @                                                        1  6315                      60
511  4 110  P5C104 DCW   @WRITE@             WRITE TAPE MARK                        5  6320                      60
512  4 120         DCW   @TAPE@              WTM                                    4  6324                      61
513  4 130         DCW   @MARK@                                                     4  6328                      61
514  4 140         DCW   @ @                                                        1  6329                      61
515  4 150  P5C105 DCW   @READ@              READ OP1 INTO OP2                      4  6333                      61
516  4 160         DCW   @1@                 IORDS                                  1  6334                      61
517  4 170         DCW   @INTO@              GETR                                   4  6338                      61
518  4 180         DCW   @2@                 GETS                                   1  6339                      61
519  4 190         DCW   @ @                                                        1  6340                      62
520  4 200  P5C106 DCW   @HOLD@              HOLD TAPE OP1, OP2                     4  6344                      62
521  4 210         DCW   @TAPE@                                                     4  6348                      62
522  4 220         DCW   @,@                 IOHLD                                  1  6349                      62
523  4 230         DCW   @1@                                                        1  6350                      62
524  4 240         DCW   @2@                                                        1  6351                      62
525  4 250         DCW   @ @                                                        1  6352                      62
526  4 260  P5C107 DCW   @TURN@              TURN OFF I/O INDICATOR                 4  6356                      63
527  4 270         DCW   @OFF@                                                      3  6359                      63
528  4 280         DCW   @I/O@               IOF                                    3  6362                      63
529  4 290         DCW   @INDICATOR@         IOIOF                                  9  6371                      63
530  4 300         DCW   @ @                                                        1  6372                      63
531  4 310  P5C108 DCW   @CLOSE@             CLOSE FILES                            5  6377                      63
532  4 320         DCW   @FILES@             IOCLS IOMFC                            5  6382                      63
533  4 330         DCW   @ @                                                        1  6383                      64
534  4 340  P5C109 DCW   @OPEN@              OPEN FILES                             4  6387                      64
535  4 350         DCW   @FILES@             OPEN IOMFO                             5  6392                      64
536  4 360         DCW   @ @                                                        1  6393                      64
537  4 370  P5C110 DCW   @CHANGE@            CHANGE FUNCTION OF OP1 FILE            6  6399                      64
538  4 380         DCW   @FUNCTION@          IOMIP IOMOP                            8  6407                      64
539  4 390         DCW   @OF@                                                       2  6409                      64
540  4 400         DCW   @1@                                                        1  6410                      65
541  4 410         DCW   @FILE@                                                     4  6414                      65
542  4 420         DCW   @ @                                                        1  6415                      65
543  4 430  P5C111 DCW   @POSITION@          POSITION TAPE OP1 OP2 RECORDS          8  6423                      65
544  4 440         DCW   @TAPE@                                                     4  6427                      65
545  4 450         DCW   @1@                 IOPOS                                  1  6428                      65
546  4 460         DCW   @2@                                                        1  6429                      65
547  4 470         DCW   @RECORDS@                                                  7  6436                      66
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SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
548	4	480		DCW	@ @			1	6437		66
549	4	490	P5C112	DCW	@FORCE@	FORCE OUTPUT END OF REEL OP1		5	6442		66
550	4	500		DCW	@OUTPUT@			6	6448		66
551	4	510		DCW	@END@	IOFER		3	6451		66
552	4	520		DCW	@OF@	EOR		2	6453		66
553	4	530		DCW	@REEL@			4	6457		66
554	4	540		DCW	@ON@			2	6459		67
555	4	550		DCW	@FILE@			4	6463		67
556	4	560		DCW	@1@			1	6464		67
557	4	570		DCW	@ @			1	6465		67
558	4	580	P5C113	DCW	@READ@	READ OP1 FILE		4	6469		67
559	4	590		DCW	@1@	IORD IOGET GET		1	6470		67
560	4	600		DCW	@FILE@	GETR		4	6474		67
561	4	610		DCW	@ @			1	6475		68
562	4	620	P5C114	DCW	@CHANGE@	CHANGE RETURN POINT, OP1		6	6481		68
563	4	630		DCW	@RETURN@			6	6487		68
564	4	640		DCW	@,@			1	6488		68
565	4	650		DCW	@POINT@	IORET		5	6493		68
566	4	660		DCW	@1@			1	6494		68
567	4	670		DCW	@ @			1	6495		68
568	4	680	P5C115	DCW	@BACKSPACE@	BACKSPACE TAPE FILE OP1		9	6504		69
569	4	690		DCW	@TAPE@	BSF BSP		4	6508		69
570	4	700		DCW	@1@	IOBSD IOBSF IOBSP		1	6509		69
571	4	710		DCW	@ @			1	6510		69
572	4	720	P5C116	DCW	@TYPE@	TYPE MESSAGE, OP1, OP2, OP3		4	6514		69
573	4	730		DCW	@MESSAGE@	IODEC		7	6521		69
574	4	740		DCW	@1@	TYPE, IOTYP		1	6522		69
575	4	750		DCW	@ @			1	6523		70
576	4	760	P5C117	DCW	@WRITE@	WRITE OP1 FILE		5	6528		70
577	4	770		DCW	@1@	PUTR		1	6529		70
578	4	780		DCW	@FILE@	IOWR IOPUT PUT		4	6533		70
579	4	790		DCW	@ @			1	6534		70
580	4	800	P5C118	DCW	@WRITE@	WRITE OP1 FROM OP2		5	6539		70
581	4	810		DCW	@1@			1	6540		70
582	4	820		DCW	@FROM@	IOWRS		4	6544		71
583	4	830		DCW	@2@	IODMP		1	6545		71
584	4	840		DCW	@ @			1	6546		71
585	4	850	P5C119	DCW	@SPACE@	SPACE FORWARD TAPE FILE OP1		5	6551		71
586	4	860		DCW	@FORWARD@			7	6558		71
587	4	870		DCW	@TAPE@	IOFSF IOFSP		4	6562		71
588	4	880		DCW	@1@	SKP RWT		1	6563		71
589	4	890		DCW	@ @			1	6564		72
590	4	900	P5C120	DCW	@TURN@	TURN ON I/O INDICATOR		4	6568		72
591	4	910		DCW	@ON@			2	6570		72
592	4	920		DCW	@I/O@	ION		3	6573		72
593	4	930		DCW	@INDICATOR@	IOION		9	6582		72
594	4	940		DCW	@ @			1	6583		72
595	4	950	P5C121	DCW	@WRITE@	WRITE FROM OP1		5	6588		72
596	4	960		DCW	@FROM@	WR DMP SCC CWR WMC WRE		4	6592		73
597	4	970		DCW	@1@	WR 01 THRU WR 05		1	6593		73

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX CT	LOCN	INSTRUCTION TYPE	CARD
598	4	980		DCW	@ @	LOAD PRW WST	1	6594		73
599	4	990	P5C122	DCW	@REWIND@	REWIND TAPE FILE OP1	6	6600		73
600	5	000		DCW	@TAPE@	IORUN RUN	4	6604		73
601	5	010		DCW	@1@	IORWD RWD	1	6605		73
602	5	020		DCW	@ @		1	6606		73
603	5	030	P5C123	DCW	@PROCESS@	PROCESS ALL MESSAGES	7	6613		74
604	5	040		DCW	@ALL@		3	6616		74
605	5	050		DCW	@MESSAGES@	CLIP	8	6624		74
606	5	060		DCW	@ @		1	6625		74
607	5	070	P5C124	DCW	@LEAVE@	LEAVE REAL TIME ROUTINE	5	6630		74
608	5	080		DCW	@REAL@		4	6634		74
609	5	090		DCW	@TIME@	LEVRT	4	6638		74
610	5	100		DCW	@ROUTINE@		7	6645		75
611	5	110		DCW	@ @		1	6646		75
612	5	120	P5C125	DCW	@RELEASE@	RELEASE 7750 LOAD STATUS	7	6653		75
613	5	130		DCW	@LOAD@	ENDLD	4	6657		75
614	5	140		DCW	@STATUS@		6	6663		75
615	5	150		DCW	@ @		1	6664		75
616	5	160	P5C126	DCW	@SEND@	SEND OP1 CONTROL ORDER	4	6668		75
617	5	170		DCW	@1@		1	6669		76
618	5	180		DCW	@CONTROL@	IOCTL	7	6676		76
619	5	190		DCW	@ORDER@		5	6681		76
620	5	200		DCW	@ @		1	6682		76
621	5	210	P5C127	DCW	@MOVE@	MOVE OP1 TO STACK AREA	4	6686		76
622	5	220		DCW	@1@		1	6687		76
623	5	230		DCW	@TO@	MVRSA	2	6689		76
624	5	240		DCW	@STACK@		5	6694		77
625	5	250		DCW	@AREA@		4	6698		77
626	5	260		DCW	@ @		1	6699		77
627	5	270	P5C128	DCW	@FORCE@	FORCE SEQUENTIAL PROCESSING	5	6704		77
628	5	280		DCW	@SEQUENTIAL@		10	6714		77
629	5	290		DCW	@PROCESSING@	FSEQP	10	6724		77
630	5	300		DCW	@ @		1	6725		77
631	5	310	P5C129	DCW	@READ@	READ OR WRITE & PRINT OP1	4	6729		78
632	5	320		DCW	@OR@		2	6731		78
633	5	330		DCW	@WRITE@	WRS	5	6736		78
634	5	340		DCW	@AND@	PTW	3	6739		78
635	5	350		DCW	@PRINT@		5	6744		78
636	5	360		DCW	@1@		1	6745		78
637	5	370		DCW	@ @		1	6746		78
638	5	380	P5C130	DCW	@RESET@	RESET 760 COUNTER	5	6751		79
639	5	390		DCW	@COUNTER@	RST	7	6758		79
640	5	400		DCW	@ @		1	6759		79
641	5	410	P5C131	DCW	@BYPASS@	BYPASS TRC	6	6765		79
642	5	420		DCW	@TRC@	BPC	3	6768		79
643	5	430		DCW	@ @		1	6769		79
644	5	440	P5C132	DCW	@WRITE@	WRITE CLOCK	5	6774		79
645	5	450		DCW	@CLOCK@	HWCF HWCS	5	6779		80
646	5	460		DCW	@ @		1	6780		80
647	5	470	P5C140	DCW	@,@	SUBROUTINE LINKAGE	1	6781		80

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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

648  5 480         DCW   @1@                                                    1  6782                      80
649  5 490         DCW   @-@                  LINK                              1  6783                      80
650  5 500         DCW   @,@                  LINKA                             1  6784                      80
651  5 510         DCW   @2@                                                    1  6785                      80
652  5 520         DCW   @3@                                                    1  6786                      81
653  5 530         DCW   @ @                                                    1  6787                      81
654  5 540  P5C150 DCW   @SET@                SET OFF SWITCHES OP1, OP2, OP3    3  6790                      81
655  5 550         DCW   @OFF@                                                  3  6793                      81
656  5 560         DCW   @SWITCHES@           SETOF                             8  6801                      81
657  5 570         DCW   @,@                                                    1  6802                      81
658  5 580         DCW   @1@                                                    1  6803                      81
659  5 590         DCW   @2@                                                    1  6804                      82
660  5 600         DCW   @ @                                                    1  6805                      82
661  5 610  P5C151 DCW   @ENABLE@             ENABLE INDIRECT ADDRESS           6  6811                      82
662  5 620         DCW   @INDIRECT@                                             8  6819                      82
663  5 630         DCW   @ADDRESS@            EIA                               7  6826                      82
664  5 640         DCW   @ @                                                    1  6827                      82
665  5 650  P5C152 DCW   @SET@                SET RECORD COUNTER TO OP1         3  6830                      82
666  5 660         DCW   @RECORD@             SRC                               6  6836                      83
667  5 670         DCW   @COUNTER@                                              7  6843                      83
668  5 680         DCW   @TO@                                                   2  6845                      83
669  5 690         DCW   @1@                                                    1  6846                      83
670  5 700         DCW   @ @                                                    1  6847                      83
671  5 710  P5C153 DCW   @SET@                SET ON SWITCHES OP1, OP2, OP3     3  6850                      83
672  5 720         DCW   @ON@                                                   2  6852                      83
673  5 730         DCW   @SWITCHES@           SETON                             8  6860                      84
674  5 740         DCW   @,@                                                    1  6861                      84
675  5 750         DCW   @1@                                                    1  6862                      84
676  5 760         DCW   @2@                                                    1  6863                      84
677  5 770         DCW   @ @                                                    1  6864                      84
678  5 780  P5C154 DCW   @SET@                SET SPC TO OP1                    3  6867                      84
679  5 790         DCW   @SPC@                                                  3  6870                      84
680  5 800         DCW   @TO@                 SPC                               2  6872                      85
681  5 810         DCW   @1@                                                    1  6873                      85
682  5 820         DCW   @ @                                                    1  6874                      85
683  5 830  P5C155 DCW   @RESET@              RESET CHANNEL CHECK INDICATORS    5  6879                      85
684  5 840         DCW   @CHANNEL@                                              7  6886                      85
685  5 850         DCW   @CHECK@              CHR                               5  6891                      85
686  5 860         DCW   @AND@                                                  3  6894                      85
687  5 870         DCW   @STATUS@                                               6  6900                      86
688  5 880         DCW   @INDICATORS@                                          10  6910                      86
689  5 890         DCW   @ @                                                    1  6911                      86
690  5 900  P5C156 DCW   @ENABLE@             ENABLE BACKWARD COMPARE           6  6917                      86
691  5 910         DCW   @BACKWARD@                                             8  6925                      86
692  5 920         DCW   @COMPARE@            ECB                               7  6932                      86
693  5 930         DCW   @ @                                                    1  6933                      86
694  5 940  P5C157 DCW   @CHANGE@             CHANGE BIT AT OP1                 6  6939                      87
695  5 950         DCW   @BIT@                                                  3  6942                      87
696  5 960         DCW   @AT@                 SBA SBN SBR                       2  6944                      87
697  5 970         DCW   @1@                  SBZ                               1  6945                      87
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SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
698	5	980		DCW	@ @			1	6946		87
699	5	990	P5C158	DCW	@SHIFT@	SHIFT SPC OP1 PLACES AND ROUND		5	6951		87
700	6	000		DCW	@SPC@			3	6954		87
701	6	010		DCW	@1@	RND		1	6955		88
702	6	020		DCW	@PLACES@			6	6961		88
703	6	030		DCW	@AND@			3	6964		88
704	6	040		DCW	@ROUND@			5	6969		88
705	6	050		DCW	@OFF@			3	6972		88
706	6	060		DCW	@ @			1	6973		88
707	6	070	P5C159	DCW	@ALTER@	ALTER MACHINE OPERATION MODE		5	6978		88
708	6	080		DCW	@MACHINE@			7	6985		89
709	6	090		DCW	@OPERATION@	EEM LEM		9	6994		89
710	6	100		DCW	@MODE@	ENT80 LEV80 NOSTP		4	6998		89
711	6	110		DCW	@ @			1	6999		89
712	6	120	P5C160	DCW	@INITIALIZE@	INITIALIZE OP1 WITH OP2		10	7009		89
713	6	130		DCW	@1@			1	7010		89
714	6	140		DCW	@WITH@	INITA		4	7014		89
715	6	150		DCW	@2@			1	7015		90
716	6	160		DCW	@ @			1	7016		90
717	6	170	P5C161	DCW	@SHIFT@	SHIFT SPC OP1 POSITIONS		5	7021		90
718	6	180		DCW	@SPC@			3	7024		90
719	6	190		DCW	@1@	SHR		1	7025		90
720	6	200		DCW	@POSITIONS@	LNG		9	7034		90
721	6	210		DCW	@ @			1	7035		90
722	6	220	P5C162	DCW	@MODIFY@	MODIFY TABLE OP1		6	7041		91
723	6	230		DCW	@TABLE@			5	7046		91
724	6	240		DCW	@1@	ADITM		1	7047		91
725	6	250		DCW	@WITH@	DLITM		4	7051		91
726	6	260		DCW	@2@	RPITM		1	7052		91
727	6	270		DCW	@ @			1	7053		91
728	6	280	P5C163	DCW	@DECREMENT@	DECREMENT OP1 WITH OP2		9	7062		91
729	6	290		DCW	@1@			1	7063		92
730	6	300		DCW	@WITH@	DECRA		4	7067		92
731	6	310		DCW	@2@	DECRX		1	7068		92
732	6	320		DCW	@ @			1	7069		92
733	6	330	P5C164	DCW	@INCREMENT@	INCREMENT OP1 WITH OP2		9	7078		92
734	6	340		DCW	@1@			1	7079		92
735	6	350		DCW	@WITH@	INCRA		4	7083		92
736	6	360		DCW	@2@	INCRX		1	7084		93
737	6	370		DCW	@ @			1	7085		93
738	6	380	P5C165	DCW	@ALTER@	ALTER INTERRUPT MODE		5	7090		93
739	6	390		DCW	@INTERRUPT@			9	7099		93
740	6	400		DCW	@MODE@	EIM LIM		4	7103		93
741	6	410		DCW	@ @	ENTIP LEVIP		1	7104		93
742	6	420	P5C166	DCW	@CHANGE@	CHANGE MESSAGE CLASS CODE		6	7110		93
743	6	430		DCW	@MESSAGE@			7	7117		94
744	6	440		DCW	@1@	IODCH		1	7118		94
745	6	450		DCW	@CLASS@			5	7123		94
746	6	460		DCW	@CODE@			4	7127		94
747	6	470		DCW	@ @			1	7128		94

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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

748  6 480  P5C167 DCW   @MOVE@              MOVE ADDRESS OF OP1 TO OP2          4  7132                      94
749  6 490         DCW   @ADDRESS@                                               7  7139                      94
750  6 500         DCW   @OF@                MOVEA                               2  7141                      95
751  6 510         DCW   @1@                                                     1  7142                      95
752  6 520         DCW   @TO@                                                    2  7144                      95
753  6 530         DCW   @2@                                                     1  7145                      95
754  6 540         DCW   @ @                                                     1  7146                      95
755  6 550  P5C175 DCW   @TEST@              TEST OP1 & BRANCH CONDITIONAL       4  7150                      95
756  6 560         DCW   @1@                                                     1  7151                      95
757  6 570         DCW   @AND@               TESTX                               3  7154                      96
758  6 580         DCW   @BRANCH@            TEST                                6  7160                      96
759  6 590         DCW   @MINUS@                                                 5  7165                      96
760  6 600         DCW   @ZERO@                                                  4  7169                      96
761  6 610         DCW   @PLUS@                                                  4  7173                      96
762  6 620         DCW   @ @                                                     1  7174                      96
763  6 630  P5C176 DCW   @SEARCH@            SEARCH TABLE                        6  7180                      96
764  6 640         DCW   @2@                                                     1  7181                      97
765  6 650         DCW   @FOR@               SERCH                               3  7184                      97
766  6 660         DCW   @1@                                                     1  7185                      97
767  6 670         DCW   @ @                                                     1  7186                      97
768  6 680  P5C178 DCW   @IS@                TEST IF WITHIN RANGE                2  7188                      97
769  6 690         DCW   @1@                                                     1  7189                      97
770  6 700         DCW   @WITHIN@            RANGE                               6  7195                      97
771  6 710         DCW   @RANGE-@            RNGEX                               6  7201                      98
772  6 720         DCW   @BRANCH@                                                6  7207                      98
773  6 730         DCW   @YES@                                                   3  7210                      98
774  6 740         DCW   @OR@                                                    2  7212                      98
775  6 750         DCW   @NO@                                                    2  7214                      98
776  6 760         DCW   @ @                                                     1  7215                      98
777  6 770  P5C179 DCW   @COMPAR@            COMPAR OP1 TO OP2 & BRANCH          6  7221                      98
778  6 780         DCW   @1@                                                     1  7222                      99
779  6 790         DCW   @TO@                COMP                                2  7224                      99
780  6 800         DCW   @2@                 COMPX, COMPA                        1  7225                      99
781  6 810         DCW   @AND@                                                   3  7228                      99
782  6 820         DCW   @BRANCH@                                                6  7234                      99
783  6 830         DCW   @ @                                                     1  7235                      99
784  6 840  P5C180 DCW   @IS@                IS OP1 NUMERIC-BRANCH YES OR NO     2  7237                      99
785  6 850         DCW   @1@                                                     1  7238                     100
786  6 860         DCW   @NUMERIC-@          IFNUM                               8  7246                     100
787  6 870         DCW   @BRANCH@                                                6  7252                     100
788  6 880         DCW   @YES@                                                   3  7255                     100
789  6 890         DCW   @OR@                                                    2  7257                     100
790  6 900         DCW   @NO@                                                    2  7259                     100
791  6 910         DCW   @ @                                                     1  7260                     100
792  6 920  HIGH   EQU   *&1                 HIGH POSITION FOR $ADD CARD            7261
793  6 930  LOW    EQU   P5CAT-2             FOR PASS 5 DICTIONARIES                5001
794  6 940  START  EQU   813                 START ADDRESS                          0813
795  6 950         END   P5CAT                                                            / |0T 080          101
```


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778  6 780         DCW   @1@                                                     1  7222                      99             *****
779  6 790         DCW   @TO@                COMP                                2  7224                      99
780  6 800         DCW   @2@                 COMPX, COMPA                        1  7225                      99
781  6 810         DCW   @AND@                                                   3  7228                      99
782  6 820         DCW   @BRANCH@                                                6  7234                      99
783  6 830         DCW   @ @                                                     1  7235                      99
784  6 840  P5C180 DCW   @IS@                IS OP1 NUMERIC-BRANCH YES OR NO     2  7237                      99
785  6 850         DCW   @1@                                                     1  7238                     100
786  6 860         DCW   @NUMERIC-@          IFNUM                               8  7246                     100
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787  6 870         DCW   @BRANCH@                                            6  7252                     100
788  6 880         DCW   @YES@                                               3  7255                     100
789  6 890         DCW   @OR@                                                2  7257                     100
790  6 900         DCW   @NO@                                                2  7259                     100
791  6 910         DCW   @ @                                                 1  7260                     100
792  6 920  HIGH   EQU   *&1                 HIGH POSITION FOR $ADD CARD        7261
793  6 930  LOW    EQU   P5CAT-2             FOR PASS 5 DICTIONARIES            5001
```

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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                                 1                 4CHR5
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?              2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039              ,0010011040              3

                          7070/7072/7074 COMMENT DICTIONARY    PASS5 FLOWCHART       4CHR5               PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101  1 01   000    JOB   7070/7072/7074 COMMENT DICTIONARY    PASS5 FLOWCHART
 102  1 02          CTL   440
 103  1 025  *          VERSION 2  LEVEL 0   JULY 25,1965
 104  1 03          DCW   @$ADD     @         CARDS COMMON TO ALL DICTIONARIES     9  0341                      4
 105  1 04          DSA   LOW                 --REQUIRED TO                        3  0344  |0/                 4
 106  1 05          DSA   START               --GENERATE THE APPROPRIATE           3  0347  813                 4
 107  1 06          DSA   HIGH                --$ADD CARD                          3  0350  O4Z                 4
 108  1 07          DCW   @042665@            ASSEMBLY DATE                        6  0356                      4
 109  1 08   LOW    EQU   P5CAT-2             FOR PASS 5 DICTIONARIES                 5001
 110  1 09   START  EQU   813                 START ADDRESS                           0813
 111  1 10          ORG   5001                                                          5001
 112  1 11   *
 113  1 12   *          P5C000-P5C024 SPECIFY COMMENT SKELETONS COMMON TO
 114  1 13   *          ALL P5CAT DICTIONARIES
 115  1 14   *
 116  1 15   *
 117  1 16   P5CAT  DSA   P5C000              ASSEMBLY SEQUENCE NUMBER             3  5003  U0Z                 5
 118  1 17          DSA   P5C001              OP1                                  3  5006  U1S                 5
 119  1 18          DSA   P5C002-6            COMPUTE                              3  5009  U1U                 5
 120  1 19          DSA   P5C003-3            EDIT                                 3  5012  U2S                 5
 121  1 20          DSA   P5C004-3            MOVE TO                              3  5015  U2X                 5
 122  1 21          DSA   P5C005-2            SET                                  3  5018  U3U                 5
 123  1 22          DSA   P5C006-4            RESET                                3  5021  U3Y                 5
 124  1 23          DSA   P5C007-3            ZERO                                 3  5024  U4U                 6
 125  1 24          DSA   P5C008-4            SHIFT                                3  5027  U4Z                 6
 126  1 25          DSA   P5C009-4            CLEAR                                3  5030  U5V                 6
 127  1 26          DSA   P5C010              BCDOP  %USED FOR PREDF)              3  5033  U6/                 6
 128  1 27          DSA   P5C011-6            SEGMENT OP1,OP2,OP3 %JOB CARD)       3  5036  U6U                 6
 129  1 28          DSA   P5C012              , OP1 BACKSP SEQ.  %SUBRT  EG TS     3  5039  U7X                 6
 130  1 29          DSA   P5C013              BCDOP BACKSPACE, RESELT IN OP1       3  5042  U8S                 6
 131  1 30          DSA   P5C014              SPEC3 %FOR DECID JUMP TYPE YES)      3  5045  U9V                 7
 132  1 31          DSA   P5C015-1            IS C%AC) EQUAL TO OP1                3  5048  U9X                 7
 133  1 32          DSA   P5C016              BCDOP  OP1 OP2 OP3 BACKSPACE ,       3  5051  V1|                 7
 134  1 33          DSA   P5C017              BACKSPACE AND INSERT COMMA           3  5054  V1X                 7
 135  1 34          DSA   P5C018              SEQ NUMBER, NO COMMA                 3  5057  V2/                 7
 136  1 35          DSA   P5C019-4            CHAIN FOR 1400 COMPUTERS             3  5060  V2T                 7
 137  1 36          DSA   P5C020              BCDOP,1,2,3-IS CONDITION TRUE        3  5063  V2Z                 7
 138  1 37   *
 139  1 38          ORG   *&12                                                          5076
 140  1 39   *
 141  1 40   *          P5C025-P5C027 SPECIFY BLOCK-TYPE COMMENTS UNIQUE
 142  1 41   *          TO 7070 DICTIONARY
 143  1 42   *
 144  1 43          DSA   P5C025-3            LD IND WRD 1   %XL,XLIN,XZA,XZS)     3  5078  V4Z                 8
 145  1 44          DCW   #3                  UNASSIGNED SKELETON                  3  5081                      8
 146  1 45          DCW   #3                  UNASSIGNED SKELETON                  3  5084                      8
 147  1 46          DSA   P5C028-6            COMP MACRO                           3  5087  V6X                 8
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

148  1 47          DSA   P5C029-2            SETSW MACRO                            3  5090  V9X                  8
149  1 48          DSA   P5C030-3            EDMOV MACRO                            3  5093  W1S                  8
150  1 49          DSA   P5C031-3            ZSIGN MACRO                            3  5096  W2U                  8
151  1 50          DSA   P5C032-3            LOGIC MACRO                            3  5099  W5X                  9
152  1 51          DSA   P5C033-6            DECOD MACRO                            3  5102  W9/                  9
153  1 52          DSA   P5C034-3            DUMP MACRO                             3  5105  X2|                  9
154  1 53          DSA   P5C035-3            SNAP MACRO                             3  5108  X3S                  9
155  1 531         DSA   P5C036-3            MOVE OP1 TO OP2          %RS,XU)       3  5111  X5V                  9
156  1 532         DSA   P5C037-2            ADD OP2 TO OP1                         3  5114  X6U                  9
157  1 533         DSA   P5C038-7            SUBTRACT OP2 FROM OP1                  3  5117  X7S                  9
158  1 54    *
159  1 55    *
160  1 56          ORG   *&33                ALLOWS FOR 11 INSERTS                          5151
161  1 57    *
162  1 58    *
163  1 59    *         P5C050-P5C099 SPECIFY COMMENTS TO BE PLACED IN
164  1 60    *         DECISIONAL BOXES
165  1 61    *
166  1 62          DSA   P5C050-1            IS SGN CHNGE IND ON        %BSC)       3  5153  X8X                 10
167  1 63          DSA   P5C051-1            IS UNDFLO IND ON           %FBU)       3  5156  Y1/                 10
168  1 64          DSA   P5C052-1            IS AC ZERO                             3  5159  Y3U                 10
169  1 65          DSA   P5C053-1            IS AC NEGATIVE                         3  5162  Y4T                 10
170  1 66          DSA   P5C054-5            SEARCH TABLE,EQ OR GR FND  %LEH)       3  5165  Y5W                 10
171  1 67          DSA   P5C055-1            IS X OP2 LS OR EQ TO NON-INDEX         3  5168  Y9T                 10
172  1 68          DSA   P5C056-3            DOES SPEC1 EQUAL SPEC2      %BE)       3  5171  Z1Z                 10
173  1 69          DSA   P5C057-1            IS RESLT IN OP2 N-ZRO OR SME SGN       3  5174  Z3/                 11
174  1 70          DSA   P5C058-1            IS OVRFLO IND ON                       3  5177  Z6|                 11
175  1 71          DSA   P5C059-1            IS SPEC1 LESS THAN SPEC2    %BH)       3  5180  Z8S                 11
176  1 72          DSA   P5C060-1            IS SPEC1 GR THAN SPEC 2     %BL)       3  5183  Z9Y                 11
177  1 73          DSA   P5C061-1            IS INDX WORD OP2 MINUS                 3  5186  !1/                 11
178  1 74          DSA   P5C062-1            IS SPEC1 GR THAN NON-ZERO  %BXN)       3  5189  !2Z                 11
179  1 75          DSA   P5C063-5            SEARCH TABLE,LO VALU FND    %LL)       3  5192  !5|                 11
180  1 76          DSA   P5C064-5            SEARCH TABLE,EQ VALU FND    %LE)       3  5195  !8S                 12
181  1 77          DSA   P5C065-1            IS LATCH OP2 ON                        3  5198  J1T                 12
182  1 78          DSA   P5C066-1            IS SWITCH OP2 ON                       3  5201  J2U                 12
183  1 79          DSA   P5C067-1            IS CHANNEL OP2 BUSY                    3  5204  J3W                 12
184  1 791         DSA   P5C068-1            IS STACKING LATCH ON       %BAL)       3  5207  J5/                 12
185  1 792         DSA   P5C069-1            IS ADDTL STOR SWTCH ON    %BASS)       3  5210  J6Z                 12
186  1 80    *
187  1 81    *
188  1 82          ORG   *&90                ALLOWS FOR 30 INSERTS                          5301
189  1 83    *
190  1 84    *
191  1 85    *         P5C100-P5C134 SPECIFY COMMENTS TO BE PLACED IN
192  1 86    *         I/O BOXES
193  1 87    *
194  1 88    *
195  1 89    *
196  1 90    *
197  1 91          DSA   P5C100-6            CONTROL DISK                           3  5303  J9X                 13
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

198  1 92          DSA   P5C101-4            RESET LATCH OP1 OFF                 3  5306  K0Z                 13
199  1 93          DSA   P5C102-2            SET LATCH OP1 ON                    3  5309  K2U                 13
200  1 94          DSA   P5C103-3            DATA CHANNEL SELECT- 7907           3  5312  K3W                 13
201  1 95          DCW   #3                                                      3  5315                      13
202  1 96          DSA   P5C105-4            WRITE DISK FROM OP2                 3  5318  K5U                 13
203  1 97          DSA   P5C106-3            READ DISK INTO OP2                  3  5321  K6Z                 13
204  1 98          DSA   P5C107-3            READ TAPE OP1 INTO OP2              3  5324  K8T                 14
205  1 99          DSA   P5C108-4            WRITE TAPE OP1 FROM OP2             3  5327  K9Y                 14
206  2 00          DSA   P5C109-6            CONTROL TAPE OP1                    3  5330  L1U                 14
207  2 01          DSA   P5C110-5            REWIND TAPE OP1                     3  5333  L2X                 14
208  2 02          DSA   P5C111-8            BACKSPACE TAPE OP1                  3  5336  L3Z                 14
209  2 03          DSA   P5C112-4            WRITE ONTO TYPEWRITER FROM OP2      3  5339  L5U                 14
210  2 04          DSA   P5C113-4            WRITE ONTO PRINTER FROM OP2         3  5342  L7Z                 14
211  2 05          DSA   P5C114-3            READ FROM CARD READER INTO OP2      3  5345  M0/                 15
212  2 06          DSA   P5C115-3            DATA CHANNEL CONTROL                3  5348  M2V                 15
213  2 07          DSA   P5C116-6            FORWARD SPACE TAPE OP1              3  5351  M4U                 15
214  2 08          DSA   P5C117-4            PUNCH ONTO CARD FROM OP2            3  5354  M6S                 15
215  2 09          DSA   P5C118-6            INQUIRY READ INTO OP2               3  5357  M8/                 15
216  2 10          DSA   P5C119-6            INQUIRY WRITE FROM OP2              3  5360  M9Y                 15
217  2 11   *
218  2 12          ORG   *&3                 ALLOWS FOR 1 INSERTS                          5364
219  2 13   *
220  2 14   *
221  2 15          DSA   P5C121-3            IOCS CONTROL                        3  5366  N1W                 16
222  2 16          DSA   P5C122-4            WRITE TAPE FROM OP1                 3  5369  N2Y                 16
223  2 17          DSA   P5C123-3            READ DISK INTO OP1                  3  5372  N4T                 16
224  2 18          DSA   P5C124-3            READ TAPE INTO OP1                  3  5375  N5X                 16
225  2 19          DSA   P5C125-2            SET TAPE OP1 EOF CONDITION OFF      3  5378  N7/                 16
226  2 20          DSA   P5C126-4            WRITE DISK FROM OP1                 3  5381  N9V                 16
227  2 21          DSA   P5C127-3            MOVE RECORD OP1                     3  5384  O1|                 16
228  2 22          DSA   P5C128-7            PRIORITY CONTROL                    3  5387  O2S                 17
229  2 23          ORG   *&18                ALLOWS FOR 6 INSERTS                          5406
230  2 24   *
231  2 25   *
232  2 26   *        P5C135-P5C136 SPECIFY COMMENTS TO BE PLACED IN
233  2 27   *        MODIFICATION BOXES
234  2 28   *
235  2 29          DSA   P5C135-5            MODIFY MODE                         3  5408  O3Y                 18
236  2 30   *
237  2 31   *
238  2 32   *
239  2 33   *
240  2 34   P5C000 DCW   @,@                 SUBSTITUTE SEQUENCE FIELD ,         1  5409                      18
241  2 35          DCW   @0@                                                     1  5410                      18
242  2 36          DCW   @ @                                                     1  5411                      18
243  2 37   P5C001 DCW   @1@                 SUBSTITUTE OPERAND-1                1  5412                      18
244  2 38          DCW   @ @                                                     1  5413                      18
245  2 39   P5C002 DCW   @COMPUTE@           COMPUTE  MODE                       7  5420                      18
246  2 40          DCW   @ @                                                     1  5421                      19
247  2 41   P5C003 DCW   @EDIT@              EDIT     MODE                       4  5425                      19
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  2 42          DCW   @ @                                                    1  5426                      19
249  2 43   P5C004 DCW   @MOVE@              MOVE TO  MODE                      4  5430                      19
250  2 44          DCW   @TO@                                                   2  5432                      19
251  2 45          DCW   @ @                                                    1  5433                      19
252  2 46   P5C005 DCW   @SET@               SET      MODE                      3  5436                      19
253  2 47          DCW   @ @                                                    1  5437                      20
254  2 48   P5C006 DCW   @RESET@             RESET    MODE                      5  5442                      20
255  2 49          DCW   @ @                                                    1  5443                      20
256  2 50   P5C007 DCW   @ZERO@              ZERO                               4  5447                      20
257  2 51          DCW   @ @                                                    1  5448                      20
258  2 52   P5C008 DCW   @SHIFT@             SHIFT                              5  5453                      20
259  2 53          DCW   @ @                                                    1  5454                      20
260  2 54   P5C009 DCW   @CLEAR@             CLEAR                              5  5459                      21
261  2 55          DCW   @ @                                                    1  5460                      21
262  2 56   P5C010 DCW   @,@                 BCDOP, %USED FOR PREDF)            1  5461                      21
263  2 57          DCW   @4@                                                    1  5462                      21
264  2 58          DCW   @ @                                                    1  5463                      21
265  2 59   P5C011 DCW   @SEGMENT@           SEGMENT OP1,OP2,OP3 %JOB CARD)     7  5470                      21
266  2 60          DCW   @,@                                                    1  5471                      21
267  2 61          DCW   @1@                                                    1  5472                      22
268  2 62          DCW   @,@                                                    1  5473                      22
269  2 63          DCW   @2@                                                    1  5474                      22
270  2 64          DCW   @3@                                                    1  5475                      22
271  2 65          DCW   @ @                                                    1  5476                      22
272  2 66   P5C012 DCW   @,@                 OP1,BACKSPACE SEQ %SUBRT EG TSX)   1  5477                      22
273  2 67          DCW   @1@                                                    1  5478                      22
274  2 68          DCW   @-@                                                    1  5479                      23
275  2 69          DCW   @0@                                                    1  5480                      23
276  2 70          DCW   @ @                                                    1  5481                      23
277  2 71   P5C013 DCW   @,@                 BCDOP,BACKSPACE RESULT IN OP1      1  5482                      23
278  2 72          DCW   @4@                                                    1  5483                      23
279  2 73          DCW   @-@                                                    1  5484                      23
280  2 74          DCW   @RESULT@                                               6  5490                      23
281  2 75          DCW   @IN@                                                   2  5492                      24
282  2 76          DCW   @1@                                                    1  5493                      24
283  2 77          DCW   @ @                                                    1  5494                      24
284  2 78   P5C014 DCW   @7@                 SPEC 3                             1  5495                      24
285  2 79          DCW   @ @                                                    1  5496                      24
286  2 80   P5C015 DCW   @IS@                IS AC EQUAL TO OP2                 2  5498                      24
287  2 81          DCW   @AC@                                                   2  5500                      24
288  2 82          DCW   @EQUAL@                                                5  5505                      25
289  2 83          DCW   @TO@                                                   2  5507                      25
290  2 84          DCW   @2@                                                    1  5508                      25
291  2 85          DCW   @ @                                                    1  5509                      25
292  2 86   P5C016 DCW   @4@                 BCDOP OP1,OP2,OP3                  1  5510                      25
293  2 87          DCW   @,@                                                    1  5511                      25
294  2 88          DCW   @1@                                                    1  5512                      25
295  2 89          DCW   @,@                                                    1  5513                      26
296  2 90          DCW   @2@                                                    1  5514                      26
297  2 91          DCW   @3@                                                    1  5515                      26
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

298  2 92          DCW   @ @                                                      1  5516                      26
299  2 93   P5C017 DCW   @-@                 BACKSPACE                            1  5517                      26
300  2 94          DCW   @&@                 AND INSERT A COMMA                   1  5518                      26
301  2 95          DCW   @,@                                                      1  5519                      26
302  2 96          DCW   @ @                                                      1  5520                      27
303  2 97   P5C018 DCW   @0@                 SEQ. NUMBER                          1  5521                      27
304  2 98          DCW   @ @                                                      1  5522                      27
305  2 99   P5C019 DCW   @CHAIN@                                                  5  5527                      27
306  3 00          DCW   @ @                                                      1  5528                      27
307  3 01   P5C020 DCW   @4@                 BCDOP OP1 OP2 OP3                    1  5529                      27
308  3 02          DCW   @1@                                                      1  5530                      27
309  3 03          DCW   @2@                 IS CONDITION TRUE                    1  5531                      28
310  3 04          DCW   @3@                                                      1  5532                      28
311  3 05          DCW   @IS@                                                     2  5534                      28
312  3 06          DCW   @CONDITION@                                              9  5543                      28
313  3 07          DCW   @TRUE@                                                   4  5547                      28
314  3 08          DCW   @ @                                                      1  5548                      28
315  3 09   P5C025 DCW   @MOVE@              MOVE OP2 TO INDEX WORD OP1           4  5552                      28
316  3 091         DCW   @2@                                                      1  5553                      29
317  3 092         DCW   @TO@                %XL,XLIN,XSN,XZA,XZS)                2  5555                      29
318  3 10          DCW   @INDEX@                                                  5  5560                      29
319  3 11          DCW   @WORD@                                                   4  5564                      29
320  3 12          DCW   @1@                           %XL,XLIN,XZA,XZS,XSN)      1  5565                      29
321  3 13          DCW   @ @                                                      1  5566                      29
322  3 22   P5C028 DCW   @COMPARE@           COMPARE-BRANCH LOW,EQUAL,HIGH        7  5573                      29
323  3 23          DCW   @&@                                                      1  5574                      30
324  3 24          DCW   @-@                                                      1  5575                      30
325  3 25          DCW   @BRANCH@            COMPR MACRO                          6  5581                      30
326  3 26          DCW   @,@                                                      1  5582                      30
327  3 27          DCW   @LOW@                                                    3  5585                      30
328  3 28          DCW   @,@                                                      1  5586                      30
329  3 29          DCW   @EQUAL@                                                  5  5591                      30
330  3 30          DCW   @HIGH@                                                   4  5595                      31
331  3 31          DCW   @ @                                                      1  5596                      31
332  3 32   P5C029 DCW   @SET@               SET SWITCH OP1,OP2,OP2               3  5599                      31
333  3 33          DCW   @SWITCH@                                                 6  5605                      31
334  3 34          DCW   @,@                                                      1  5606                      31
335  3 35          DCW   @1@                                                      1  5607                      31
336  3 36          DCW   @,@                                                      1  5608                      31
337  3 37          DCW   @2@                                                      1  5609                      32
338  3 38          DCW   @3@                                                      1  5610                      32
339  3 39          DCW   @ @                                                      1  5611                      32
340  3 40   P5C030 DCW   @EDIT@              EDIT AND MOVE                        4  5615                      32
341  3 41          DCW   @AND@                                                    3  5618                      32
342  3 42          DCW   @MOVE@              EDMOV  MACRO                         4  5622                      32
343  3 43          DCW   @ @                                                      1  5623                      32
344  3 44   P5C031 DCW   @TEST@              TEST SIGN-BRANCH PLUS,MINUS,ALPH     4  5627                      33
345  3 45          DCW   @SIGN@                                                   4  5631                      33
346  3 46          DCW   @&@                                                      1  5632                      33
347  3 47          DCW   @-@                                                      1  5633                      33
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SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
348	3	48		DCW	@BRANCH@	ZSIGN MACRO		6	5639		33
349	3	49		DCW	@,@			1	5640		33
350	3	50		DCW	@PLUS@			4	5644		33
351	3	51		DCW	@,@			1	5645		34
352	3	52		DCW	@MINUS@			5	5650		34
353	3	53		DCW	@ALPHA@			5	5655		34
354	3	54		DCW	@ @			1	5656		34
355	3	55	P5C032	DCW	@TEST@	TEST EXPRESSION-SET SW OR		4	5660		34
356	3	56		DCW	@EXPRESSION@	BRANCH IF TRUE OR FALSE		10	5670		34
357	3	57		DCW	@&@			1	5671		34
358	3	58		DCW	@-@			1	5672		35
359	3	59		DCW	@BRANCH@			6	5678		35
360	3	60		DCW	@TRUE@			4	5682		35
361	3	61		DCW	@OR@			2	5684		35
362	3	62		DCW	@FALSE@			5	5689		35
363	3	63		DCW	@ @			1	5690		35
364	3	64	P5C033	DCW	@ANALYZE@	ANALYZE OP1 - BRANCH ON CODE		7	5697		35
365	3	65		DCW	@1@	VALUES		1	5698		36
366	3	66		DCW	@&@			1	5699		36
367	3	67		DCW	@-@			1	5700		36
368	3	68		DCW	@BRANCH@	DECOD MACRO		6	5706		36
369	3	69		DCW	@ON@			2	5708		36
370	3	70		DCW	@CODE@			4	5712		36
371	3	71		DCW	@VALUES@			6	5718		36
372	3	72		DCW	@ @			1	5719		37
373	3	73	P5C034	DCW	@DUMP@	DUMP STORAGE		4	5723		37
374	3	74		DCW	@STORAGE@	DUMP MACRO		7	5730		37
375	3	75		DCW	@ @			1	5731		37
376	3	76	P5C035	DCW	@DUMP@	DUMP STORAGE FROM OP1 TO OP2		4	5735		37
377	3	77		DCW	@STORAGE@	ON OP3		7	5742		37
378	3	78		DCW	@FROM@			4	5746		37
379	3	79		DCW	@1@	SNAP MACRO		1	5747		38
380	3	80		DCW	@TO@			2	5749		38
381	3	81		DCW	@2@			1	5750		38
382	3	82		DCW	@ON@			2	5752		38
383	3	83		DCW	@3@			1	5753		38
384	3	84		DCW	@ @			1	5754		38
385	3	841	P5C036	DCW	@MOVE@	MOVE OP1 TO OP2		4	5758		38
386	3	842		DCW	@1@			1	5759		39
387	3	843		DCW	@TO@	%RS,XU)		2	5761		39
388	3	844		DCW	@2@			1	5762		39
389	3	845		DCW	@ @			1	5763		39
390	3	846	P5C037	DCW	@ADD@	ADD OP2 TO OP1		3	5766		39
391	3	847		DCW	@2@			1	5767		39
392	3	848		DCW	@TO@	%XA)		2	5769		39
393	3	949		DCW	@1@			1	5770		40
394	3	85		DCW	@ @			1	5771		40
395	3	851	P5C038	DCW	@SUBTRACT@	SUBTRACT OP2 FROM OP1		8	5779		40
396	3	852		DCW	@2@			1	5780		40
397	3	853		DCW	@FROM@			4	5784		40

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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

398  3 854         DCW   @1@                 %XS)                                  1  5785                      40
399  3 855         DCW   @ @                                                       1  5786                      40
400  3 86   P5C050 DCW   @IS@                IS SIGN CHANGE INDICATOR ON           2  5788                      41
401  3 861         DCW   @SIGN@                                                    4  5792                      41
402  3 87          DCW   @CHANGE@                                                  6  5798                      41
403  3 88          DCW   @INDICATOR@         %BSC)                                 9  5807                      41
404  3 89          DCW   @ON@                                                      2  5809                      41
405  3 90          DCW   @ @                                                       1  5810                      41
406  3 91   P5C051 DCW   @IS@                IS UNDERFLOW INDICATOR ON             2  5812                      41
407  3 92          DCW   @UNDERFLOW@                                               9  5821                      42
408  3 93          DCW   @INDICATOR@                                               9  5830                      42
409  3 94          DCW   @ON@                %FBU)                                 2  5832                      42
410  3 95          DCW   @ @                                                       1  5833                      42
411  3 96   P5C052 DCW   @IS@                IS AC ZERO   %BZ1,BZ2,BZ3)            2  5835                      42
412  3 97          DCW   @AC@                                                      2  5837                      42
413  3 98          DCW   @ZERO@                                                    4  5841                      42
414  3 99          DCW   @ @                                                       1  5842                      43
415  4 00   P5C053 DCW   @IS@                IS AC NEGATIVE    %BM1,BM2,BM3)       2  5844                      43
416  4 01          DCW   @AC@                                                      2  5846                      43
417  4 02          DCW   @NEGATIVE@                                                8  5854                      43
418  4 03          DCW   @ @                                                       1  5855                      43
419  4 04   P5C054 DCW   @SEARCH@            SEARCH TABLE,                         6  5861                      43
420  4 05          DCW   @,@                 WAS EQUAL OR GREATER VALUE FOUND      1  5862                      43
421  4 06          DCW   @TABLE@                                                   5  5867                      44
422  4 07          DCW   @WAS@                                                     3  5870                      44
423  4 08          DCW   @EQ@                %LEH)                                 2  5872                      44
424  4 09          DCW   @OR@                                                      2  5874                      44
425  4 10          DCW   @GREATER@                                                 7  5881                      44
426  4 11          DCW   @VALUE@                                                   5  5886                      44
427  4 12          DCW   @FOUND@                                                   5  5891                      44
428  4 13          DCW   @ @                                                       1  5892                      45
429  4 14   P5C055 DCW   @IS@                ISINDEX OF OP2 # OR LESS THAN         2  5894                      45
430  4 15          DCW   @INDEX@             NON-INDEX                             5  5899                      45
431  4 16          DCW   @OF@                                                      2  5901                      45
432  4 17          DCW   @2@                                                       1  5902                      45
433  4 18          DCW   @.LE.@                                                    4  5906                      45
434  4 19          DCW   @TO@                                                      2  5908                      45
435  4 20          DCW   @NON-INDEX@                                               9  5917                      46
436  4 21          DCW   @ @                                                       1  5918                      46
437  4 22   P5C056 DCW   @DOES@              DOES SPEC1 EQUAL SPEC2                4  5922                      46
438  4 23          DCW   @5@                                                       1  5923                      46
439  4 24          DCW   @EQUAL@             %BE)                                  5  5928                      46
440  4 25          DCW   @6@                                                       1  5929                      46
441  4 26          DCW   @ @                                                       1  5930                      46
442  4 27   P5C057 DCW   @IS@                IS RESULT IN OP2                      2  5932                      47
443  4 28          DCW   @RESULT@            NON-ZERO OR SAME SIGN                 6  5938                      47
444  4 29          DCW   @IN@                                                      2  5940                      47
445  4 30          DCW   @2@                                                       1  5941                      47
446  4 31          DCW   @NONZERO@           BDX                                   7  5948                      47
447  4 32          DCW   @OR@                                                      2  5950                      47
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SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX CT	LOCN	INSTRUCTION TYPE	CARD
448	4	33		DCW	@SAME@		4	5954		47
449	4	34		DCW	@SIGN@		4	5958		48
450	4	35		DCW	@ @		1	5959		48
451	4	36	P5C058	DCW	@IS@	IS OVERFLOW INDICATOR ON	2	5961		48
452	4	37		DCW	@OVERFLOW@		8	5969		48
453	4	38		DCW	@INDICATOR@	%BV1,BV2,BV3,BFV,FBV)	9	5978		48
454	4	39		DCW	@ON@		2	5980		48
455	4	40		DCW	@ @		1	5981		48
456	4	41	P5C059	DCW	@IS@	IS SPEC1 LESS THAN SPEC2	2	5983		49
457	4	42		DCW	@5@		1	5984		49
458	4	43		DCW	@GREATER@		7	5991		49
459	4	44		DCW	@THAN@		4	5995		49
460	4	45		DCW	@6@		1	5996		49
461	4	46		DCW	@ @		1	5997		49
462	4	47	P5C060	DCW	@IS@	IS SPEC1 GREATER THAN SPEC2	2	5999		49
463	4	48		DCW	@5@		1	6000		50
464	4	49		DCW	@LESS@		4	6004		50
465	4	50		DCW	@THAN@		4	6008		50
466	4	51		DCW	@6@		1	6009		50
467	4	52		DCW	@ @		1	6010		50
468	4	53	P5C061	DCW	@IS@	IS INDEX WORD OP2 MINUS	2	6012		50
469	4	54		DCW	@INDEX@		5	6017		50
470	4	55		DCW	@WORD@	%BXM)	4	6021		51
471	4	56		DCW	@2@		1	6022		51
472	4	57		DCW	@MINUS@		5	6027		51
473	4	58		DCW	@ @		1	6028		51
474	4	59	P5C062	DCW	@IS@	IS INDEX WORD OP2 NON-ZERO	2	6030		51
475	4	60		DCW	@INDEX@		5	6035		51
476	4	61		DCW	@WORD@	%BXN)	4	6039		51
477	4	62		DCW	@2@		1	6040		52
478	4	63		DCW	@NON-ZERO@		8	6048		52
479	4	64		DCW	@ @		1	6049		52
480	4	65	P5C063	DCW	@SEARCH@	SEARCH TABLE8	6	6055		52
481	4	66		DCW	@,@	WAS LOWEST VALUE FOUND	1	6056		52
482	4	67		DCW	@TABLE@		5	6061		52
483	4	68		DCW	@WAS@	%LL)	3	6064		52
484	4	69		DCW	@LOWEST@		6	6070		53
485	4	70		DCW	@VALUE@		5	6075		53
486	4	71		DCW	@FOUND@		5	6080		53
487	4	72		DCW	@ @		1	6081		53
488	4	73	P5C064	DCW	@SEARCH@	SEARCH TABLE,	6	6087		53
489	4	74		DCW	@,@	WAS EQUAL VALUE FOUND	1	6088		53
490	4	75		DCW	@TABLE@		5	6093		53
491	4	76		DCW	@WAS@		3	6096		54
492	4	77		DCW	@EQUAL@	%LE)	5	6101		54
493	4	78		DCW	@VALUE@		5	6106		54
494	4	79		DCW	@FOUND@		5	6111		54
495	4	80		DCW	@ @		1	6112		54
496	4	81	P5C065	DCW	@IS@	IS LATCH OP2 ON	2	6114		54
497	4	82		DCW	@LATCH@		5	6119		54

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
498	4	83		DCW	@2@			1	6120		55
499	4	84		DCW	@ON@	%BAL,BDCA,BDCL,BDL,BTL,BUL,BQL)		2	6122		55
500	4	85		DCW	@ @			1	6123		55
501	4	86	P5C066	DCW	@IS@	IS SWITCH OP2 ON		2	6125		55
502	4	87		DCW	@SWITCH@			6	6131		55
503	4	88		DCW	@2@	%BAS,BASS,BES,BSF,BSN)		1	6132		55
504	4	89		DCW	@ON@			2	6134		55
505	4	90		DCW	@ @			1	6135		56
506	4	91	P5C067	DCW	@IS@	IS CHANNEL OP2 BUSY		2	6137		56
507	4	92		DCW	@CHANNEL@			7	6144		56
508	4	93		DCW	@2@	%BCB,BDCB)		1	6145		56
509	4	94		DCW	@BUSY@			4	6149		56
510	4	95		DCW	@ @			1	6150		56
511	4	951	P5C068	DCW	@IS@	IS STACKING LATCH ON		2	6152		56
512	4	952		DCW	@STACKING@			8	6160		57
513	4	953		DCW	@LATCH@	%BAL)		5	6165		57
514	4	954		DCW	@ON@			2	6167		57
515	4	955		DCW	@ @			1	6168		57
516	4	956	P5C069	DCW	@IS@	IS ADDITIONAL STORAGE SW ON		2	6170		57
517	4	957		DCW	@ADDITIONAL@			10	6180		57
518	4	958		DCW	@STORAGE@			7	6187		57
519	4	959		DCW	@SWITCH@	%BASS)		6	6193		58
520	4	960		DCW	@ON@			2	6195		58
521	4	961		DCW	@ @			1	6196		58
522	4	969	P5C100	DCW	@CONTROL@	CONTROL DISK %PDS,DAR)		7	6203		58
523	4	97		DCW	@DISK@			4	6207		58
524	4	98		DCW	@ @			1	6208		58
525	4	99	P5C101	DCW	@RESET@	RESET LATCH OP1 OFF		5	6213		58
526	5	00		DCW	@LATCH@	%DCAF,DCLF,ULF,TLF,QLF,DLF)		5	6218		59
527	5	01		DCW	@1@			1	6219		59
528	5	02		DCW	@OFF@			3	6222		59
529	5	03		DCW	@ @			1	6223		59
530	5	04	P5C102	DCW	@SET@	SET LATCH OP1 ON		3	6226		59
531	5	05		DCW	@LATCH@	%DCAN,DCLN,ULN,TLN,QLN,DLN)		5	6231		59
532	5	06		DCW	@1@	%DCAN,DCLN,ULN,TLN,QLN,DLN)		1	6232		59
533	5	07		DCW	@ON@			2	6234		60
534	5	08		DCW	@ @			1	6235		60
535	5	09	P5C103	DCW	@DATA@	DATA CHANNEL SELEST - 7907 -		4	6239		60
536	5	10		DCW	@CHANNEL@	PDCP,PDCPR,PDCU,PDCUA,PDCUR		7	6246		60
537	5	11		DCW	@SELECT@	DCP,DCPR,DCU,DCUA,DCUR)		6	6252		60
538	5	12		DCW	@ @			1	6253		60
539	5	13	P5C105	DCW	@WRITE@	WRITE DISK FROM OP2		5	6258		60
540	5	14		DCW	@DISK@			4	6262		61
541	5	15		DCW	@FROM@	%DW,PDW)		4	6266		61
542	5	16		DCW	@2@			1	6267		61
543	5	17		DCW	@ @			1	6268		61
544	5	18	P5C106	DCW	@READ@	READ DISK INTO OP2		4	6272		61
545	5	19		DCW	@DISK@			4	6276		61
546	5	20		DCW	@INTO@	%DR,PDR)		4	6280		61
547	5	21		DCW	@2@			1	6281		62

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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

548  5 22          DCW   @ @                                                      1  6282                      62
549  5 23   P5C107 DCW   @READ@              READ TAPE OP1 INTO OP2               4  6286                      62
550  5 24          DCW   @TAPE@                                                   4  6290                      62
551  5 25          DCW   @1@                 %PTR,TR,PTRR,TRR,PTRA,TRA,PTRN,      1  6291                      62
552  5 26          DCW   @INTO@              TRN,                                 4  6295                      62
553  5 27          DCW   @2@                                                      1  6296                      62
554  5 28          DCW   @ @                                                      1  6297                      63
555  5 29   P5C108 DCW   @WRITE@             WRITE TAPE OP1 FROM OP2              5  6302                      63
556  5 30          DCW   @TAPE@                                                   4  6306                      63
557  5 31          DCW   @1@                 PTWR,TWR,PTWZ,TWZ,PTWC,TWC           1  6307                      63
558  5 32          DCW   @FROM@              %PTW,TW)                             4  6311                      63
559  5 33          DCW   @2@                                                      1  6312                      63
560  5 34          DCW   @ @                                                      1  6313                      63
561  5 35   P5C109 DCW   @CONTROL@           CONTROL TAPE OP1                     7  6320                      64
562  5 36          DCW   @TAPE@              %WSM,WTM                             4  6324                      64
563  5 37          DCW   @1@                 TSHD,TSLD,TSK,PTM,PTSM,TSM,TM        1  6325                      64
564  5 38          DCW   @ @                                                      1  6326                      64
565  5 39   P5C110 DCW   @REWIND@            REWIND TAPE OP1                      6  6332                      64
566  5 40          DCW   @TAPE@                                                   4  6336                      64
567  5 41          DCW   @1@                 TRW,TRU,RWD)                         1  6337                      64
568  5 42          DCW   @ @                                                      1  6338                      65
569  5 43   P5C111 DCW   @BACKSPACE@         BACKSPACE TAPE OP1                   9  6347                      65
570  5 44          DCW   @TAPE@                                                   4  6351                      65
571  5 45          DCW   @1@                 PTSB,TSB,BSP,BSPF,RDSB,TRB           1  6352                      65
572  5 46          DCW   @ @                                                      1  6353                      65
573  5 47   P5C112 DCW   @WRITE@             WRITE ONTO TYPEWRITER FROM OP2       5  6358                      65
574  5 48          DCW   @ONTO@                                                   4  6362                      65
575  5 49          DCW   @TYPEWRITER@        %TYP)                               10  6372                      66
576  5 50          DCW   @FROM@                                                   4  6376                      66
577  5 51          DCW   @1@                                                      1  6377                      66
578  5 52          DCW   @ @                                                      1  6378                      66
579  5 53   P5C113 DCW   @WRITE@             WRITE ONTO PRINTER FROM OP2          5  6383                      66
580  5 54          DCW   @ONTO@                                                   4  6387                      66
581  5 55          DCW   @PRINTER@           %UW,UWIV)                            7  6394                      66
582  5 56          DCW   @FROM@                                                   4  6398                      67
583  5 57          DCW   @2@                                                      1  6399                      67
584  5 58          DCW   @ @                                                      1  6400                      67
585  5 59   P5C114 DCW   @READ@              READ FROM CARD READER INTO OP2       4  6404                      67
586  5 60          DCW   @FROM@                                                   4  6408                      67
587  5 61          DCW   @CARD@              %UR)                                 4  6412                      67
588  5 62          DCW   @READER@                                                 6  6418                      67
589  5 63          DCW   @INTO@                                                   4  6422                      68
590  5 64          DCW   @2@                                                      1  6423                      68
591  5 65          DCW   @ @                                                      1  6424                      68
592  5 66   P5C115 DCW   @DATA@              DATA CHANNEL CONTROL                 4  6428                      68
593  5 67          DCW   @CHANNEL@           RDWS,RDWB                            7  6435                      68
594  5 68          DCW   @CONTROL@           RDWST, RDWR,RDWRB,RDWW,RDWC          7  6442                      68
595  5 69          DCW   @ @                                                      1  6443                      68
596  5 70   P5C116 DCW   @FORWARD@           FORWARD SPACE TAPE OP1               7  6450                      69
597  5 71          DCW   @SPACE@                                                  5  6455                      69
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SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD

598  5 72          DCW   @TAPE@              %PTSF,TSF,FSPF,RDSF                   4  6459                      69
599  5 73          DCW   @1@                                                       1  6460                      69
600  5 74          DCW   @ @                                                       1  6461                      69
601  5 75   P5C117 DCW   @PUNCH@             PUNCH ONTO CARD FROM OP2              5  6466                      69
602  5 76          DCW   @ONTO@                                                    4  6470                      69
603  5 77          DCW   @CARD@              %UP,UPIV)                             4  6474                      70
604  5 78          DCW   @FROM@                                                    4  6478                      70
605  5 79          DCW   @2@                                                       1  6479                      70
606  5 80          DCW   @ @                                                       1  6480                      70
607  5 81   P5C118 DCW   @INQUIRY@           INQUIRY READ INTO OP2                 7  6487                      70
608  5 82          DCW   @READ@                                                    4  6491                      70
609  5 83          DCW   @INTO@              %QR)                                  4  6495                      70
610  5 84          DCW   @2@                                                       1  6496                      71
611  5 85          DCW   @ @                                                       1  6497                      71
612  5 86   P5C119 DCW   @INQUIRY@           INQUIRY WRITE FROM OP2                7  6504                      71
613  5 87          DCW   @WRITE@                                                   5  6509                      71
614  5 88          DCW   @FROM@              %QW)                                  4  6513                      71
615  5 89          DCW   @2@                                                       1  6514                      71
616  5 90          DCW   @ @                                                       1  6515                      71
617  5 91   P5C121 DCW   @IOCS@              IOCS CONTROL   %RDLIN,DCHPT,CHPT      4  6519                      72
618  5 92          DCW   @CONTROL@           INTLK,DEOR,FEOR,FEORN,CLSED           7  6526                      72
619  5 93          DCW   @ @                                                       1  6527                      72
620  5 94   P5C122 DCW   @WRITE@             WRITE TAPE FROM OP1                   5  6532                      72
621  5 95          DCW   @TAPE@              PUT,PUTB,PUTX                         4  6536                      72
622  5 96          DCW   @FROM@                                                    4  6540                      72
623  5 97          DCW   @1@                                                       1  6541                      72
624  5 98          DCW   @ @                                                       1  6542                      73
625  5 99   P5C123 DCW   @READ@              READ DISK INTO OP1                    4  6546                      73
626  6 00          DCW   @DISK@              GETS,GETD,GETR                        4  6550                      73
627  6 01          DCW   @INTO@                                                    4  6554                      73
628  6 02          DCW   @1@                                                       1  6555                      73
629  6 03          DCW   @ @                                                       1  6556                      73
630  6 04   P5C124 DCW   @READ@              READ TAPE INTO OP1                    4  6560                      73
631  6 05          DCW   @TAPE@              %GET,GETB)                            4  6564                      74
632  6 06          DCW   @INTO@                                                    4  6568                      74
633  6 07          DCW   @1@                                                       1  6569                      74
634  6 08          DCW   @ @                                                       1  6570                      74
635  6 09   P5C125 DCW   @SET@               SET TAPE OP1 EOF CONDITION OFF        3  6573                      74
636  6 10          DCW   @TAPE@                                                    4  6577                      74
637  6 11          DCW   @1@                                                       1  6578                      74
638  6 12          DCW   @EOF@               %TEF)                                 3  6581                      75
639  6 13          DCW   @CONDITION@                                               9  6590                      75
640  6 14          DCW   @OFF@                                                     3  6593                      75
641  6 15          DCW   @ @                                                       1  6594                      75
642  6 16   P5C126 DCW   @WRITE@             WRITE DISK FROM OP1                   5  6599                      75
643  6 17          DCW   @DISK@              %PUTS,PUTD,PUTR)                      4  6603                      75
644  6 18          DCW   @FROM@                                                    4  6607                      75
645  6 19          DCW   @1@                                                       1  6608                      76
646  6 20          DCW   @ @                                                       1  6609                      76
647  6 21   P5C127 DCW   @MOVE@              MOVE RECORD OP1    %MVRSA)            4  6613                      76
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SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD	
648	6	22		DCW	@RECORD@			6	6619		76	
649	6	23		DCW	@1@			1	6620		76	
650	6	24		DCW	@ @			1	6621		76	
651	6	25	P5C128	DCW	@PRIORITY@	PRIORITY CONTROL %PC,PC1,PC2,PR		8	6629		76	
652	6	26		DCW	@CONTROL@	%PC,PC1,PC2,PR		7	6636		77	
653	6	27		DCW	@ @			1	6637		77	
654	6	28	P5C135	DCW	@MODIFY@	MODIFY MODE		6	6643		77	
655	6	29		DCW	@MODE@	ASSF,ASSN,HMFV,HMSC		4	6647		77	
656	6	30		DCW	@ @			1	6648		77	
657	6	31	HIGH	EQU	*&1	HIGH POSITION FOR $ADD CARD			6649			
658	6	32		END	P5CAT					/ |0T 080	78	
644	6	18		DCW	@FROM@			4	6607		75	*****
645	6	19		DCW	@1@			1	6608		76	
646	6	20		DCW	@ @			1	6609		76	
647	6	21	P5C127	DCW	@MOVE@	MOVE RECORD OP1 %MVRSA)		4	6613		76	

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
648	6	22		DCW	@RECORD@			6	6619		76
649	6	23		DCW	@1@			1	6620		76
650	6	24		DCW	@ @			1	6621		76
651	6	25	P5C128	DCW	@PRIORITY@	PRIORITY CONTROL %PC,PC1,PC2,PR		8	6629		76
652	6	26		DCW	@CONTROL@	%PC,PC1,PC2,PR		7	6636		77
653	6	27		DCW	@ @			1	6637		77
654	6	28	P5C135	DCW	@MODIFY@	MODIFY MODE		6	6643		77
655	6	29		DCW	@MODE@	ASSF,ASSN,HMFV,HMSC		4	6647		77

```
CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                      1              4CHR6
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?   2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040    3

                          7040/44,7090/94 COMMENT DICTIONARY - PASS 5            4CHR6              PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    010  000    JOB   7040/44,7090/94 COMMENT DICTIONARY - PASS 5
 102    020         CTL   440  1
 103    030         DCW   @$ADD     @         CARDS COMMON TO ALL DICTIONARIES     9  0341                    4
 104    040         DSA   LOW                 --REQUIRED TO                        3  0344  |0/               4
 105    050         DSA   START               --GENERATE THE APPROPRIATE           3  0347  813               4
 106    060         DSA   HIGH                --$ADD CARD                          3  0350  L4X               4
 107    070         DCW   @033065@            DATE OF ASSEMBLY                     6  0356                    4
 108    080         ORG   5001                                                           5001
 109    090  *
 110    100  *          P5C000-P5C024 SPECIFY COMMENT SKELETONS COMMON TO
 111    110  *          ALL P5CAT DICTIONARIES
 112    120  *
 113    130  *
 114    140  *
 115    150  P5CAT  DSA   P5C000              ASSEMBLY SEQUENCE NUMBER             3  5003  T9X               5
 116    160         DSA   P5C001              OP1                                  3  5006  U0|               5
 117    170         DSA   P5C002-6            COMPUTE                              3  5009  U0S               5
 118    180         DSA   P5C003-3            EDIT                                 3  5012  U1|               5
 119    190         DSA   P5C004-3            MOVE TO                              3  5015  U1V               5
 120    200         DSA   P5C005-2            SET                                  3  5018  U2S               5
 121    210         DSA   P5C006-4            RESET                                3  5021  U2W               5
 122    220         DSA   P5C007-3            ZERO                                 3  5024  U3S               6
 123    230         DSA   P5C008-4            SHIFT                                3  5027  U3X               6
 124    240         DSA   P5C009-4            CLEAR                                3  5030  U4T               6
 125    250  *
 126    260  *
 127    270         DSA   P5C010              BCDOP  %USED FOR PREDF)              3  5033  U4Z               6
 128    280         DSA   P5C011-6            SEGMENT OP1,OP2,OP3 %JOB CARD)       3  5036  U5S               6
 129    290         DSA   P5C012              , OP1 BACKSP SEQ.  %SUBRT  EG TS     3  5039  U6V               6
 130    300         DSA   P5C013              BCDOP BACKSPACE, RESELT IN OP1       3  5042  U7|               6
 131    310         DSA   P5C014              SPEC3 %FOR DECID JUMP TYPE YES)      3  5045  U8T               7
 132    320         DSA   P5C015-1            IS C%AC) EQUAL TO OP1                3  5048  U8V               7
 133    330         DSA   P5C016              BCDOP  OP1 OP2 OP3 BACKSPACE ,       3  5051  U9Y               7
 134    340         DSA   P5C017              BACKSPACE AND INSERT COMMA           3  5054  V0V               7
 135    350         DSA   P5C018              SEQ NUMBER, NO COMMA                 3  5057  V0Z               7
 136    360         DSA   P5C019-4            CHAIN FOR 1400 COMPUTERS             3  5060  V1/               7
 137    370         DSA   P5C020              BCDOP,1,2,3-IS CONDITION TRUE        3  5063  V1X               7
 138    380         ORG   *&12                                                           5076
 139    390         DSA   P5C025-3            MOVE DATA LOCATED                    3  5078  V3X               8
 140    400         ORG   *&72                ALLOWS FOR  24 INSERTS                     5151
 141    410  *
 142    420  *
 143    430         DSA   P5C050-1            AC ZERO TEST               %TZE)     3  5153  V5X               9
 144    440         DSA   P5C051-1            AC NON-ZERO TEST           %TNZ)     3  5156  V6W               9
 145    450         DSA   P5C052-1            AC POSITIVE TEST           %TPL)     3  5159  V7Z               9
 146    460         DSA   P5C053-1            MQ LESS THAN AC TEST       %TLQ)     3  5162  V9S               9
 147    470         DSA   P5C054-1            CHAN IN-OP TEST              TCO     3  5165  W0X               9
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

148    480         DSA   P5C055-1            AC MINUS TEST              %TMI)     3  5168  W2W                  9
149    490         DSA   P5C056-1            CHAN IDLE TEST               TCN     3  5171  W3Z                  9
150    500         DSA   P5C057-1            INDICATOR-OP1 ON TEST                3  5174  W5T                 10
151    510         DSA   P5C058-1            MQ POSITIVE TEST           %TQP)     3  5177  W6Y                 10
152    520         DSA   P5C059-1            INDEX HIGH TEST            %TXH)     3  5180  W8/                 10
153    530         DSA   P5C060-1            INDEX LO OR EQUAL TEST     %TXL)     3  5183  W9S                 10
154    540         DSA   P5C061-1            INDICATOR-OP1 OFF TEST               3  5186  X0T                 10
155    550         DSA   P5C062-1            STORAGE ZERO TEST          %ZET)     3  5189  X1Z                 10
156    560         DSA   P5C063-1            STORAGE NON-ZERO TEST      %NZT)     3  5192  X2X                 10
157    570         DSA   P5C064-1            AC LESS THAN OP1 TEST                3  5195  X3Z                 11
158    580         DSA   P5C065-3            TIX                                  3  5198  X5T                 11
159    590         DSA   P5C066-3            TNX                                  3  5201  X7/                 11
160    600         DSA   P5C067-1            IS STORAGE OP1 POSITIVE   %PLT)      3  5204  X8Z                 11
161    610         DSA   P5C068-1            IS STORAGE OP1 NEGATIVE   %MIT)      3  5207  Y0/                 11
162    620         DSA   P5C069-1            IS TAPE INDICATOR OFF                3  5210  Y1T                 11
163    630         DSA   P5C070-1            IS IO IND OFF                IOT     3  5213  Y3S                 11
164    640         DSA   P5C071-1            IS AC BIT ON             PBT,LBT     3  5216  Y4Z                 12
165    650         DSA   P5C072-1            IS COMPUTE IND ON        TOV,TQO     3  5219  Y5Z                 12
166    660         DSA   P5C073-1            IS COMPUTE IND OFF       TNO,DCT     3  5222  Y8Y                 12
167    670         DSA   P5C074-1            CHANNEL IND TEST         TEF,TRC     3  5225  Z1Y                 12
168    680         DSA   P5C075-1            IS DEVICE OPERATING         TDOA     3  5228  Z3Z                 12
169    690         DSA   P5C076-1            INDICATOR OFF TEST     TIF           3  5231  Z5Z                 12
170    700         DSA   P5C077-1            INDICATOR ON TEST        TIO         3  5234  Z7U                 12
171    710         ORG   *&66                                                         5301
172    720   *
173    730   *             P5C100-P5C124 ARE COMMENTS TO BE PLACED IN IO BOXES
174    740   *
175    750   *
176    760         DSA   P5C100-3            READ TAPE OP1          %RTB,RTD)     3  5303  Z8Y                 13
177    770         DSA   P5C101-4            WRITE TAPE OP1         %WTB,WTD)     3  5306  Z9Y                 13
178    780         DSA   P5C102-8            BACKSPACE TAPE OP1     %BSF,BSR)     3  5309  !0Z                 13
179    790         DSA   P5C103-5            REWIND TAPE OP1        %REW,RUN)     3  5312  !2U                 13
180    800         DSA   P5C104-4            CONTROL TAPE                %WEF)     3  5315  !3W                 13
181    810         DSA   P5C105-6            CONTROL CHANNEL                      3  5318  !5T                 13
182    820         DSA   P5C106-6            CONTROL SENSE LINES    %PSL,SSL)     3  5321  !6Y                 13
183    830         DSA   P5C107-5            CONTROL UNIT %OP1)     %RDS,WRS)     3  5324  !8W                 14
184    840         DSA   P5C108-4            WRITE PUNCH                          3  5327  !9Y                 14
185    850         DSA   P5C109-4            WRITE PRINTER      %WPR,WPB,WPD)     3  5330  J0Z                 14
186    860         DSA   P5C110-3            READ PRINTER                %RPR)     3  5333  J2S                 14
187    870         DSA   P5C111-3            READ CARD READER            %RCD)     3  5336  J3U                 14
188    880         DSA   P5C112-6            CONTROL CHANNEL FROM OP1             3  5339  J4Z                 14
189    890         DSA   P5C113-4            INPUT OPERATOR CONTROL      %ENK)    3  5342  J6Z                 14
190    900         DSA   P5C114-6            CONTROL PRINTER OP1         %SPR)    3  5345  J9|                 15
191    910         DSA   P5C115-3            COPY OP1, 7909 CHANNEL               3  5348  K0W                 15
192    920         DSA   P5C116-6            CONTROL PUNCH OP1                    3  5351  K1S                 15
193    930         DSA   P5C117-4            STORE OP 1 7607 & 7909 CHANNELS      3  5354  K2W                 15
194    940         DSA   P5C118-1            IF CHANNEL COND MET,OP1 -TDC,TCM     3  5357  K4|                 15
195    950         ORG   *&18                ALLOWS FOR 6 INSERTS                     5376
196    960   *
197    970   *             P5C125-P5C135 ARE COMMENTS TO BE PLACED IN MODFY
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

198    980  *              BOXES
199    990  *
200  1 000         DSA   P5C125-3            LOAD INDEX OP2                     3  5378  K6X                 16
201  1 010         DSA   P5C126-5            MODIFY MODE                        3  5381  K7V                 16
202  1 020         DSA   P5C127-5            MODIFY MODE OP1                    3  5384  K8W                 16
203  1 030         DSA   P5C128-3            VARY XR OP2 BY OP3           TXI   3  5387  K9U                 16
204  1 040         DSA   P5C129-6            EXECUTE INSTRUCTION AT OP1 %XEC)   3  5390  L0V                 16
205  1 050         DSA   P5C130-4            SENSE OP1                    PSE   3  5393  L2X                 16
206  1 060         DSA   P5C131-3            INDEX LOADS USING OP1              3  5396  L3U                 16
207  1 070  *
208  1 080  *
209  1 090  *
210  1 100  P5C000 DCW   @,@                 SUBSTITUTE SEQUENCE FIELD ,        1  5397                      17
211  1 110         DCW   @0@                                                    1  5398                      17
212  1 120         DCW   @ @                                                    1  5399                      17
213  1 130  P5C001 DCW   @1@                 SUBSTITUTE OPERAND-1               1  5400                      17
214  1 140         DCW   @ @                                                    1  5401                      17
215  1 150  P5C002 DCW   @COMPUTE@           COMPUTE  MODE                      7  5408                      17
216  1 160         DCW   @ @                                                    1  5409                      17
217  1 170  P5C003 DCW   @EDIT@              EDIT     MODE                      4  5413                      18
218  1 180         DCW   @ @                                                    1  5414                      18
219  1 190  P5C004 DCW   @MOVE@              MOVE TO  MODE                      4  5418                      18
220  1 200         DCW   @TO@                                                   2  5420                      18
221  1 210         DCW   @ @                                                    1  5421                      18
222  1 220  P5C005 DCW   @SET@               SET      MODE                      3  5424                      18
223  1 230         DCW   @ @                                                    1  5425                      18
224  1 240  P5C006 DCW   @RESET@             RESET    MODE                      5  5430                      19
225  1 250         DCW   @ @                                                    1  5431                      19
226  1 260  P5C007 DCW   @ZERO@              ZERO                               4  5435                      19
227  1 270         DCW   @ @                                                    1  5436                      19
228  1 280  P5C008 DCW   @SHIFT@             SHIFT                              5  5441                      19
229  1 290         DCW   @ @                                                    1  5442                      19
230  1 300  P5C009 DCW   @CLEAR@             CLEAR                              5  5447                      19
231  1 310         DCW   @ @                                                    1  5448                      20
232  1 320  P5C010 DCW   @,@                 BCDOP, %USED FOR PREDF)            1  5449                      20
233  1 330         DCW   @4@                                                    1  5450                      20
234  1 340         DCW   @ @                                                    1  5451                      20
235  1 350  P5C011 DCW   @SEGMENT@           SEGMENT OP1,OP2,OP3 %JOB CARD)     7  5458                      20
236  1 360         DCW   @,@                                                    1  5459                      20
237  1 370         DCW   @1@                                                    1  5460                      20
238  1 380         DCW   @,@                                                    1  5461                      21
239  1 390         DCW   @2@                                                    1  5462                      21
240  1 400         DCW   @3@                                                    1  5463                      21
241  1 410         DCW   @ @                                                    1  5464                      21
242  1 420  P5C012 DCW   @,@                 OP1,BACKSPACE SEQ %SUBRT EG TSX)   1  5465                      21
243  1 430         DCW   @1@                                                    1  5466                      21
244  1 440         DCW   @-@                                                    1  5467                      21
245  1 450         DCW   @0@                                                    1  5468                      22
246  1 460         DCW   @ @                                                    1  5469                      22
247  1 470  P5C013 DCW   @,@                 BCDOP,BACKSPACE RESULT IN OP1      1  5470                      22
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  1 480         DCW   @4@                                                   1  5471                      22
249  1 490         DCW   @-@                                                   1  5472                      22
250  1 500         DCW   @RESULT@                                              6  5478                      22
251  1 510         DCW   @IN@                                                  2  5480                      22
252  1 520         DCW   @1@                                                   1  5481                      23
253  1 530         DCW   @ @                                                   1  5482                      23
254  1 540  P5C014 DCW   @7@                 SPEC 3                            1  5483                      23
255  1 550         DCW   @ @                                                   1  5484                      23
256  1 560  P5C015 DCW   @IS@                IS AC EQUAL TO OP2                2  5486                      23
257  1 570         DCW   @AC@                                                  2  5488                      23
258  1 580         DCW   @EQUAL@                                               5  5493                      23
259  1 590         DCW   @TO@                                                  2  5495                      24
260  1 600         DCW   @2@                                                   1  5496                      24
261  1 610         DCW   @ @                                                   1  5497                      24
262  1 620  P5C016 DCW   @4@                 BCDOP OP1,OP2,OP3                 1  5498                      24
263  1 630         DCW   @,@                                                   1  5499                      24
264  1 640         DCW   @1@                                                   1  5500                      24
265  1 650         DCW   @,@                                                   1  5501                      24
266  1 660         DCW   @2@                                                   1  5502                      25
267  1 670         DCW   @3@                                                   1  5503                      25
268  1 680         DCW   @ @                                                   1  5504                      25
269  1 690  P5C017 DCW   @-@                 BACKSPACE                         1  5505                      25
270  1 700         DCW   @&@                 AND INSERT A COMMA                1  5506                      25
271  1 710         DCW   @,@                                                   1  5507                      25
272  1 720         DCW   @ @                                                   1  5508                      25
273  1 730  P5C018 DCW   @0@                 SEQ. NUMBER                       1  5509                      26
274  1 740         DCW   @ @                                                   1  5510                      26
275  1 750  P5C019 DCW   @CHAIN@                                               5  5515                      26
276  1 760         DCW   @ @                                                   1  5516                      26
277  1 770  P5C020 DCW   @4@                 BCDOP OP1 OP2 OP3                 1  5517                      26
278  1 780         DCW   @1@                                                   1  5518                      26
279  1 790         DCW   @2@                 IS CONDITION TRUE                 1  5519                      26
280  1 800         DCW   @3@                                                   1  5520                      27
281  1 810         DCW   @IS@                                                  2  5522                      27
282  1 820         DCW   @CONDITION@                                           9  5531                      27
283  1 830         DCW   @TRUE@                                                4  5535                      27
284  1 840         DCW   @ @                                                   1  5536                      27
285  1 850  P5C025 DCW   @MOVE@              MOVE DATA LOCATED BY AD           4  5540                      27
286  1 860         DCW   @DATA@              TMT                               4  5544                      27
287  1 870         DCW   @LOCATED@                                             7  5551                      28
288  1 880         DCW   @BY@                                                  2  5553                      28
289  1 890         DCW   @AC@                                                  2  5555                      28
290  1 900         DCW   @ @                                                   1  5556                      28
291  1 910  P5C050 DCW   @IS@                TRANSFER ON ZERO                  2  5558                      28
292  1 920         DCW   @AC@                                                  2  5560                      28
293  1 930         DCW   @ZERO@              IS C%AC) ZERO          %TZE)      4  5564                      28
294  1 940         DCW   @ @                                                   1  5565                      29
295  1 950  P5C051 DCW   @IS@                TRANSFER ON NO ZERO               2  5567                      29
296  1 960         DCW   @AC@                                                  2  5569                      29
297  1 970         DCW   @NON-ZERO@          IS C%AC) NON-ZERO     %TNZ)       8  5577                      29
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

298  1 980         DCW   @ @                                                          1  5578                      29
299  1 990  P5C052 DCW   @IS@                TRANSFER ON PLUS                         2  5580                      29
300  2 000         DCW   @AC@                                                         2  5582                      29
301  2 010         DCW   @POSITIVE@          IS AC PLUS              %TPL)            8  5590                      30
302  2 020         DCW   @ @                                                          1  5591                      30
303  2 030  P5C053 DCW   @IS@                TRANSFER ON LOW MQ                       2  5593                      30
304  2 040         DCW   @MQ@                                                         2  5595                      30
305  2 050         DCW   @LESS@              IS C%MQ) LESS THAN C%AC) %TLQ)           4  5599                      30
306  2 060         DCW   @THAN@                                                       4  5603                      30
307  2 070         DCW   @AC@                                                         2  5605                      30
308  2 080         DCW   @ @                                                          1  5606                      31
309  2 090  P5C054 DCW   @IS@                TCOA-H                                   2  5608                      31
310  2 100         DCW   @CHANNEL@                                                    7  5615                      31
311  2 110         DCW   @OPERATING@                                                  9  5624                      31
312  2 120         DCW   @ @                                                          1  5625                      31
313  2 130  P5C055 DCW   @IS@                TRANSFER ON MINUS                        2  5627                      31
314  2 140         DCW   @AC@                                                         2  5629                      31
315  2 150         DCW   @NEGATIVE@          %TMI)                                    8  5637                      32
316  2 160         DCW   @ @                                                          1  5638                      32
317  2 170  P5C056 DCW   @IS@                TCNA-H                                   2  5640                      32
318  2 180         DCW   @CHANNEL@                                                    7  5647                      32
319  2 190         DCW   @IDLE@                                                       4  5651                      32
320  2 200         DCW   @ @                                                          1  5652                      32
321  2 210  P5C057 DCW   @IS@                    ONT,BNT,LNT,RNT,MSE,SLT              2  5654                      32
322  2 220         DCW   @INDICATOR@         SPT,SWT,                                 9  5663                      33
323  2 230         DCW   @2@                                                          1  5664                      33
324  2 240         DCW   @ON@                                                         2  5666                      33
325  2 250         DCW   @ @                                                          1  5667                      33
326  2 260  P5C058 DCW   @IS@                TRANSFER ON MQ PLUS                      2  5669                      33
327  2 270         DCW   @MQ@                                                         2  5671                      33
328  2 280         DCW   @POSITIVE@          %TQP)                                    8  5679                      33
329  2 290         DCW   @ @                                                          1  5680                      34
330  2 300  P5C059 DCW   @IS@                TRANSFER ON INDEX HIGH                   2  5682                      34
331  2 310         DCW   @XR@                                                         2  5684                      34
332  2 320         DCW   @2@                 %TXH)                                    1  5685                      34
333  2 330         DCW   @.GT.@                                                       4  5689                      34
334  2 340         DCW   @3@                                                          1  5690                      34
335  2 350         DCW   @ @                                                          1  5691                      34
336  2 360  P5C060 DCW   @IS@                TRANSFER ON INDEX LOW OR EQUAL           2  5693                      35
337  2 370         DCW   @XR@                                                         2  5695                      35
338  2 380         DCW   @2@                                                          1  5696                      35
339  2 390         DCW   @.LE.@                                                       4  5700                      35
340  2 400         DCW   @3@                                                          1  5701                      35
341  2 410         DCW   @ @                                                          1  5702                      35
342  2 420  P5C061 DCW   @IS@                    OFT,BFT,LFT,RFT                      2  5704                      35
343  2 430         DCW   @INDICATOR@                                                  9  5713                      36
344  2 440         DCW   @2@                                                          1  5714                      36
345  2 450         DCW   @OFF@                                                        3  5717                      36
346  2 460         DCW   @ @                                                          1  5718                      36
347  2 470  P5C062 DCW   @IS@                STORAGE ZERO TEST                        2  5720                      36
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                                     SFX CT  LOCN  INSTRUCTION TYPE  CARD

348  2 480         DCW   @2@                                                                1  5721                     36
349  2 490         DCW   @ZERO@              IS       OP1 ZERO      %ZET)                   4  5725                     36
350  2 500         DCW   @ @                                                                1  5726                     37
351  2 510  P5C063 DCW   @IS@                STORAGE NOT ZERO TEST                          2  5728                     37
352  2 520         DCW   @2@                                                                1  5729                     37
353  2 530         DCW   @NON-ZERO@          IS       OP-1 NON-ZERO                         8  5737                     37
354  2 540         DCW   @ @                                              %NZT)             1  5738                     37
355  2 550  P5C064 DCW   @IS@                IS C%AC)LESS THAN OP1                          2  5740                     37
356  2 560         DCW   @AC@                CAS,LAS,CCS                                    2  5742                     37
357  2 570         DCW   @LESS@              USED AS FIRST DECID IN 3-WAY                   4  5746                     38
358  2 580         DCW   @THAN@              COMPARE                                        4  5750                     38
359  2 590         DCW   @2@                                                                1  5751                     38
360  2 600         DCW   @ @                                                                1  5752                     38
361  2 610  P5C065 DCW   @VARY@              TIX                                            4  5756                     38
362  2 620         DCW   @XR,@                                                              3  5759                     38
363  2 630         DCW   @IS@                                                               2  5761                     38
364  2 640         DCW   @XR@                                                               2  5763                     39
365  2 650         DCW   @2@                                                                1  5764                     39
366  2 660         DCW   @.GT.@                                                             4  5768                     39
367  2 670         DCW   @3@                                                                1  5769                     39
368  2 680         DCW   @ @                                                                1  5770                     39
369  2 690  P5C066 DCW   @VARY@              TNX                                            4  5774                     39
370  2 700         DCW   @XR,@                                                              3  5777                     39
371  2 710         DCW   @IS@                                                               2  5779                     40
372  2 720         DCW   @XR@                                                               2  5781                     40
373  2 730         DCW   @2@                                                                1  5782                     40
374  2 740         DCW   @.LE.@                                                             4  5786                     40
375  2 750         DCW   @3@                                                                1  5787                     40
376  2 760         DCW   @ @                                                                1  5788                     40
377  2 770  P5C067 DCW   @IS@                IS STORAGE %OP1) POSITIVE                      2  5790                     40
378  2 780         DCW   @2@                                                                1  5791                     41
379  2 790         DCW   @POSITIVE@          %PLT)                                          8  5799                     41
380  2 800         DCW   @ @                                                                1  5800                     41
381  2 810  P5C068 DCW   @IS@                IS STORAGE %OP1) NEGATIVE                      2  5802                     41
382  2 820         DCW   @2@                                                                1  5803                     41
383  2 830         DCW   @NEGATIVE@          %MIT)                                          8  5811                     41
384  2 840         DCW   @ @                                                                1  5812                     41
385  2 850  P5C069 DCW   @IS@                BTT,ETT,RTT                                    2  5814                     42
386  2 860         DCW   @TAPE@                                                             4  5818                     42
387  2 870         DCW   @INDICATOR@                                                        9  5827                     42
388  2 880         DCW   @OFF@                                                              3  5830                     42
389  2 890         DCW   @ @                                                                1  5831                     42
390  2 900  P5C070 DCW   @IS@                IOT                                            2  5833                     42
391  2 910         DCW   @IO@                                                               2  5835                     42
392  2 920         DCW   @INDICATOR@                                                        9  5844                     43
393  2 930         DCW   @OFF@                                                              3  5847                     43
394  2 940         DCW   @ @                                                                1  5848                     43
395  2 950  P5C071 DCW   @IS@                PBT,LBT                                        2  5850                     43
396  2 960         DCW   @AC@                                                               2  5852                     43
397  2 970         DCW   @BIT@                                                              3  5855                     43
```

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
398	2	980		DCW	@ON@			2	5857		43
399	2	990		DCW	@ @			1	5858		44
400	3	000	P5C072	DCW	@IS@	TOV,TQO,FBU,FBV		2	5860		44
401	3	010		DCW	@COMPUTE@			7	5867		44
402	3	020		DCW	@OVERFLOW@			8	5875		44
403	3	030		DCW	@INDICATOR@			9	5884		44
404	3	040		DCW	@ON@			2	5886		44
405	3	050		DCW	@ @			1	5887		44
406	3	060	P5C073	DCW	@IS@	TNO,DCT		2	5889		45
407	3	070		DCW	@COMPUTE@			7	5896		45
408	3	080		DCW	@OVERFLOW@			8	5904		45
409	3	090		DCW	@INDICATOR@			9	5913		45
410	3	100		DCW	@OFF@			3	5916		45
411	3	110		DCW	@ @			1	5917		45
412	3	120	P5C074	DCW	@IS@	TRCA-H,TEFA-H		2	5919		45
413	3	130		DCW	@CHANNEL@			7	5926		46
414	3	140		DCW	@INDICATOR@			9	5935		46
415	3	150		DCW	@ON@			2	5937		46
416	3	160		DCW	@ @			1	5938		46
417	3	170	P5C075	DCW	@IS@	TDOA		2	5940		46
418	3	180		DCW	@IO@			2	5942		46
419	3	190		DCW	@DEVICE@			6	5948		46
420	3	200		DCW	@OPERATING@			9	5957		47
421	3	210		DCW	@ @			1	5958		47
422	3	220	P5C076	DCW	@IS@	TIF		2	5960		47
423	3	230		DCW	@INDICATOR@			9	5969		47
424	3	240		DCW	@OFF@			3	5972		47
425	3	250		DCW	@ @			1	5973		47
426	3	260	P5C077	DCW	@IS@	TIO		2	5975		47
427	3	270		DCW	@INDICATOR@			9	5984		48
428	3	280		DCW	@ON@			2	5986		48
429	3	290		DCW	@ @			1	5987		48
430	3	300	P5C100	DCW	@READ@	RTB,RTD		4	5991		48
431	3	310		DCW	@TAPE@			4	5995		48
432	3	320		DCW	@1@			1	5996		48
433	3	330		DCW	@ @			1	5997		48
434	3	340	P5C101	DCW	@WRITE@	WTB,WTD		5	6002		49
435	3	350		DCW	@TAPE@			4	6006		49
436	3	360		DCW	@1@			1	6007		49
437	3	370		DCW	@ @			1	6008		49
438	3	380	P5C102	DCW	@BACKSPACE@	BSF,BSR,BST		9	6017		49
439	3	390		DCW	@TAPE@			4	6021		49
440	3	400		DCW	@1@			1	6022		49
441	3	410		DCW	@ @			1	6023		50
442	3	420	P5C103	DCW	@REWIND@	REW,RUN		6	6029		50
443	3	430		DCW	@TAPE@			4	6033		50
444	3	440		DCW	@1@			1	6034		50
445	3	450		DCW	@ @			1	6035		50
446	3	460	P5C104	DCW	@WRITE@	WEF		5	6040		50
447	3	470		DCW	@TAPE@			4	6044		50

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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

448  3 480         DCW   @MARK@                                                     4  6048                      51
449  3 490         DCW   @ON@                                                       2  6050                      51
450  3 500         DCW   @1@                                                        1  6051                      51
451  3 510         DCW   @ @                                                        1  6052                      51
452  3 520  P5C105 DCW   @CONTROL@           SNS,ICC,TWT,WTR,STCA                   7  6059                      51
453  3 530         DCW   @CHANNEL@                                                  7  6066                      51
454  3 540         DCW   @ @                                                        1  6067                      51
455  3 550  P5C106 DCW   @CONTROL@           PSL,SSL                                7  6074                      52
456  3 560         DCW   @SENSE@                                                    5  6079                      52
457  3 570         DCW   @LINES@                                                    5  6084                      52
458  3 580         DCW   @ @                                                        1  6085                      52
459  3 590  P5C107 DCW   @SELECT@            RDS,WRS                                6  6091                      52
460  3 600         DCW   @UNIT@                                                     4  6095                      52
461  3 610         DCW   @1@                                                        1  6096                      52
462  3 620         DCW   @ @                                                        1  6097                      53
463  3 630  P5C108 DCW   @WRITE@             WPU                                    5  6102                      53
464  3 640         DCW   @PUNCH@                                                    5  6107                      53
465  3 650         DCW   @ @                                                        1  6108                      53
466  3 660  P5C109 DCW   @WRITE@             WPR,WPB,WPD                            5  6113                      53
467  3 670         DCW   @PRINTER@                                                  7  6120                      53
468  3 680         DCW   @ @                                                        1  6121                      53
469  3 690  P5C110 DCW   @READ@              RPR                                    4  6125                      54
470  3 700         DCW   @PRINTER@                                                  7  6132                      54
471  3 710         DCW   @ @                                                        1  6133                      54
472  3 720  P5C111 DCW   @READ@              RCD                                    4  6137                      54
473  3 730         DCW   @CARD@                                                     4  6141                      54
474  3 740         DCW   @READER@                                                   6  6147                      54
475  3 750         DCW   @ @                                                        1  6148                      54
476  3 760  P5C112 DCW   @CONTROL@           RSCA,SMS,ENB,RICA,CTL,CTLR             7  6155                      55
477  3 770         DCW   @CHANNEL@           CTLW,RCT,RDC,RCH,LCH,LAR,LCC,          7  6162                      55
478  3 780         DCW   @FROM@                                                     4  6166                      55
479  3 790         DCW   @1@                                                        1  6167                      55
480  3 800         DCW   @ @                                                        1  6168                      55
481  3 810  *
482  3 820  P5C113 DCW   @INPUT@             ENK                                    5  6173                      55
483  3 830         DCW   @OPERATOR@                                                 8  6181                      55
484  3 840         DCW   @CONTROL@                                                  7  6188                      56
485  3 850         DCW   @ @                                                        1  6189                      56
486  3 860  P5C114 DCW   @CONTROL@           SPR                                    7  6196                      56
487  3 870         DCW   @PRINTER@                                                  7  6203                      56
488  3 880         DCW   @1@                                                        1  6204                      56
489  3 890         DCW   @ @                                                        1  6205                      56
490  3 900  P5C115 DCW   @COPY@              CPYP,CPYD,XMT                          4  6209                      56
491  3 910         DCW   @1@                                                        1  6210                      57
492  3 920         DCW   @ @                                                        1  6211                      57
493  3 930  *
494  3 940  *
495  3 950  P5C116 DCW   @CONTROL@           SPU                                    7  6218                      57
496  3 960         DCW   @PUNCH@                                                    5  6223                      57
497  3 970         DCW   @1@                                                        1  6224                      57
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SEQ PG LIN  LABEL  OP    OPERANDS                                     SFX CT  LOCN  INSTRUCTION TYPE  CARD

498  3 980         DCW   @ @                                               1  6225                      57
499  3 990  P5C117 DCW   @STORE@             SCHA,SAR                      5  6230                      57
500  4 000         DCW   @CHANNEL@                                         7  6237                      58
501  4 010         DCW   @1@                                               1  6238                      58
502  4 020         DCW   @ @                                               1  6239                      58
503  4 030  P5C118 DCW   @IF@                TDC,TCM                       2  6241                      58
504  4 040         DCW   @CHANNEL@                                         7  6248                      58
505  4 050         DCW   @CONDITION@                                       9  6257                      58
506  4 060         DCW   @MET@                                             3  6260                      58
507  4 070         DCW   @GO@                                              2  6262                      59
508  4 080         DCW   @TO@                                              2  6264                      59
509  4 090         DCW   @1@                                               1  6265                      59
510  4 100         DCW   @ @                                               1  6266                      59
511  4 110  P5C125 DCW   @LOAD@              PAX,PAC,PDX,PDC               4  6270                      59
512  4 120         DCW   @XR@                                              2  6272                      59
513  4 130         DCW   @2@                                               1  6273                      59
514  4 140         DCW   @ @                                               1  6274                      60
515  4 150  P5C126 DCW   @MODIFY@            ETM,LTM,EMTM,LMTM,EFTM,LFTM   6  6280                      60
516  4 160         DCW   @MODE@              ESNT,LSNM,ESTM,ECTM,TRP,TRT   4  6284                      60
517  4 170         DCW   @ @                                               1  6285                      60
518  4 180  P5C127 DCW   @MODIFY@            SCA,SCD,SLF,SLN,STA,STD,STL,  6  6291                      60
519  4 190         DCW   @1@                 STP,STT,SXA,ZSA,SXD,ZSD,      1  6292                      60
520  4 200         DCW   @ @                 SPM,RPM                       1  6293                      60
521  4 210  P5C128 DCW   @VARY@                                            4  6297                      61
522  4 220         DCW   @XR@                %TXI)                         2  6299                      61
523  4 230         DCW   @2@                                               1  6300                      61
524  4 240         DCW   @BY@                                              2  6302                      61
525  4 250         DCW   @3@                                               1  6303                      61
526  4 260         DCW   @ @                                               1  6304                      61
527  4 270  P5C129 DCW   @EXECUTE@           XEC                           7  6311                      61
528  4 280         DCW   @INSTRUCTION@                                    11  6322                      62
529  4 290         DCW   @AT@                                              2  6324                      62
530  4 300         DCW   @1@                                               1  6325                      62
531  4 310         DCW   @ @                                               1  6326                      62
532  4 320  P5C130 DCW   @SENSE@             PSE                           5  6331                      62
533  4 330         DCW   @1@                                               1  6332                      62
534  4 340         DCW   @ @                                               1  6333                      62
535  4 350  P5C131 DCW   @LOAD@              LXA,LAC,LXD,LDC,AXT,AXC       4  6337                      63
536  4 360         DCW   @XR@                                              2  6339                      63
537  4 370         DCW   @2@                                               1  6340                      63
538  4 380         DCW   @WITH@                                            4  6344                      63
539  4 390         DCW   @1@                                               1  6345                      63
540  4 400         DCW   @ @                                               1  6346                      63
541  4 410  LOW    EQU   P5CAT-2             FOR PASS 5 DICTIONARIES          5001
542  4 420  START  EQU   813                 START ADDRESS                    0813
543  4 430  HIGH   EQU   *&1                 HIGH POSITION FOR $ADD CARD      6347
544  4 440         END   P5CAT                                                      / |0T 080         64
527  4 270  P5C129 DCW   @EXECUTE@           XEC                           7  6311                      61        *****
528  4 280         DCW   @INSTRUCTION@                                    11  6322                      62
529  4 290         DCW   @AT@                                              2  6324                      62
530  4 300         DCW   @1@                                               1  6325                      62
531  4 310         DCW   @ @                                               1  6326                      62
532  4 320  P5C130 DCW   @SENSE@             PSE                           5  6331                      62
533  4 330         DCW   @1@                                               1  6332                      62
534  4 340         DCW   @ @                                               1  6333                      62
535  4 350  P5C131 DCW   @LOAD@              LXA,LAC,LXD,LDC,AXT,AXC       4  6337                      63
536  4 360         DCW   @XR@                                              2  6339                      63
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537  4 370         DCW   @2@                                                        1  6340                         63
538  4 380         DCW   @WITH@                                                     4  6344                         63
```

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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                        1              4CHR7
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?      2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040      3

                          /360 COMMENT DICTIONARY  PASS-5                          4CHR7             PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    010  000    JOB   /360 COMMENT DICTIONARY  PASS-5
 102    020         CTL   440  1
 103    030  *          VERSION 2  LEVEL 0   JULY 25,1965
 104    040         DCW   @$ADD     @         CARDS COMMON TO ALL DICTIONARIES     9  0341                    4
 105    050         DSA   LOW                 --REQUIRED TO                        3  0344  |0/               4
 106    060         DSA   START               --GENERATE THE APPROPRIATE           3  0347  813               4
 107    070         DSA   HIGH                --$ADD CARD                          3  0350  B8S               4
 108    080         DCW   @051765@            ASSEMBLY DATE                        6  0356                    4
 109    090  LOW    EQU   P5CAT-2                                                     5001
 110    100  START  EQU   813                 START ADDRESS                           0813
 111    110         ORG   5001                                                              5001
 112    120  *
 113    130  *
 114    140  *          P5C000-P5C024 SPECIFY COMMENT SKELETONS COMMON TO
 115    150  *          ALL P5CAT DICTIONARIES
 116    160  *
 117    170  *
 118    180  P5CAT  DSA   P5C000              ASSEMBLY SEQUENCE NUMBER             3  5003  U6|               5
 119    190         DSA   P5C001              OP1                                  3  5006  U6S               5
 120    200         DSA   P5C002-6            COMPUTE                              3  5009  U6U               5
 121    210         DSA   P5C003-3            EDIT                                 3  5012  U7S               5
 122    220         DSA   P5C004-3            MOVE TO                              3  5015  U7X               5
 123    230         DSA   P5C005-2            SET                                  3  5018  U8U               5
 124    240         DSA   P5C006-4            RESET                                3  5021  U8Y               5
 125    250         DSA   P5C007-3            ZERO                                 3  5024  U9U               6
 126    260         DSA   P5C008-4            SHIFT                                3  5027  U9Z               6
 127    270         DSA   P5C009-4            CLEAR                                3  5030  V0V               6
 128    280         DSA   P5C010              BCDOP  %USED FOR PREDF)              3  5033  V1/               6
 129    290         DSA   P5C011-6            SEGMENT OP1,OP2,OP3 %JOB CARD)       3  5036  V1U               6
 130    300         DSA   P5C012              , OP1 BACKSP SEQ.  %SUBRT  EG TS     3  5039  V2X               6
 131    310         DSA   P5C013              BCDOP BACKSPACE, RESELT IN OP1       3  5042  V3S               6
 132    320         DSA   P5C014              SPEC3 %FOR DECID JUMP TYPE YES)      3  5045  V4V               7
 133    330         DSA   P5C015-1            IS C%AC) EQUAL TO OP1                3  5048  V4X               7
 134    340         DSA   P5C016              BCDOP  OP1 OP2 OP3 BACKSPACE ,       3  5051  V6T               7
 135    350         DSA   P5C017              BACKSPACE AND INSERT COMMA           3  5054  V7/               7
 136    360         DSA   P5C018              SEQ NUMBER, NO COMMA                 3  5057  V7V               7
 137    370         DSA   P5C019-4            CHAIN FOR 1400 COMPUTERS             3  5060  V7X               7
 138    380         DSA   P5C020              BCDOP,1,2,3-IS CONDITION TRUE        3  5063  V8T               7
 139    390         DSA   P5C021              TERMINATE                            3  5066  W0T               8
 140    400         DSA   P5C022              BCDOP,OP1                            3  5069  W0U               8
 141    410         DSA   P5C023-3                                                 3  5072  W0X               8
 142    420  *
 143    430         ORG   *&3                 ALLOWS FOR 1 INSERT                                   5076
 144    440  *
 145    450         DSA   P5C025-3            PACK OP2 INTO OP1                    3  5078  W1T               9
 146    460         DSA   P5C026-5            UNPACK OP2 INTO OP1                  3  5081  W2U               9
 147    470         DSA   P5C027-6            CONVERT OP2 TO DECIMAL R-1           3  5084  W3X               9
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

148    480         DSA   P5C028-3            LOAD HALFWORD                      3  5087  W5Y                  9
149    490         DSA   P5C029-3            LOAD COMPLEMENT                    3  5090  W7Z                  9
150    500         DSA   P5C030-3            LOAD NEGATIVE                      3  5093  X0U                  9
151    510         DSA   P5C031-3            LOAD POSITIVE                      3  5096  X2X                  9
152    520         DSA   P5C032-3            LOAD AND TEST                      3  5099  X5|                 10
153    530         DSA   P5C033-4            STORE HALFWORD                     3  5102  X7S                 10
154    540         DSA   P5C034-4            STORE CHARACTER                    3  5105  X9S                 10
155    550         DSA   P5C035-3            LOAD ADDRESS                       3  5108  Y1V                 10
156    560  *
157    570         ORG   *&42                ALLOWS FOR 14 INSERTS                     5151
158    580  *
159    590         DSA   P5C050-2            ADD OP2 TO R-OP1                   3  5153  Y3V                 11
160    600         DSA   P5C051-2            ADD R-OP2 TO R-OP1                 3  5156  Y4V                 11
161    610         DSA   P5C052-2            ADD OP2 TO OP1                     3  5159  Y5X                 11
162    620         DSA   P5C053              SUBRT,OP1,SEQ LINK IN OP2          3  5162  Y6V                 11
163    630         DSA   P5C054-1            IS CONDITION OP2 MET               3  5165  Y7Z                 11
164    640         DSA   P5C055-3            VARY R-OP2 BY -1,IS RES NONZERO    3  5168  Y9V                 11
165    650         DSA   P5C056-3            VARY R-OP3, IS SUM G.T.ZERO        3  5171  Z2W                 11
166    660         DSA   P5C057-3            VARY R-OP3, IS SUM L.E.ZERO        3  5174  Z5X                 12
167    670         DSA   P5C058-5            DIVIDE R-OP1 BY OP2                3  5177  Z8Y                 12
168    680         DSA   P5C059-5            DIVIDE R-OP1 BY R-OP2              3  5180  !0/                 12
169    690         DSA   P5C060-5            DIVIDE OP1 BY OP2                  3  5183  !1W                 12
170    700         DSA   P5C061-6            CONVERT OP2 INTO R-OP1             3  5186  !2X                 12
171    710         DSA   P5C062-3            EDIT OP2 INTO OP1                  3  5189  !4X                 12
172    720         DSA   P5C063-3            LOAD OP2 INTO R-OP1                3  5192  !5Y                 12
173    730         DSA   P5C064-3            LOAD R-OP2 INTO R-OP1              3  5195  !7/                 13
174    740         DSA   P5C065-3            LOAD OP3 INTO R-OP1                3  5198  !8W                 13
175    750         DSA   P5C066-3            LOAD PSW WITH OP2                  3  5201  J0Z                 13
176    760         DSA   P5C067-7            MULTIPLY R-OP1 BY OP2              3  5204  J2S                 13
177    770         DSA   P5C068-7            MULTIPLY R-OP1 BY R-OP2            3  5207  J3X                 13
178    780         DSA   P5C069-7            MULTIPLY OP1 BY OP2                3  5210  J5U                 13
179    790         DSA   P5C070-3            MOVE OP2 TO OP1                    3  5213  J6X                 13
180    800         DSA   P5C071-6            LOGICAL AND OP2 INTO R-OP1         3  5216  J7W                 14
181    810         DSA   P5C072-6            LOGICAL AND OP2 INTO OP1           3  5219  J9V                 14
182    820         DSA   P5C073-6            LOGICAL OR OP2 INTO R-OP1          3  5222  K1S                 14
183    830         DSA   P5C074-6            LOGICAL OR OP2 INTO OP1            3  5225  K3|                 14
184    840         DSA   P5C075-8            EXCLUSIVE OR OP2 INTO R-OP1        3  5228  K4W                 14
185    850         DSA   P5C076-8            EXCLUSIVE OR OP2 INTO OP1          3  5231  K6W                 14
186    860         DSA   P5C077-7            SUBTRACT OP2 FROM R-OP1            3  5234  K8U                 14
187    870         DSA   P5C078-7            SUBTRACT R-OP2 FROM R-OP1          3  5237  L0/                 15
188    880         DSA   P5C079-7            SUBTRACT OP2 FROM OP1              3  5240  L2|                 15
189    890         DSA   P5C080-4            SHIFT LEFT R-OP1                   3  5243  L3V                 15
190    900         DSA   P5C081-4            SHIFT RIGHT R-OP1                  3  5246  L5V                 15
191    910         DSA   P5C082-4            STORE R-OP1 AT OP2                 3  5249  L7W                 15
192    920         DSA   P5C083-4            STORE R-OP1 AT OP3                 3  5252  L8Y                 15
193    930         DSA   P5C084-3            ZERO ADD OP2 TO OP1                3  5255  M1S                 15
194    940         DSA   P5C085-3            TEST OP1 UNDER MASK                3  5258  M2U                 16
195    950         DSA   P5C086-8            TRANSLATE OP1 FROM OP2             3  5261  M4|                 16
196    960         DCW   #3                  UNASSIGNED                         3  5264                      16
197    970         DSA   P5C088-2            SET SYSTEM MASK                    3  5267  M5W                 16
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

198    980         DSA   P5C089-2            SET STORAGE KEY                     3  5270  M7|                 16
199    990         DSA   P5C090              SUBRT,SUPERVISOR,OP1 OP2            3  5273  M8U                 16
200  1 000         DSA   P5C091-2            SET PROGRAM MASK                    3  5276  M9Z                 16
201  1 010         DSA   P5C092-6            COMPARE R-OP1 WITH OP2              3  5279  N1U                 17
202  1 020         DSA   P5C093-6            COMPARE R-OP1 WITH R-OP2            3  5282  N3|                 17
203  1 030         DSA   P5C094-6            COMPARE OP1 WITH OP2                3  5285  N4Y                 17
204  1 040         DSA   P5C095-6            EXECUTE INSTRUCTION AT OP2          3  5288  N6S                 17
205  1 050         DSA   P5C096-4            HALVE OP2 INTO OP1                  3  5291  N8U                 17
206  1 060         DSA   P5C097-5            INSERT CHAR AT OP2 INTO R-OP1       3  5294  O0|                 17
207  1 070         DSA   P5C098-5            INSERT STORAGE KEY                  3  5297  O2/                 17
208  1 080  *
209  1 090         ORG   *&33                ALLOWS FOR 11 INSERTS                      5331
210  1 100  *
211  1 110  *           P5C110-P5C134 SPECIFY COMMENTS TO BE PLACED
212  1 120  *           IN I/O BOXES
213  1 130  *
214  1 140  *
215  1 150         DSA   P5C110-3            HALT I/O                            3  5333  O3Y                 18
216  1 160         DSA   P5C111-4            START I/O                           3  5336  O4W                 18
217  1 170         DSA   P5C112-3            READ DIRECT FROM OP1                3  5339  O5V                 18
218  1 180         DSA   P5C113-4            WRITE DIRECT FROM OP1               3  5342  O7/                 18
219  1 190         DSA   P5C114-3            TEST I/O, SET PSW COND CODE         3  5345  O8Y                 18
220  1 200         DSA   P5C115-3            TEST CHANNEL, SET COND CODE         3  5348  P1X                 18
221  1 210         DSA   P5C116-6            EXCP                                3  5351  P4X                 18
222  1 220         DSA   P5C117-6            MSG                                 3  5354  P7|                 19
223  1 230         DSA   P5C118-3            COMRG                               3  5357  P9|                 19
224  1 240         DSA   P5C119-2            STXIT                               3  5360  Q1Z                 19
225  1 250         DSA   P5C120-2            SETFL                               3  5363  Q4U                 19
226  1 260         DSA   P5C121-2            ENDFL                               3  5366  Q5X                 19
227  1 270         DSA   P5C122-2            SETL                                3  5369  Q7|                 19
228  1 280         DSA   P5C123-2            ESETL                               3  5372  Q7Y                 19
229  1 290         DSA   P5C124-4            CHKPT                               3  5375  Q8Z                 20
230  1 300         DSA   P5C125-3            READ                                3  5378  R0Y                 20
231  1 310         DSA   P5C126-3            DEMP                                3  5381  R1W                 20
232  1 320         DSA   P5C127-3            WAIT                                3  5384  R4U                 20
233  1 330         DSA   P5C128-4            WRITE                               3  5387  R6W                 20
234  1 340         DSA   P5C129-2            GET                                 3  5390  R7V                 20
235  1 350         DSA   P5C130-2            PUT                                 3  5393  R8/                 20
236  1 360         DSA   P5C131-6            RELSE                               3  5396  R8X                 21
237  1 370         DSA   P5C132-7            TRUNC                               3  5399  R9W                 21
238  1 380         DSA   P5C133-1            CNTRL,PRTOV                         3  5402  ?0W                 21
239  1 390         DSA   P5C134-5            CHNG                                3  5405  ?1Z                 21
240  1 400         DSA   P5C135-1            IS CONDITION HIGH            BH     3  5408  ?3W                 21
241  1 410         DSA   P5C136-1            IS CONDITION EQUAL           BE     3  5411  ?5S                 21
242  1 420         DSA   P5C137-1            IS CONDITION LOW             BL     3  5414  ?6Z                 21
243  1 430         DSA   P5C138-1            IS CONDITION MINUS           BM     3  5417  ?8U                 22
244  1 440         DSA   P5C139-1            IS CONDITION OVERFLOW        BO     3  5420  A0/                 22
245  1 450         DSA   P5C140-1            IS CONDITION PLUS            BP     3  5423  A2Y                 22
246  1 460         DSA   P5C141-1            IS CONDITION NOT EQUAL       BNE    3  5426  A4U                 22
247  1 470         DSA   P5C142-1            IS CONDITION NOT HIGH        BNH    3  5429  A6U                 22
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  1 480         DSA   P5C143-1            IS CONDITION NOT LOW         BNL     3  5432  A8T                 22
249  1 490         DSA   P5C144-1            IS CONDITION ZERO             BZ     3  5435  B0/                 22
250  1 500  *
251  1 510         ORG   *&15                ALLOWS FOR 5 INSERTS                          5451
252  1 520  *
253  1 530         DSA   P5C150-3            OPEN                                 3  5453  B1X                 23
254  1 540         DSA   P5C151-4            CLOSE                                3  5456  B3Z                 23
255  1 550         DSA   P5C152-4            FEOV                                 3  5459  B6S                 23
256  1 560  *
257  1 570  *
258  1 580  P5C000 DCW   @0@                 SUBSTITUTE SEQUENCE FIELD            1  5460                      23
259  1 590         DCW   @ @                                                      1  5461                      23
260  1 600  P5C001 DCW   @1@                 SUBSTITUTE OPERAND-1                 1  5462                      23
261  1 610         DCW   @ @                                                      1  5463                      23
262  1 620  P5C002 DCW   @COMPUTE@           COMPUTE  MODE                        7  5470                      24
263  1 630         DCW   @ @                                                      1  5471                      24
264  1 640  P5C003 DCW   @EDIT@              EDIT     MODE                        4  5475                      24
265  1 650         DCW   @ @                                                      1  5476                      24
266  1 660  P5C004 DCW   @MOVE@              MOVE TO  MODE                        4  5480                      24
267  1 670         DCW   @TO@                                                     2  5482                      24
268  1 680         DCW   @ @                                                      1  5483                      24
269  1 690  P5C005 DCW   @SET@               SET      MODE                        3  5486                      25
270  1 700         DCW   @ @                                                      1  5487                      25
271  1 710  P5C006 DCW   @RESET@             RESET    MODE                        5  5492                      25
272  1 720         DCW   @ @                                                      1  5493                      25
273  1 730  P5C007 DCW   @ZERO@              ZERO                                 4  5497                      25
274  1 740         DCW   @ @                                                      1  5498                      25
275  1 750  P5C008 DCW   @SHIFT@             SHIFT                                5  5503                      25
276  1 760         DCW   @ @                                                      1  5504                      26
277  1 770  P5C009 DCW   @CLEAR@             CLEAR                                5  5509                      26
278  1 780         DCW   @ @                                                      1  5510                      26
279  1 790  P5C010 DCW   @,@                 BCDOP, %USED FOR PREDF)              1  5511                      26
280  1 800         DCW   @4@                                                      1  5512                      26
281  1 810         DCW   @ @                                                      1  5513                      26
282  1 820  P5C011 DCW   @SEGMENT@           SEGMENT OP1,OP2,OP3 %JOB CARD)       7  5520                      26
283  1 830         DCW   @,@                                                      1  5521                      27
284  1 840         DCW   @1@                                                      1  5522                      27
285  1 850         DCW   @,@                                                      1  5523                      27
286  1 860         DCW   @2@                                                      1  5524                      27
287  1 870         DCW   @3@                                                      1  5525                      27
288  1 880         DCW   @ @                                                      1  5526                      27
289  1 890  P5C012 DCW   @,@                 OP1,BACKSPACE SEQ %SUBRT EG TSX)     1  5527                      27
290  1 900         DCW   @1@                                                      1  5528                      28
291  1 910         DCW   @-@                                                      1  5529                      28
292  1 920         DCW   @0@                                                      1  5530                      28
293  1 930         DCW   @ @                                                      1  5531                      28
294  1 940  P5C013 DCW   @,@                 BCDOP,BACKSPACE RESULT IN OP1        1  5532                      28
295  1 950         DCW   @4@                                                      1  5533                      28
296  1 960         DCW   @-@                                                      1  5534                      28
297  1 970         DCW   @RESULT@                                                 6  5540                      29
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

298  1 980         DCW   @IN@                                                   2  5542                      29
299  1 990         DCW   @1@                                                    1  5543                      29
300  2 000         DCW   @ @                                                    1  5544                      29
301  2 010  P5C014 DCW   @7@                 SPEC 3                             1  5545                      29
302  2 020         DCW   @ @                                                    1  5546                      29
303  2 030  P5C015 DCW   @IS@                IS C%AC) EQUAL TO OP1              2  5548                      29
304  2 040         DCW   @C%AC)@                                                5  5553                      30
305  2 050         DCW   @EQUAL@                                                5  5558                      30
306  2 060         DCW   @TO@                                                   2  5560                      30
307  2 070         DCW   @1@                                                    1  5561                      30
308  2 080         DCW   @ @                                                    1  5562                      30
309  2 090  P5C016 DCW   @,@                 BCDOP,OP1 OP2 OP3 BCKSP,           1  5563                      30
310  2 100         DCW   @4@                                                    1  5564                      30
311  2 110         DCW   @1@                                                    1  5565                      31
312  2 120         DCW   @2@                                                    1  5566                      31
313  2 130         DCW   @,@                                                    1  5567                      31
314  2 140         DCW   @3@                                                    1  5568                      31
315  2 150         DCW   @-@                                                    1  5569                      31
316  2 160         DCW   @ @                                                    1  5570                      31
317  2 170  P5C017 DCW   @-@                 BACKSPACE AND INSERT COMMA         1  5571                      31
318  2 180         DCW   @&@                                                    1  5572                      32
319  2 190         DCW   @,@                                                    1  5573                      32
320  2 200         DCW   @ @                                                    1  5574                      32
321  2 210  P5C018 DCW   @0@                 SEQ NUMBER                         1  5575                      32
322  2 220         DCW   @ @                                                    1  5576                      32
323  2 230  P5C019 DCW   @CHAIN@                                                5  5581                      32
324  2 240         DCW   @ @                                                    1  5582                      32
325  2 250  P5C020 DCW   @4@                 BCDOP 1,2,3-IS CONDITION TRUE      1  5583                      33
326  2 260         DCW   @1@                                                    1  5584                      33
327  2 270         DCW   @2@                                                    1  5585                      33
328  2 280         DCW   @3@                                                    1  5586                      33
329  2 290         DCW   @IS@                                                   2  5588                      33
330  2 300         DCW   @CONDITION@                                            9  5597                      33
331  2 310         DCW   @TRUE@                                                 4  5601                      33
332  2 320         DCW   @ @                                                    1  5602                      34
333  2 330  P5C021 DCW   @ @                 TERMINATE                          1  5603                      34
334  2 340  P5C022 DCW   @4@                 BCDOP,OP1                          1  5604                      34
335  2 350         DCW   @1@                                                    1  5605                      34
336  2 360         DCW   @ @                                                    1  5606                      34
337  2 370  P5C023 DCW   @FROM@                                                 4  5610                      34
338  2 380         DCW   @1@                                                    1  5611                      34
339  2 390         DCW   @ @                                                    1  5612                      35
340  2 400  P5C025 DCW   @PACK@              PACK OP2 INTO OP1                  4  5616                      35
341  2 410         DCW   @2@                                                    1  5617                      35
342  2 420         DCW   @INTO@              PACK                               4  5621                      35
343  2 430         DCW   @1@                                                    1  5622                      35
344  2 440         DCW   @ @                                                    1  5623                      35
345  2 450  P5C026 DCW   @UNPACK@            UNPACK OP2 INTO OP1                6  5629                      35
346  2 460         DCW   @2@                                                    1  5630                      36
347  2 470         DCW   @INTO@              UNPK                               4  5634                      36
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

348  2 480         DCW   @1@                                                    1  5635                      36
349  2 490         DCW   @ @                                                    1  5636                      36
350  2 500  P5C027 DCW   @CONVERT@                                              7  5643                      36
351  2 510         DCW   @2@                                                    1  5644                      36
352  2 520         DCW   @TO@                                                   2  5646                      36
353  2 530         DCW   @DECIMAL@           CVD                                7  5653                      37
354  2 540         DCW   @R@                                                    1  5654                      37
355  2 550         DCW   @-@                                                    1  5655                      37
356  2 560         DCW   @1@                                                    1  5656                      37
357  2 570         DCW   @ @                                                    1  5657                      37
358  2 580  P5C028 DCW   @LOAD@                                                 4  5661                      37
359  2 590         DCW   @HALFWORD@                                             8  5669                      37
360  2 600         DCW   @2@                                                    1  5670                      38
361  2 610         DCW   @INTO@              LH                                 4  5674                      38
362  2 620         DCW   @R@                                                    1  5675                      38
363  2 630         DCW   @-@                                                    1  5676                      38
364  2 640         DCW   @1@                                                    1  5677                      38
365  2 650         DCW   @ @                                                    1  5678                      38
366  2 660  P5C029 DCW   @LOAD@                                                 4  5682                      38
367  2 670         DCW   @COMPLEMENT@                                          10  5692                      39
368  2 680         DCW   @R@                                                    1  5693                      39
369  2 690         DCW   @-@                                                    1  5694                      39
370  2 700         DCW   @2@                                                    1  5695                      39
371  2 710         DCW   @INTO@              LCDR,LCER,LCR                      4  5699                      39
372  2 720         DCW   @R@                                                    1  5700                      39
373  2 730         DCW   @-@                                                    1  5701                      39
374  2 740         DCW   @1@                                                    1  5702                      40
375  2 750         DCW   @ @                                                    1  5703                      40
376  2 760  P5C030 DCW   @LOAD@                                                 4  5707                      40
377  2 770         DCW   @NEGATIVE@                                             8  5715                      40
378  2 780         DCW   @R@                                                    1  5716                      40
379  2 790         DCW   @-@                                                    1  5717                      40
380  2 800         DCW   @2@                                                    1  5718                      40
381  2 810         DCW   @INTO@              LNDR,LNER,LNR                      4  5722                      41
382  2 820         DCW   @R@                                                    1  5723                      41
383  2 830         DCW   @-@                                                    1  5724                      41
384  2 840         DCW   @1@                                                    1  5725                      41
385  2 850         DCW   @ @                                                    1  5726                      41
386  2 860  P5C031 DCW   @LOAD@                                                 4  5730                      41
387  2 870         DCW   @POSITIVE@                                             8  5738                      41
388  2 880         DCW   @R@                                                    1  5739                      42
389  2 890         DCW   @-@                                                    1  5740                      42
390  2 900         DCW   @2@                                                    1  5741                      42
391  2 910         DCW   @INTO@              LPDR,LPER,LPR                      4  5745                      42
392  2 920         DCW   @R@                                                    1  5746                      42
393  2 930         DCW   @-@                                                    1  5747                      42
394  2 940         DCW   @1@                                                    1  5748                      42
395  2 950         DCW   @ @                                                    1  5749                      43
396  2 960  P5C032 DCW   @LOAD@                                                 4  5753                      43
397  2 970         DCW   @AND@                                                  3  5756                      43
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

398  2 980         DCW   @TEST@              LTDR,LTER,LTR                          4  5760                      43
399  2 990         DCW   @R@                                                        1  5761                      43
400  3 000         DCW   @-@                                                        1  5762                      43
401  3 010         DCW   @2@                                                        1  5763                      43
402  3 020         DCW   @INTO@                                                     4  5767                      44
403  3 030         DCW   @R@                                                        1  5768                      44
404  3 040         DCW   @-@                                                        1  5769                      44
405  3 050         DCW   @1@                                                        1  5770                      44
406  3 060         DCW   @ @                                                        1  5771                      44
407  3 070  P5C033 DCW   @STORE@                                                    5  5776                      44
408  3 080         DCW   @HALFWORD@                                                 8  5784                      44
409  3 090         DCW   @R@                                                        1  5785                      45
410  3 100         DCW   @-@                                                        1  5786                      45
411  3 110         DCW   @1@                                                        1  5787                      45
412  3 120         DCW   @AT@                                                       2  5789                      45
413  3 130         DCW   @2@                                                        1  5790                      45
414  3 140         DCW   @ @                                                        1  5791                      45
415  3 150  P5C034 DCW   @STORE@                                                    5  5796                      45
416  3 160         DCW   @CHARACTER@                                                9  5805                      46
417  3 170         DCW   @IN@                                                       2  5807                      46
418  3 180         DCW   @R@                 STC                                    1  5808                      46
419  3 190         DCW   @-@                                                        1  5809                      46
420  3 200         DCW   @1@                                                        1  5810                      46
421  3 210         DCW   @AT@                                                       2  5812                      46
422  3 220         DCW   @2@                                                        1  5813                      46
423  3 230         DCW   @ @                                                        1  5814                      47
424  3 240  P5C035 DCW   @LOAD@              LOAD ADDRESS OP2 INTO R-OP1            4  5818                      47
425  3 250         DCW   @ADDRESS@                                                  7  5825                      47
426  3 260         DCW   @2@                                                        1  5826                      47
427  3 270         DCW   @INTO@                                                     4  5830                      47
428  3 280         DCW   @R@                                                        1  5831                      47
429  3 290         DCW   @-@                                                        1  5832                      47
430  3 300         DCW   @1@                                                        1  5833                      48
431  3 310         DCW   @ @                                                        1  5834                      48
432  3 320  P5C050 DCW   @ADD@               ADD OP2 TO R-OP1                       3  5837                      48
433  3 330         DCW   @2@                                                        1  5838                      48
434  3 340         DCW   @TO@                A,AD,AE,AH,AL,AU,AW                    2  5840                      48
435  3 350         DCW   @R@                                                        1  5841                      48
436  3 360         DCW   @-@                                                        1  5842                      48
437  3 370         DCW   @1@                                                        1  5843                      49
438  3 380         DCW   @ @                                                        1  5844                      49
439  3 390  P5C051 DCW   @ADD@               ADD R-OP2 TO R-OP1                     3  5847                      49
440  3 400         DCW   @R@                                                        1  5848                      49
441  3 410         DCW   @-@                                                        1  5849                      49
442  3 420         DCW   @2@                 ADR,AER,ALR,AR,AUR,AWR                 1  5850                      49
443  3 430         DCW   @TO@                                                       2  5852                      49
444  3 440         DCW   @R@                                                        1  5853                      50
445  3 450         DCW   @-@                                                        1  5854                      50
446  3 460         DCW   @1@                                                        1  5855                      50
447  3 470         DCW   @ @                                                        1  5856                      50
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

448  3 480  P5C052 DCW   @ADD@               ADD OP2 TO OP1                      3  5859                     50
449  3 490         DCW   @2@                                                     1  5860                     50
450  3 500         DCW   @TO@                AP                                  2  5862                     50
451  3 510         DCW   @1@                                                     1  5863                     51
452  3 520         DCW   @ @                                                     1  5864                     51
453  3 530  P5C053 DCW   @,@                 OP1,SEQ LINK IN OP2  -SUBRT-        1  5865                     51
454  3 540         DCW   @1@                                                     1  5866                     51
455  3 550         DCW   @-@                                                     1  5867                     51
456  3 560         DCW   @0@                                                     1  5868                     51
457  3 570         DCW   @LINK@              BAL,BALR                            4  5872                     51
458  3 580         DCW   @IN@                                                    2  5874                     52
459  3 590         DCW   @R@                                                     1  5875                     52
460  3 600         DCW   @-@                                                     1  5876                     52
461  3 610         DCW   @2@                                                     1  5877                     52
462  3 620         DCW   @ @                                                     1  5878                     52
463  3 630  P5C054 DCW   @IS@                IS CONDITION OP2 MET                2  5880                     52
464  3 640         DCW   @CONDITION@                                             9  5889                     52
465  3 650         DCW   @2@                 BC,BCR                              1  5890                     53
466  3 660         DCW   @MET@                                                   3  5893                     53
467  3 670         DCW   @ @                                                     1  5894                     53
468  3 680  P5C055 DCW   @VARY@              VARY R-OP2 BY -1, IS RESULT         4  5898                     53
469  3 690         DCW   @R@                                        NONZERO      1  5899                     53
470  3 700         DCW   @-@                                                     1  5900                     53
471  3 710         DCW   @2@                                                     1  5901                     53
472  3 720         DCW   @BY@                BCT,BCTR                            2  5903                     54
473  3 730         DCW   @&@                                                     1  5904                     54
474  3 740         DCW   @-@                                                     1  5905                     54
475  3 750         DCW   @-@                                                     1  5906                     54
476  3 760         DCW   @,@                                                     1  5907                     54
477  3 770         DCW   @&@                                                     1  5908                     54
478  3 780         DCW   @1@                                                     1  5909                     54
479  3 790         DCW   @IS@                                                    2  5911                     55
480  3 800         DCW   @RESULT@                                                6  5917                     55
481  3 810         DCW   @NONZERO@                                               7  5924                     55
482  3 820         DCW   @ @                                                     1  5925                     55
483  3 830  P5C056 DCW   @VARY@              VARY R-OP3, IS SUM GREATER          4  5929                     55
484  3 840         DCW   @R@                                     THAN ZERO       1  5930                     55
485  3 850         DCW   @-@                                                     1  5931                     55
486  3 860         DCW   @2@                                                     1  5932                     56
487  3 870         DCW   @BY@                                                    2  5934                     56
488  3 880         DCW   @R@                                                     1  5935                     56
489  3 890         DCW   @-@                                                     1  5936                     56
490  3 900         DCW   @3@                                                     1  5937                     56
491  3 910         DCW   @-@                                                     1  5938                     56
492  3 920         DCW   @.@                                                     1  5939                     56
493  3 930         DCW   @IS@                                                    2  5941                     57
494  3 940         DCW   @SUM@                                                   3  5944                     57
495  3 950         DCW   @.GT.@                                                  4  5948                     57
496  3 960         DCW   @ODD@                                                   3  5951                     57
497  3 970         DCW   @REG.@                                                  4  5955                     57
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SEQ PG LIN  LABEL  OP     OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD

498  3 980         DCW    @ @                                                       1  5956                      57
499  3 990  P5C057 DCW    @VARY@              VARY R-OP3, IS SUM L.E. ZERO          4  5960                      57
500  4 000         DCW    @R@                                                       1  5961                      58
501  4 010         DCW    @-@                                                       1  5962                      58
502  4 020         DCW    @2@                                                       1  5963                      58
503  4 030         DCW    @BY@                                                      2  5965                      58
504  4 040         DCW    @R@                                                       1  5966                      58
505  4 050         DCW    @-@                                                       1  5967                      58
506  4 060         DCW    @3@                                                       1  5968                      58
507  4 070         DCW    @-@                                                       1  5969                      59
508  4 080         DCW    @.@                                                       1  5970                      59
509  4 090         DCW    @IS@                                                      2  5972                      59
510  4 100         DCW    @SUM@                                                     3  5975                      59
511  4 110         DCW    @.LE.@                                                    4  5979                      59
512  4 120         DCW    @ODD@                                                     3  5982                      59
513  4 130         DCW    @REG.@                                                    4  5986                      59
514  4 140         DCW    @ @                                                       1  5987                      60
515  4 150  P5C058 DCW    @DIVIDE@            DIVIDE R-OP1 BY OP2                   6  5993                      60
516  4 160         DCW    @R@                                                       1  5994                      60
517  4 170         DCW    @-@                                                       1  5995                      60
518  4 180         DCW    @1@                                                       1  5996                      60
519  4 190         DCW    @BY@                                                      2  5998                      60
520  4 200         DCW    @2@                                                       1  5999                      60
521  4 210         DCW    @ @                                                       1  6000                      61
522  4 220  P5C059 DCW    @DIVIDE@            DIVIDE R-OP1 BY R-OP2                 6  6006                      61
523  4 230         DCW    @R@                                                       1  6007                      61
524  4 240         DCW    @-@                                                       1  6008                      61
525  4 250         DCW    @1@                 DDR,DER,DR                            1  6009                      61
526  4 260         DCW    @BY@                                                      2  6011                      61
527  4 270         DCW    @R@                                                       1  6012                      61
528  4 280         DCW    @-@                                                       1  6013                      62
529  4 290         DCW    @2@                                                       1  6014                      62
530  4 300         DCW    @ @                                                       1  6015                      62
531  4 310  P5C060 DCW    @DIVIDE@            DIVIDE OP1 BY OP2                     6  6021                      62
532  4 320         DCW    @1@                                                       1  6022                      62
533  4 330         DCW    @BY@                DP                                    2  6024                      62
534  4 340         DCW    @2@                                                       1  6025                      62
535  4 350         DCW    @ @                                                       1  6026                      63
536  4 360  P5C061 DCW    @CONVERT@           CONVERT OP2 INTO R-OP1                7  6033                      63
537  4 370         DCW    @2@                                                       1  6034                      63
538  4 380         DCW    @TO@                                                      2  6036                      63
539  4 390         DCW    @BINARY@            CVB                                   6  6042                      63
540  4 400         DCW    @R@                 CVB,CVD                               1  6043                      63
541  4 410         DCW    @-@                                                       1  6044                      63
542  4 420         DCW    @1@                                                       1  6045                      64
543  4 430         DCW    @ @                                                       1  6046                      64
544  4 440  P5C062 DCW    @EDIT@              EDIT OP2 INTO OP1                     4  6050                      64
545  4 450         DCW    @2@                                                       1  6051                      64
546  4 460         DCW    @INTO@              ED,EDMK                               4  6055                      64
547  4 470         DCW    @1@                 UNPACK                                1  6056                      64
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SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
548	4	480		DCW	@ @			1	6057		64
549	4	490	P5C063	DCW	@LOAD@	LOAD OP2 INTO R-OP1		4	6061		65
550	4	500		DCW	@2@			1	6062		65
551	4	510		DCW	@INTO@			4	6066		65
552	4	520		DCW	@R@	L,LH,LA,LD,LE		1	6067		65
553	4	530		DCW	@-@			1	6068		65
554	4	540		DCW	@1@			1	6069		65
555	4	550		DCW	@ @			1	6070		65
556	4	560	P5C064	DCW	@LOAD@	LOAD R-OP2 INTO R-OP1		4	6074		66
557	4	570		DCW	@R@			1	6075		66
558	4	580		DCW	@-@			1	6076		66
559	4	590		DCW	@2@			1	6077		66
560	4	600		DCW	@INTO@	LR,LER,LDR		4	6081		66
561	4	610		DCW	@R@	LNDR,LNER,LPR,LNR,LTR		1	6082		66
562	4	620		DCW	@-@			1	6083		66
563	4	630		DCW	@1@			1	6084		67
564	4	640		DCW	@ @			1	6085		67
565	4	650	P5C065	DCW	@LOAD@	LOAD OP3 INTO R-OP1		4	6089		67
566	4	660		DCW	@MULTIPLE@			8	6097		67
567	4	670		DCW	@R@			1	6098		67
568	4	680		DCW	@-@			1	6099		67
569	4	690		DCW	@1@			1	6100		67
570	4	700		DCW	@THRU@			4	6104		68
571	4	710		DCW	@R@			1	6105		68
572	4	720		DCW	@-@			1	6106		68
573	4	730		DCW	@2@			1	6107		68
574	4	740		DCW	@ @			1	6108		68
575	4	750	P5C066	DCW	@LOAD@	LOAD PSW WITH OP2		4	6112		68
576	4	760		DCW	@PSW@			3	6115		68
577	4	770		DCW	@WITH@	LPSW		4	6119		69
578	4	780		DCW	@1@			1	6120		69
579	4	790		DCW	@ @			1	6121		69
580	4	800	P5C067	DCW	@MULTIPLY@	MULTIPLY R-OP1 BY OP2		8	6129		69
581	4	810		DCW	@R@			1	6130		69
582	4	820		DCW	@-@			1	6131		69
583	4	830		DCW	@1@			1	6132		69
584	4	840		DCW	@BY@			2	6134		70
585	4	850		DCW	@2@			1	6135		70
586	4	860		DCW	@ @			1	6136		70
587	4	870	P5C068	DCW	@MULTIPLY@	MULTIPLY R-OP1 BY R-OP2		8	6144		70
588	4	880		DCW	@R@			1	6145		70
589	4	890		DCW	@-@			1	6146		70
590	4	900		DCW	@1@			1	6147		70
591	4	910		DCW	@BY@			2	6149		71
592	4	920		DCW	@R@			1	6150		71
593	4	930		DCW	@-@			1	6151		71
594	4	940		DCW	@2@			1	6152		71
595	4	950		DCW	@ @			1	6153		71
596	4	960	P5C069	DCW	@MULTIPLY@	MULTIPLY OP1 BY OP2		8	6161		71
597	4	970		DCW	@1@			1	6162		71

SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
598	4	980		DCW	@BY@	MP		2	6164		72
599	4	990		DCW	@2@			1	6165		72
600	5	000		DCW	@ @			1	6166		72
601	5	010	P5C070	DCW	@MOVE@	MOVE OP2 TO OP1		4	6170		72
602	5	020		DCW	@2@			1	6171		72
603	5	030		DCW	@TO@	MVI,MVC,MVN,MVZ,MVO		2	6173		72
604	5	040		DCW	@1@			1	6174		72
605	5	050		DCW	@ @			1	6175		73
606	5	060	P5C071	DCW	@LOGICAL@	LOGICAL AND 2 INTO R-OP1		7	6182		73
607	5	070		DCW	@AND@			3	6185		73
608	5	080		DCW	@2@			1	6186		73
609	5	090		DCW	@INTO@	N,NR		4	6190		73
610	5	100		DCW	@R@			1	6191		73
611	5	110		DCW	@-@			1	6192		73
612	5	120		DCW	@1@			1	6193		74
613	5	130		DCW	@ @			1	6194		74
614	5	140	P5C072	DCW	@LOGICAL@	LOGICAL AND OP2 INTO OP1		7	6201		74
615	5	150		DCW	@AND@			3	6204		74
616	5	160		DCW	@2@			1	6205		74
617	5	170		DCW	@INTO@	NC,NI		4	6209		74
618	5	180		DCW	@1@			1	6210		74
619	5	190		DCW	@ @			1	6211		75
620	5	200	P5C073	DCW	@LOGICAL@	LOGICAL OR OP2 INTO R-OP1		7	6218		75
621	5	210		DCW	@OR@			2	6220		75
622	5	220		DCW	@2@			1	6221		75
623	5	230		DCW	@INTO@	O,OR		4	6225		75
624	5	240		DCW	@R@			1	6226		75
625	5	250		DCW	@-@			1	6227		75
626	5	260		DCW	@1@			1	6228		76
627	5	270		DCW	@ @			1	6229		76
628	5	280	P5C074	DCW	@LOGICAL@	LOGICAL OR OP2 INTO OP1		7	6236		76
629	5	290		DCW	@OR@			2	6238		76
630	5	300		DCW	@2@			1	6239		76
631	5	310		DCW	@INTO@	OC,OI		4	6243		76
632	5	320		DCW	@1@			1	6244		76
633	5	330		DCW	@ @			1	6245		77
634	5	340	P5C075	DCW	@EXCLUSIVE@	EXCLUSIVE OR OP2 INTO R-OP1		9	6254		77
635	5	350		DCW	@OR@			2	6256		77
636	5	360		DCW	@2@			1	6257		77
637	5	370		DCW	@INTO@	X,XR		4	6261		77
638	5	380		DCW	@R@			1	6262		77
639	5	390		DCW	@-@			1	6263		77
640	5	400		DCW	@1@			1	6264		78
641	5	410		DCW	@ @			1	6265		78
642	5	420	P5C076	DCW	@EXCLUSIVE@	EXCLUSIVE OR OP2 INTO OP1		9	6274		78
643	5	430		DCW	@OR@			2	6276		78
644	5	440		DCW	@2@			1	6277		78
645	5	450		DCW	@INTO@	XC,XI		4	6281		78
646	5	460		DCW	@1@			1	6282		78
647	5	470		DCW	@ @			1	6283		79

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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

648  5 480  P5C077 DCW   @SUBTRACT@          SUBTRACT OP2 FROM R-OP1                      8  6291                      79
649  5 490         DCW   @2@                                                          1  6292                      79
650  5 500         DCW   @FROM@                                                       4  6296                      79
651  5 510         DCW   @R@                 S,SH,SL,SD,SE,SU,SW                      1  6297                      79
652  5 520         DCW   @-@                                                          1  6298                      79
653  5 530         DCW   @1@                                                          1  6299                      79
654  5 540         DCW   @ @                                                          1  6300                      80
655  5 550  P5C078 DCW   @SUBTRACT@          SUBTRACT R-OP2 FROM R-OP1                    8  6308                      80
656  5 560         DCW   @R@                                                          1  6309                      80
657  5 570         DCW   @-@                                                          1  6310                      80
658  5 580         DCW   @2@                                                          1  6311                      80
659  5 590         DCW   @FROM@                                                       4  6315                      80
660  5 600         DCW   @R@                                                          1  6316                      80
661  5 610         DCW   @-@                                                          1  6317                      81
662  5 620         DCW   @1@                                                          1  6318                      81
663  5 630         DCW   @ @                                                          1  6319                      81
664  5 640  P5C079 DCW   @SUBTRACT@          SUBTRACT OP2 FROM OP1                        8  6327                      81
665  5 650         DCW   @2@                                                          1  6328                      81
666  5 660         DCW   @FROM@              SP                                       4  6332                      81
667  5 670         DCW   @1@                                                          1  6333                      81
668  5 680         DCW   @ @                                                          1  6334                      82
669  5 690  P5C080 DCW   @SHIFT@             SHIFT LEFT R-OP1                             5  6339                      82
670  5 700         DCW   @LEFT@                                                       4  6343                      82
671  5 710         DCW   @R@                                                          1  6344                      82
672  5 720         DCW   @-@                                                          1  6345                      82
673  5 730         DCW   @1@                                                          1  6346                      82
674  5 740         DCW   @BY@                                                         2  6348                      82
675  5 750         DCW   @2@                                                          1  6349                      83
676  5 760         DCW   @BITS@                                                       4  6353                      83
677  5 770         DCW   @ @                                                          1  6354                      83
678  5 780  P5C081 DCW   @SHIFT@             SHIFT RIGHT R-OP1                            5  6359                      83
679  5 790         DCW   @RIGHT@                                                      5  6364                      83
680  5 800         DCW   @R@                                                          1  6365                      83
681  5 810         DCW   @-@                                                          1  6366                      83
682  5 820         DCW   @1@                                                          1  6367                      84
683  5 830         DCW   @BY@                                                         2  6369                      84
684  5 840         DCW   @2@                                                          1  6370                      84
685  5 850         DCW   @BITS@                                                       4  6374                      84
686  5 860         DCW   @ @                                                          1  6375                      84
687  5 870  P5C082 DCW   @STORE@             STORE R-OP1 AT OP2                           5  6380                      84
688  5 880         DCW   @R@                                                          1  6381                      84
689  5 890         DCW   @-@                                                          1  6382                      85
690  5 900         DCW   @1@                                                          1  6383                      85
691  5 910         DCW   @AT@                                                         2  6385                      85
692  5 920         DCW   @2@                                                          1  6386                      85
693  5 930         DCW   @ @                                                          1  6387                      85
694  5 940  P5C083 DCW   @STORE@             STORE R-OP1 AT OP3                           5  6392                      85
695  5 950         DCW   @MULTIPLE@                                                   8  6400                      85
696  5 960         DCW   @R@                                                          1  6401                      86
697  5 970         DCW   @-@                                                          1  6402                      86
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SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
698	5	980		DCW	@1@			1	6403		86
699	5	990		DCW	@THRU@			4	6407		86
700	6	000		DCW	@R@			1	6408		86
701	6	010		DCW	@-@			1	6409		86
702	6	020		DCW	@2@			1	6410		86
703	6	030		DCW	@ @			1	6411		87
704	6	040	P5C084	DCW	@ZERO@	ZERO ADD OP2 TO OP1		4	6415		87
705	6	050		DCW	@ADD@			3	6418		87
706	6	060		DCW	@2@	ZAP		1	6419		87
707	6	070		DCW	@TO@			2	6421		87
708	6	080		DCW	@1@			1	6422		87
709	6	090		DCW	@ @			1	6423		87
710	6	100	P5C085	DCW	@TEST@	TEST OP1 UNDER MASK		4	6427		88
711	6	110		DCW	@1@			1	6428		88
712	6	120		DCW	@UNDER@	TM		5	6433		88
713	6	130		DCW	@MASK@			4	6437		88
714	6	140		DCW	@2@			1	6438		88
715	6	150		DCW	@ @			1	6439		88
716	6	160	P5C086	DCW	@TRANSLATE@	TRANSLATE OP1 FROM OP2		9	6448		88
717	6	170		DCW	@1@			1	6449		89
718	6	180		DCW	@FROM@	TR		4	6453		89
719	6	190		DCW	@2@			1	6454		89
720	6	200		DCW	@ @			1	6455		89
721	6	210	P5C088	DCW	@SET@	SET SYSTEM MASK		3	6458		89
722	6	220		DCW	@SYSTEM@			6	6464		89
723	6	230		DCW	@MASK@	SSM		4	6468		89
724	6	240		DCW	@ @			1	6469		90
725	6	250	P5C089	DCW	@SET@	SET STORAGE KEY		3	6472		90
726	6	260		DCW	@STORAGE@			7	6479		90
727	6	270		DCW	@KEY@	SSK		3	6482		90
728	6	280		DCW	@ @			1	6483		90
729	6	290	P5C090	DCW	@,@	SUPERVISOR,OP1 OP2 %SUBRT)		1	6484		90
730	6	300		DCW	@SUPERVISOR@			10	6494		90
731	6	310		DCW	@-@			1	6495		91
732	6	320		DCW	@1@	SVC		1	6496		91
733	6	330		DCW	@2@			1	6497		91
734	6	340		DCW	@ @			1	6498		91
735	6	350	P5C091	DCW	@SET@	SET PROGRAM MASK		3	6501		91
736	6	360		DCW	@PROGRAM@			7	6508		91
737	6	370		DCW	@MASK@	SPM		4	6512		91
738	6	380		DCW	@ @			1	6513		92
739	6	390	P5C092	DCW	@COMPARE@	COMPARE R-OP1 WITH OP2		7	6520		92
740	6	400		DCW	@R@			1	6521		92
741	6	410		DCW	@-@			1	6522		92
742	6	420		DCW	@1@			1	6523		92
743	6	430		DCW	@WITH@			4	6527		92
744	6	440		DCW	@2@			1	6528		92
745	6	450		DCW	@ @			1	6529		93
746	6	460	P5C093	DCW	@COMPARE@	COMPARE R-OP1 WITH R-OP2		7	6536		93
747	6	470		DCW	@R@			1	6537		93

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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

748  6 480         DCW   @-@                                                   1  6538                      93
749  6 490         DCW   @1@                                                   1  6539                      93
750  6 500         DCW   @WITH@                                                4  6543                      93
751  6 510         DCW   @R@                                                   1  6544                      93
752  6 520         DCW   @-@                                                   1  6545                      94
753  6 530         DCW   @2@                                                   1  6546                      94
754  6 540         DCW   @ @                                                   1  6547                      94
755  6 550  P5C094 DCW   @COMPARE@           COMPARE OP1 WITH OP2              7  6554                      94
756  6 560         DCW   @1@                                                   1  6555                      94
757  6 570         DCW   @WITH@              CP,CLI,CLC                        4  6559                      94
758  6 580         DCW   @2@                                                   1  6560                      94
759  6 590         DCW   @ @                                                   1  6561                      95
760  6 600  P5C095 DCW   @EXECUTE@           EXECUTE INSTRUCTION AT OP2        7  6568                      95
761  6 610         DCW   @INSTRUCTION@                                        11  6579                      95
762  6 620         DCW   @AT@                EX                                2  6581                      95
763  6 630         DCW   @1@                                                   1  6582                      95
764  6 640         DCW   @ @                                                   1  6583                      95
765  6 650  P5C096 DCW   @HALVE@             HALVE OP2 INTO OP1                5  6588                      95
766  6 660         DCW   @R@                                                   1  6589                      96
767  6 670         DCW   @-@                                                   1  6590                      96
768  6 680         DCW   @2@                                                   1  6591                      96
769  6 690         DCW   @INTO@                                                4  6595                      96
770  6 700         DCW   @R@                                                   1  6596                      96
771  6 710         DCW   @-@                                                   1  6597                      96
772  6 720         DCW   @1@                                                   1  6598                      96
773  6 730         DCW   @ @                                                   1  6599                      97
774  6 740  P5C097 DCW   @INSERT@            INSERT CHAR AT OP2 INTO OP1       6  6605                      97
775  6 750         DCW   @CHAR@                                                4  6609                      97
776  6 760         DCW   @AT@                                                  2  6611                      97
777  6 770         DCW   @2@                                                   1  6612                      97
778  6 780         DCW   @INTO@              IC                                4  6616                      97
779  6 790         DCW   @R@                                                   1  6617                      97
780  6 800         DCW   @-@                                                   1  6618                      98
781  6 810         DCW   @1@                                                   1  6619                      98
782  6 820         DCW   @ @                                                   1  6620                      98
783  6 830  P5C098 DCW   @INSERT@                                              6  6626                      98
784  6 840         DCW   @STORAGE@           ISK                               7  6633                      98
785  6 850         DCW   @KEY@                                                 3  6636                      98
786  6 860         DCW   @ @                                                   1  6637                      98
787  6 870  P5C110 DCW   @HALT@                                                4  6641                      99
788  6 880         DCW   @I/O@               HIO                               3  6644                      99
789  6 890         DCW   @ @                                                   1  6645                      99
790  6 900  P5C111 DCW   @START@                                               5  6650                      99
791  6 910         DCW   @I/O@               SIO                               3  6653                      99
792  6 920         DCW   @ @                                                   1  6654                      99
793  6 930  P5C112 DCW   @READ@                                                4  6658                      99
794  6 940         DCW   @DIRECT@                                              6  6664                     100
795  6 950         DCW   @FROM@              RDD                               4  6668                     100
796  6 960         DCW   @1@                                                   1  6669                     100
797  6 970         DCW   @ @                                                   1  6670                     100
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SEQ	PG	LIN	LABEL	OP	OPERANDS		SFX	CT	LOCN	INSTRUCTION TYPE	CARD
798	6	980	P5C113	DCW	@WRITE@			5	6675		100
799	6	990		DCW	@DIRECT@			6	6681		100
800	7	000		DCW	@INTO@	WRD		4	6685		100
801	7	010		DCW	@1@			1	6686		101
802	7	020		DCW	@ @			1	6687		101
803	7	030	P5C114	DCW	@TEST@			4	6691		101
804	7	040		DCW	@I/O@			3	6694		101
805	7	050		DCW	@,@			1	6695		101
806	7	060		DCW	@1@	TIO		1	6696		101
807	7	070		DCW	@SET@			3	6699		101
808	7	080		DCW	@PSW@			3	6702		102
809	7	090		DCW	@CONDITION@			9	6711		102
810	7	100		DCW	@CODE@			4	6715		102
811	7	110		DCW	@ @			1	6716		102
812	7	120	P5C115	DCW	@TEST@			4	6720		102
813	7	130		DCW	@CHANNEL@			7	6727		102
814	7	140		DCW	@,@			1	6728		102
815	7	150		DCW	@1@	TCH		1	6729		103
816	7	160		DCW	@SET@			3	6732		103
817	7	170		DCW	@CONDITION@			9	6741		103
818	7	180		DCW	@CODE@			4	6745		103
819	7	190		DCW	@ @			1	6746		103
820	7	200	P5C116	DCW	@EXECUTE@	EXCP		7	6753		103
821	7	210		DCW	@CHANNEL@			7	6760		103
822	7	220		DCW	@PROGRAM@			7	6767		104
823	7	230		DCW	@1@			1	6768		104
824	7	240		DCW	@ @			1	6769		104
825	7	250	P5C117	DCW	@MESSAGE@	MSG		7	6776		104
826	7	260		DCW	@TO@			2	6778		104
827	7	270		DCW	@OPERATOR@			8	6786		104
828	7	280		DCW	@1@			1	6787		104
829	7	300		DCW	@2@			1	6788		105
830	7	310		DCW	@ @			1	6789		105
831	7	320	P5C118	DCW	@LOAD@	COMRG		4	6793		105
832	7	330		DCW	@COMM@			4	6797		105
833	7	340		DCW	@REGION@			6	6803		105
834	7	350		DCW	@ADDRESS@			7	6810		105
835	7	360		DCW	@INTO@			4	6814		105
836	7	370		DCW	@R@			1	6815		106
837	7	380		DCW	@-@			1	6816		106
838	7	390		DCW	@1@			1	6817		106
839	7	400		DCW	@ @			1	6818		106
840	7	410	P5C119	DCW	@SET@	STXIT		3	6821		106
841	7	420		DCW	@EXIT@			4	6825		106
842	7	430		DCW	@IN@			2	6827		106
843	7	440		DCW	@R@			1	6828		107
844	7	450		DCW	@-@			1	6829		107
845	7	460		DCW	@1@			1	6830		107
846	7	470		DCW	@FOR@			3	6833		107
847	7	480		DCW	@INTERRUPT@			9	6842		107

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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

848  7 490         DCW   @ @                                                          1  6843                     107
849  7 500  P5C120 DCW   @SET@               SETFL                                    3  6846                     107
850  7 510         DCW   @FILE@                                                       4  6850                     108
851  7 520         DCW   @LOAD@                                                       4  6854                     108
852  7 530         DCW   @1@                                                          1  6855                     108
853  7 540         DCW   @ @                                                          1  6856                     108
854  7 550  P5C121 DCW   @END@               ENDFL                                    3  6859                     108
855  7 560         DCW   @FILE@                                                       4  6863                     108
856  7 570         DCW   @LOAD@                                                       4  6867                     108
857  7 580         DCW   @1@                                                          1  6868                     109
858  7 590         DCW   @ @                                                          1  6869                     109
859  7 600  P5C122 DCW   @SET@               SETL                                     3  6872                     109
860  7 610         DCW   @LOW@                                                        3  6875                     109
861  7 620         DCW   @1@                                                          1  6876                     109
862  7 630         DCW   @ @                                                          1  6877                     109
863  7 640  P5C123 DCW   @END@               ESETL                                    3  6880                     109
864  7 650         DCW   @SET@                                                        3  6883                     110
865  7 660         DCW   @LOW@                                                        3  6886                     110
866  7 670         DCW   @1@                                                          1  6887                     110
867  7 680         DCW   @ @                                                          1  6888                     110
868  7 690  P5C124 DCW   @WRITE@             CHKPT                                    5  6893                     110
869  7 700         DCW   @CHKPOINT@                                                   8  6901                     110
870  7 710         DCW   @,@                                                          1  6902                     110
871  7 720         DCW   @1@                                                          1  6903                     111
872  7 730         DCW   @,@                                                          1  6904                     111
873  7 740         DCW   @2@                                                          1  6905                     111
874  7 750         DCW   @3@                                                          1  6906                     111
875  7 760         DCW   @ @                                                          1  6907                     111
876  7 770  P5C125 DCW   @READ@              READ                                     4  6911                     111
877  7 780         DCW   @,@                                                          1  6912                     111
878  7 790         DCW   @1@                                                          1  6913                     112
879  7 800         DCW   @2@                                                          1  6914                     112
880  7 810         DCW   @ @                                                          1  6915                     112
881  7 820  P5C126 DCW   @DUMP@              DUMP                                     4  6919                     112
882  7 830         DCW   @,@                                                          1  6920                     112
883  7 840         DCW   @STORAGE@                                                    7  6927                     112
884  7 850         DCW   @FETCH@                                                      5  6932                     112
885  7 860         DCW   @JOB@                                                        3  6935                     113
886  7 870         DCW   @CONTROL@                                                    7  6942                     113
887  7 880         DCW   @ @                                                          1  6943                     113
888  7 890  P5C127 DCW   @WAIT@              WAIT,WAITF                               4  6947                     113
889  7 900         DCW   @UNTIL@                                                      5  6952                     113
890  7 910         DCW   @IO@                                                         2  6954                     113
891  7 920         DCW   @1@                                                          1  6955                     113
892  7 930         DCW   @COMPLETED@                                                  9  6964                     114
893  7 940         DCW   @ @                                                          1  6965                     114
894  7 950  P5C128 DCW   @WRITE@             WRITE                                    5  6970                     114
895  7 960         DCW   @,@                                                          1  6971                     114
896  7 970         DCW   @1@                                                          1  6972                     114
897  7 980         DCW   @2@                                                          1  6973                     114
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

898  7 990         DCW   @ @                                                          1  6974                     114
899  8 000  P5C129 DCW   @GET@               GET                                      3  6977                     115
900  8 010         DCW   @1@                                                          1  6978                     115
901  8 030         DCW   @2@                                                          1  6979                     115
902  8 040         DCW   @ @                                                          1  6980                     115
903  8 050  P5C130 DCW   @PUT@               PUT                                      3  6983                     115
904  8 060         DCW   @1@                                                          1  6984                     115
905  8 080         DCW   @2@                                                          1  6985                     115
906  8 090         DCW   @ @                                                          1  6986                     116
907  8 100  P5C131 DCW   @RELEASE@           RELSE                                    7  6993                     116
908  8 110         DCW   @1@                                                          1  6994                     116
909  8 120         DCW   @ @                                                          1  6995                     116
910  8 130  P5C132 DCW   @TRUNCATE@          TRUNC                                    8  7003                     116
911  8 140         DCW   @1@                                                          1  7004                     116
912  8 150         DCW   @ @                                                          1  7005                     116
913  8 160  P5C133 DCW   @IO@                CNTRL,PRTOV                              2  7007                     117
914  8 170         DCW   @CONTROL@                                                    7  7014                     117
915  8 180         DCW   @,@                                                          1  7015                     117
916  8 190         DCW   @1@                                                          1  7016                     117
917  8 200         DCW   @2@                                                          1  7017                     117
918  8 210         DCW   @ @                                                          1  7018                     117
919  8 220  P5C134 DCW   @CHANGE@            CHNG                                     6  7024                     117
920  8 230         DCW   @CHANNEL@                                                    7  7031                     118
921  8 240         DCW   @ON@                                                         2  7033                     118
922  8 250         DCW   @1@                                                          1  7034                     118
923  8 260         DCW   @ @                                                          1  7035                     118
924  8 270  P5C135 DCW   @IS@                IS CONDITION HIGH                        2  7037                     118
925  8 280         DCW   @CONDITION@                                                  9  7046                     118
926  8 290         DCW   @HIGH@              BH                                       4  7050                     118
927  8 300         DCW   @ @                                                          1  7051                     119
928  8 310  P5C136 DCW   @IS@                IS CONDITION EQUAL                       2  7053                     119
929  8 320         DCW   @CONDITION@                                                  9  7062                     119
930  8 330         DCW   @EQUAL@             BE                                       5  7067                     119
931  8 340         DCW   @ @                                                          1  7068                     119
932  8 350  P5C137 DCW   @IS@                IS CONDITION LOW                         2  7070                     119
933  8 360         DCW   @CONDITION@                                                  9  7079                     119
934  8 370         DCW   @LOW@               BL                                       3  7082                     120
935  8 380         DCW   @ @                                                          1  7083                     120
936  8 390  P5C138 DCW   @IS@                IS CONDITION MINUS                       2  7085                     120
937  8 400         DCW   @CONDITION@                                                  9  7094                     120
938  8 410         DCW   @MINUS@             BM                                       5  7099                     120
939  8 420         DCW   @ @                                                          1  7100                     120
940  8 430  P5C139 DCW   @IS@                IS THERE AN OVERFLOW COND                2  7102                     120
941  8 440         DCW   @THERE@                                                      5  7107                     121
942  8 450         DCW   @AN@                                                         2  7109                     121
943  8 460         DCW   @OVERFLOW@          BO                                       8  7117                     121
944  8 470         DCW   @CONDITION@                                                  9  7126                     121
945  8 480         DCW   @ @                                                          1  7127                     121
946  8 490  P5C140 DCW   @IS@                IS CONDITION PLUS                        2  7129                     121
947  8 500         DCW   @CONDITION@                                                  9  7138                     121
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

948  8 510         DCW   @PLUS@              BP                                4  7142                     122
949  8 520         DCW   @ @                                                   1  7143                     122
950  8 530  P5C141 DCW   @IS@                IS CONDITION NOT EQUAL            2  7145                     122
951  8 540         DCW   @CONDITION@                                           9  7154                     122
952  8 550         DCW   @NOT@               BNE                               3  7157                     122
953  8 560         DCW   @EQUAL@                                               5  7162                     122
954  8 570         DCW   @ @                                                   1  7163                     122
955  8 580  P5C142 DCW   @IS@                IS CONDITION NOT HIGH             2  7165                     123
956  8 590         DCW   @CONDITION@                                           9  7174                     123
957  8 600         DCW   @NOT@               BNH                               3  7177                     123
958  8 610         DCW   @HIGH@                                                4  7181                     123
959  8 620         DCW   @ @                                                   1  7182                     123
960  8 630  P5C143 DCW   @IS@                IS CONDITION NOT LOW              2  7184                     123
961  8 640         DCW   @CONDITION@                                           9  7193                     123
962  8 650         DCW   @NOT@               BNL                               3  7196                     124
963  8 660         DCW   @LOW@                                                 3  7199                     124
964  8 670         DCW   @ @                                                   1  7200                     124
965  8 680  P5C144 DCW   @IS@                IS CONDITION ZERO                 2  7202                     124
966  8 690         DCW   @CONDITION@                                           9  7211                     124
967  8 700         DCW   @ZERO@              BZ                                4  7215                     124
968  8 710         DCW   @ @                                                   1  7216                     124
969  8 720  P5C150 DCW   @OPEN@              OPEN                              4  7220                     125
970  8 730         DCW   @SPECIFIED@                                           9  7229                     125
971  8 740         DCW   @DATA@                                                4  7233                     125
972  8 750         DCW   @SETS@                                                4  7237                     125
973  8 760         DCW   @ @                                                   1  7238                     125
974  8 770  P5C151 DCW   @CLOSE@             CLOSE                             5  7243                     125
975  8 780         DCW   @SPECIFIED@                                           9  7252                     125
976  8 790         DCW   @DATA@                                                4  7256                     126
977  8 800         DCW   @SETS@                                                4  7260                     126
978  8 810         DCW   @ @                                                   1  7261                     126
979  8 820  P5C152 DCW   @FORCE@             FEOV                              5  7266                     126
980  8 830         DCW   @END@                                                 3  7269                     126
981  8 834         DCW   @OF@                                                  2  7271                     126
982  8 835         DCW   @VOLUME@                                              6  7277                     126
983  8 840         DCW   @ON@                                                  2  7279                     127
984  8 850         DCW   @1@                                                   1  7280                     127
985  8 860         DCW   @ @                                                   1  7281                     127
986  8 870  HIGH   EQU   *&1                 HIGH POSITION FOR $ADD CARD          7282
987  8 880         END   P5CAT                                                         / |0T 080           128
970  8 730         DCW   @SPECIFIED@                                           9  7229                     125            *****
971  8 740         DCW   @DATA@                                                4  7233                     125
972  8 750         DCW   @SETS@                                                4  7237                     125
973  8 760         DCW   @ @                                                   1  7238                     125
974  8 770  P5C151 DCW   @CLOSE@             CLOSE                             5  7243                     125
975  8 780         DCW   @SPECIFIED@                                           9  7252                     125
976  8 790         DCW   @DATA@                                                4  7256                     126
977  8 800         DCW   @SETS@                                                4  7260                     126
978  8 810         DCW   @ @                                                   1  7261                     126
979  8 820  P5C152 DCW   @FORCE@             FEOV                              5  7266                     126
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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                                    1                 4CHTA
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?                 2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040                  3

                          AREA COMMON TO HOSEKEEPING-PASS5---PHSE2,SFP                4CHTA              PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101  1 01   000    JOB   AREA COMMON TO HOSEKEEPING-PASS5---PHSE2,SFP
 102  1 02          CTL   440
 103  1 03          DCW   @$ADD     @                                                  9  0341                       4
 104  1 04          DSA   CAVAL                                                        3  0344  810                  4
 105  1 05          DSA   START                                                        3  0347  964                  4
 106  1 06          DSA   HIGHH                                                        3  0350  V99                  4
 107  1 07          DCW   @030865@                                                     6  0356                       4
 108  1 08   HIGHH  EQU   1599                                                            1599
 109  1 09          ORG   810                  BEYOND CONTR. AND SW.                             0810
 110  1 10   CAVAL  DCW   #1                                                           1  0810                       5
 111  1 11   JOBHD  DCW   #52                                                         52  0862                       7
 112  1 12   *
 113  1 13   WRT1   SBR   WRT1R&3                                                      4  0863  H 881                7
 114  1 14          MLC   @0&@,657                                                     7  0867  M 951 657            7
 115  1 15          B     PRINT                                                        4  0874  B 747                7
 116  1 16   WRT1R  B     0                                                            4  0878  B 000                7
 117  1 17   *
 118  1 18   * E Q U A T E S  F O R  T A P E S,  X - R E G S, S W I T C H E S
 119  1 19   * A N D  B L O C K  S I Z E S.
 120  1 20   *
 121  1 21   IOCON2 EQU   200                   INT.  TAPE                                0200
 122  1 22   IOCON3 EQU   300                   INPUT TAPE                                0300
 123  1 23   IOCON4 EQU   400                   INT.  TAPE                                0400
 124  1 24   SYSIO  EQU   500                                                             0500
 125  1 25   SYSLNK EQU   400                                                             0400
 126  1 26   *
 127  1 27   MR1    EQU   %U2                                                             %U2
 128  1 28   MR2    EQU   %U4                                                             %U4
 129  1 29   MR5    EQU   %U3                                                             %U3
 130  1 30   *
 131  1 31   EJECT  EQU   704                                                             0704
 132  1 32   PRINT  EQU   747                                                             0747
 133  1 33   PUNCH  EQU   789                                                             0789
 134  1 34   MESSG  EQU   660                                                             0660
 135  1 35   WRTSK  EQU   WRT1                                                            0863
 136  1 36   WRT2   EQU   WRT1                                                            0863
 137  1 37   PRELST EQU   800                                                             0800
 138  1 38   PREPCH EQU   801                                                             0801
 139  1 39   NOSTOP EQU   803                                                             0803
 140  1 40   REFTBL EQU   804                                                             0804
 141  1 41   PRCHNG EQU   800                                                             0800
 142  1 42   NOCHRT EQU   802                                                             0802
 143 14 21   NONO   EQU   805                  WM INDICATES AUTO INPUT                    0805
 144  1 43   EJCTFL EQU   809                                                            0809
 145  1 44   *
 146  1 45   X1     EQU   89                                                              0089
 147  1 46   X2     EQU   94                                                              0094
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

148  1 47   X3     EQU   99                                                              0099
149  1 48   *
150  1 49   SYSTP  EQU   %U1                                                             %U1
151  1 50   *
152  1 51   P      EQU   200                                                             0200
153  1 52   CMODE  DCW   #1                    CHART MODE    SW                       1  0882                      8
154  1 53   TMODE  DCW   #1                    TEXT  MODE    SW                       1  0883                      8
155  1 54   NOCHT  DCW   #1                    NO CHART      SW                       1  0884                      8
156  1 55   PGCHG  DCW   #1                    PAGE CHANGE   SW                       1  0885                      8
157  1 56   LABSW  DCW   #1                    LABEL AVAIL.  SW                       1  0886                      8
158  1 57   ADDSW  DCW   #1                    EJECT OPERAND SW                       1  0887                      8
159  1 58   JOBSW  DCW   #1                    FOR MULT JB CDS IN PH2                 1  0888                      8
160  1 59   TAVAL  DCW   #1                    TEXT AVAIL.   SW                       1  0889                      9
161  1 60          DCW   #35                                                         35  0924                      9
162  1 61   BLANK  DC    #17                                                         17  0941                     10
163  1 62   GPMARK DC    @}@                   GROUP MARK                             1  0942                     10
164  1 63   DS     DCW   @.@                   CHAR TO DRAW SYMBOLS                   1  0943                     10
165  1 64   DLD    DCW   @.@                   CHAR FOR LINES DOWN                    1  0944                     10
166  1 65   DLA    DCW   @.@                   CHAR FOR LINES ACROSS                  1  0945                     10
167  1 66   DAD    DCW   @.@                   ARROWS DOWN                            1  0946                     10
168  1 67   DAR    DCW   @.@                   ARROWS TO RIGHT                        1  0947                     11
169  1 68   DAL    DCW   @.@                   ARROWS TO LEFT                         1  0948                     11
170  1 69   DAU    DCW   @.@                   ARROWS UP, FUTURE EXPANSION.           1  0949                     11
171  1 70          LTORG *                                                                      0950
                   DCW   @0&@                                                         2  0951             LIT     11
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD

172  1 71          JOB   PHAE2,HOUSEKEEPING
173  1 72          ORG   964                                                              0964
174  1 73   START  RWD   MR1                 REWIND THE 3 WORK TAPES.               5  0964  U %U2 R              12
175  1 74          RWD   MR2                                                        5  0969  U %U4 R              12
176  1 75   *
177  1 76          SBR   X1,0                CLEAN INDEX REGS.                      7  0974  H 089 000            12
178  1 77          SBR   X2                                                         4  0981  H 094                12
179  1 78          SBR   X3                                                         4  0985  H 099                12
180  1 79          SW    X1-2,X2-2                                                  7  0989  , 087 092            12
181  1 80          SW    X3-2                                                       4  0996  , 097                12
182  1 81   *                                  PRINT PRE-LIST HEADING.
183  1 82          CW    CMODE,TMODE         CLEAR ALL SWITCHES.                    7  1000  ) 882 883            13
184  1 83          CW    NOCHT,PGCHG                                                7  1007  ) 884 885            13
185  1 84          CW    CAVAL,LABSW                                                7  1014  ) 810 886            13
186  1 85          CW    ADDSW,JOBSW                                                7  1021  ) 887 888            13
187  1 86          CW    TAVAL,EJCTFL                                               7  1028  ) 889 809            13
188  1 87          BW    GO,NOSTOP                                                  8  1035  V |90 803 1          14
189  1 88          BCE   GO,PRCHNG,0                                                8  1043  B |90 800 0          14
190  1 89          MLC   @0@,PRCHNG                                                 7  1051  M S98 800            14
191  1 90          MLC   @0@,NOSTOP                                                 7  1058  M S98 803            14
192  1 91          MLC   @SET UP PRINTER FOR 8 LINES/INCH.@,P&41                    7  1065  M T30 241            14
193  1 92          MLC   @HIT START.@,P&52                                          7  1072  M T40 252            15
194  1 93          B     MESSG                                                      4  1079  B 660                15
195  1 94          H     444,444                                                    7  1083  . 444 444            15
196  1 95   GO     B     SYSIO                                                      4  1090  B 500                15
197  1 96          DCW   &IOCON3                                                    3  1096  300                  15
198  1 97          ORG   *-2                                                              1095
199  1 98          DC    &WA-40                                                     3  1097  S17                  16
200  1 99          DC    @R@                                                        1  1098                       16
201  2 00          BEF   BSPINT                                                     5  1099  B /13 K              16
202  2 01          BSP   MR5                                                        5  1104  U %U3 B              16
203  2 02          B     GO1                                                        4  1109  B /27                16
204  2 03   BSPINT BSP   MR5                                                        5  1113  U %U3 B              16
205  2 04          B     SYSLNK                                                     4  1118  B 400                17
206  2 05          DCW   @4CHTB@                                                    5  1126                       17
207  2 06   GO1    BW    *&5,PRELST                                                 8  1127  V /39 800 1          17
208  2 07          B     FZ1W2                                                      4  1135  B S00                17
209  2 08          BCE   *&5,NOSTOP,0                                               8  1139  B /51 803 0          17
210  2 09          B     EJECT                                                      4  1147  B 704                17
211  2 10          MLC   @ @,NOSTOP                                                 7  1151  M T41 803            18
212  2 11          MLC   @SEQ@,P&15                                                 7  1158  M T44 215            18
213  2 12          MLC   @P/L@,P&24                                                 7  1165  M T47 224            18
214  2 13          MLC   @LABEL@,P&30                                               7  1172  M T52 230            18
215  2 14          MLC   @OP@,P&38                                                  7  1179  M T54 238            18
216  2 15          MLC   @OPERAND@,P&47                                             7  1186  M T61 247            19
217  2 16          MLC   @FLOWCHART PAGE@,P&117                                     7  1193  M T75 317            19
218  2 17   FZ1W2  B     WRT2                                                       4  1200  B 863                19
219  2 18          B     WRT1                                                       4  1204  B 863                19
220  2 19          B     SYSLNK              TO PHASE 2                             4  1208  B 400                19
221  2 20          DCW   @4CHTB@                                                    5  1216                       19
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

222  2 21   WA     DC    #41                                                       41  1257                      21
223  2 22          DC    #40                                                       40  1297                      23
                   DCW   @0@                                                        1  1298              LIT     23
       192               @SET UP PRINTER FOR 8 LINES/INCH.@                        32  1330              LIT     23
       193               @HIT START.@                                              10  1340              LIT     24
                         @ @                                                        1  1341              LIT     24
                         @SEQ@                                                      3  1344              LIT     24
                         @P/L@                                                      3  1347              LIT     24
       214               @LABEL@                                                    5  1352              LIT     24
                         @OP@                                                       2  1354              LIT     24
       216               @OPERAND@                                                  7  1361              LIT     24
       217               @FLOWCHART PAGE@                                          14  1375              LIT     25
224  2 23          EX    START               THIS IS 1ST EXECUTE.                           B 964                26
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                                   SFX CT  LOCN  INSTRUCTION TYPE  CARD

225  2 24          JOB   PHASE2,PASS1
226  2 25          DCW   @$ADD     @                                                     9  1384                          29
227  2 26          DSA   START                                                           3  1387  964                     29
228  2 27          DSA   START                                                           3  1390  964                     29
229  2 28          DSA   HIGHP1                                                          3  1393  ?0|                     29
230  2 29          DCW   @030865@                                                        6  1399                          29
231  2 30   HIGHP1 EQU   7000                                                               7000
232  2 31          ORG   START                                                                     0964
233  2 32          B     FAZE2                BY PASS I/O AREAS                          4  0964  B U17                   30
234  2 33   *
235  2 34          DCW   1                    CHART FLAG                                 1  0968                          30
236  2 35   CHTDA  DA    1X137,C             CHART OUTPUT                                   0969   1105                   34
237  2 36   CSEQ         1,5                                                                0973              FIELD  34
238  2 37   CPAGE        6,9                                                                0977              FIELD  34
239  2 38   CCOOR        10,11                                                              0979              FIELD  34
240  2 39   COPCD        12,12                                                              0980              FIELD  35
241  2 40   CINLA        13,22                                                              0990              FIELD  35
242  2 41   COP          23,27                                                              0995              FIELD  35
243  2 42   CST1         28,40                                                              1008              FIELD  35
244  2 43   CST2         41,53                                                              1021              FIELD  35
245  2 44   CST3         54,66                                                              1034              FIELD  35
246  2 45   CST4         67,79                                                              1047              FIELD  36
247  2 46   CST5         80,92                                                              1060              FIELD  36
248  2 47   CX1LA        93,102                                                             1070              FIELD  36
249  2 48   CX1PG        103,106                                                            1074              FIELD  36
250  2 49   CX1CN        107,108                                                            1076              FIELD  36
251  2 50   CX1CD        109,111                                                            1079              FIELD  36
252  2 51   CX2LA        112,121                                                            1089              FIELD  37
253  2 52   CX2PG        122,125                                                            1093              FIELD  37
254  2 53   CX2CN        126,127                                                            1095              FIELD  37
255  2 54   CX2CD        128,130                                                            1098              FIELD  37
256  2 55   CFLAG        131,137                                                            1105              FIELD  37
257  2 56   CFLG1        131                                                                1099              SBFLD
258  2 57          DCW   @ @                                                             1  1106                          37
259  2 58   *
260  2 59          DC    0                    TEXT FLAG                                  1  1107                          37
261  2 60   TXTDA  DA    1X137,C             TEXT OUTPUT                                    1108   1244                   41
262  2 61   TSEQ         1,5                                                                1112              FIELD  41
263  2 62   TOP          6,6                  OP-CODE. S-SPACE, *-COMMENT.                  1113              FIELD  41
264  2 63   TLINE        7,8                  NO OF LINES, SPACE OPERATION.                 1115              FIELD  41
265  2 64   TPAGE        9,12                 PAGE NO.                                      1119              FIELD  42
266  2 65   TSNGL        13,69                SINGLE PAGE OPTION TEXT.                      1176              FIELD  42
267  2 66   TDBLE        125                  DOUBLE PAGE OPTION TEXT.                      1232              SBFLD
268  2 67          DCW   @ @                                                             1  1245                          42
269  2 68   CARDSV DCW   #40                  CARD RD SAVE AREA                         40  1285                          44
270  2 69          DC    #40                                                            40  1325                          46
271  2 70   PNCHSV DCW   #40                  CARD PUNCH SAVE AREA                      40  1365                          48
272  2 71          DC    #40                                                            40  1405                          50
273  2 72   *
274  2 73   * READER INPUT AREA. EQUATED FOR POSSIBLE 1440 CONVERSION.
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SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

275  2 74   INPUT  EQU   0                                                                 0000
276  2 75   COL1   EQU   INPUT&1                                                           0001
277  2 76   COL5   EQU   INPUT&5                                                           0005
278  2 77   COL6   EQU   INPUT&6                                                           0006
279  2 78   COL7   EQU   INPUT&7                                                           0007
280  2 79   COL11  EQU   INPUT&11                                                          0011
281  2 80   COL15  EQU   INPUT&15                                                          0015
282  2 81   COL16  EQU   INPUT&16                                                          0016
283  2 82   COL20  EQU   INPUT&20                                                          0020
284  2 83   COL21  EQU   INPUT&21                                                          0021
285  2 84   COL80  EQU   INPUT&80                                                          0080
286  2 85   COL72  EQU   INPUT&72                                                          0072
287  2 86   LNCTR  DCW   000                                                            3  1408                     50
288  2 87   LNLIM  DCW   032                 INITIALIZE SINGLE PAGE TEXT.               3  1411                     50
289  2 88   LSTOP  DCW   @ @                 LAST OP CODE SAVE.                         1  1412                     50
290  2 89   PAGCT  DCW   0001                INITIAL PAGE NO.                           4  1416                     50
291  2 90   FAZE2  SW    TMODE,PGCHG         INITIALIZE SWITCHES.                       7  1417  , 883 885          51
292  2 91          MLC   GPMARK,CHTDA&137                                               7  1424  M 942 /06          51
293  2 92          MLC   GPMARK,TXTDA&137                                               7  1431  M 942 S45          51
294  2 93          SW    COL1                                                           4  1438  , 001              51
295  2 94          SW    COL1&100                                                       4  1442  , 101              51
296  2 95          MLC   COL1&79,CARDSV&40     SAVE READ AREA                           7  1446  M 080 T25          51
297  2 96          B     GET2                                                           4  1453  B U64              52
298  2 97   SVLST  MLC   COPCD,LSTOP         SAVE THIS CODE AS LAST CODE.               7  1457  M 980 U12          52
299  2 98   *
300  2 99   GET2   B     GETIN               TO CLOSED READ RTN.                        4  1464  B /6Z              52
301  3 00          A     *-6,SEQNO#5         UP SEQ NO COUNT.                           7  1468  A U68 X4Z          52
302  3 01          BW    *&5,PRELST          PRINT PRE LIST                             8  1475  V U87 800 1        52
303  3 02          B     PRPCH1                                                         4  1483  B V42              52
304  3 03          MLC   COL80,P&100         YES.                                       7  1487  M 080 300          53
305  3 04          MCS   SEQNO,P&15                                                     7  1494  Z X4Z 215          53
306  3 05          MCS   PAGCT,P&110                                                    7  1501  Z U16 310          53
307  3 06          B     WRT1                PRINT LINE.                                4  1508  B 863              53
308  3 07          A     *-6,PLCTR#2                                                    7  1512  A V12 X5/          53
309  3 08          BCE   *&5,PLCTR-1,7                                                  8  1519  B V31 X5| 7        54
310  3 09          B     *&12                                                           4  1527  B V42              54
311  3 10          B     EJECT                                                          4  1531  B 704              54
312  3 11          ZA    *-6,PLCTR           LINES.                                     7  1535  ? V35 X5/          54
313  3 12   PRPCH1 BW    PRPCH2,PREPCH                                                  8  1542  V V54 801 1        54
314  3 13          B     GET3                                                           4  1550  B V79              54
315  3 14   PRPCH2 MLC   COL1&179,PNCHSV&40    SAVE PUNCH AREA                          7  1554  M 180 U05          55
316  3 15          MLCWA 80,180                                                         7  1561  L 080 180          55
317  3 16          B     PUNCH                                                          4  1568  B 789              55
318  3 17          MLC   PNCHSV&40,COL1&179    RESTORE PUNCH AREA                       7  1572  M U05 180          55
319  3 18   *
320  3 19   GET3   B     GETOP               GET OP CODE, CLOSED RTN.                   4  1579  B B62              55
321  3 20   VALOP  BCE   BADOP,OP,|          VALID OP CODE.                             8  1583  B V95 !6V |        55
322  3 21          B     CKCOM               YES.                                       4  1591  B W25              56
323  3 22   BADOP  MCS   SEQNO,P&10          NO, PRINT MESSAGE.                         7  1595  Z X4Z 210          56
324  3 23          MLC   @INVALID OP@,P&21                                              7  1602  M X6/ 221          56
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

325  3 24          B     ADTPL                                                        4  1609  B V3X                56
326  3 25          B     WRT1                                                         4  1613  B 863                56
327  3 26          SW    NOCHT               FLAG NO CHART.                           4  1617  , 884                56
328  3 27          B     GET2                GET NEXT INPUT.                          4  1621  B U64                56
329  3 28   *
330  3 29   CKCOM  BCE   *&5,OP,*            COMMENT CARD.                            8  1625  B W37 !6V *          57
331  3 30          B     SYMOP               NO.                                      4  1633  B L39                57
332  3 31          BW    RUNOT,CMODE         YES, RUN OUT PAGE IF IN CHART            8  1637  V 97U 882 1          57
333  3 32          SW    TMODE               MODE. RETURN, SET TEXT MODE,             4  1645  , 883                57
334  3 33          CW    CMODE               CLEAR CHART MODE.                        4  1649  ) 882                57
335  3 34          SW    TAVAL               SET TEXT AVAILABILITY SW.                4  1653  , 889                57
336  3 35          CW    PGCHG               TURN PAGE CHANGE SW OFF.                 4  1657  ) 885                57
337  3 36   *
338  3 37   * TEST COLUMN 7 OF INPUT AND PERFORM PROPER ROUTINE ACCORDING
339  3 38   * TO THE CODE.
340  3 39   *
341  3 40          BCE   CRTN,COL7,C         CENTER.                                  8  1661  B Y78 007 C          58
342  3 41          BCE   RRTN,COL7,R         RIGHT JUSTIFY                            8  1669  B !16 007 R          58
343  3 42          BCE   JRTN,COL7,J         FULL JUSTIFY                             8  1677  B J04 007 J          58
344  3 43          BCE   GRTN,COL7,*         DRAW A LINE OF *                         8  1685  B K85 007 *          58
345  3 44          BCE   GRTN,COL7,.         DRAW A LINE OF PERIODS.                  8  1693  B K85 007 .          59
346  3 45   *
347  3 46   * RETURN HERE FROM THE VARIOUS EDIT ROUTINES AND CHECK TO SEE IF
348  3 47   * COMMENT INFO IS TO BE SPREAD FOR 50 % REDUCTION.
349  3 48   *
350  3 49   SPRED  B     *&5                                                          4  1701  B X09                59
351  3 50          B     WIDEN               YES.                                     4  1705  B X28                59
352  3 51   *                                  NO.
353  3 52   NOSRD  SW    COL16                                                        4  1709  , 016                59
354  3 53          MLC   COL72,TSNGL         MOVE AS IS.                              7  1713  M 072 /76            59
355  3 54          CW    COL16                                                        4  1720  ) 016                59
356  3 55          B     MVRTX               TO MOVE REST OF TEXT DATA.               4  1724  B Y05                59
357  3 56   *
358  3 57   WIDEN  SBR   X1,0                SPREAD TEXT IN COLUMNS 16-72             7  1728  H 089 000            60
359  3 58          SBR   X2                  AND PUT IN TEXT DA OUTPUT.               4  1735  H 094                60
360  3 59          SW    COL16                                                        4  1739  , 016                60
361  3 60          MLC   COL16,TDBLE-112                                              7  1743  M 016 /20            60
362  3 61          CW    COL16                                                        4  1750  ) 016                60
363  3 62   WIDX2  SBR   X2,2&X2                                                      7  1754  H 094 0!2            60
364  3 63          SBR   X1,1&X1                                                      7  1761  H 089 0|1            61
365  3 64          C     X1,@57@                                                      7  1768  C 089 X6T            61
366  3 65          BE    MVRTX               FINISHED WIDENED MOVE.                   5  1775  B Y05 S              61
367  3 66          MLC   COL16&X1,TWOCH#2                                             7  1780  M 0/6 X6V            61
368  3 67          MLC   @ @,TWOCH-1                                                  7  1787  M X6W X6U            61
369  3 68          MLC   TWOCH,TDBLE-112&X2                                           7  1794  M X6V /K0            62
370  3 69          B     WIDX2                                                        4  1801  B X54                62
371  3 70   *
372  3 71   * MOVE REST OF THE TEXT RECORD DATA TO OUTPUT RECORD.
373  3 72   *
374  3 73   MVRTX  MLC   OP,TOP              OP CODE.                                 7  1805  M !6V /13            62
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

375  3 74          MLC   SEQNO,TSEQ          SEQ NO.                                7  1812  M X4Z /12           62
376  3 75          MLC   PAGCT,TPAGE         PAGE NO OF THIS LINE.                  7  1819  M U16 /19           62
377  3 76          MLC   @  @,TLINE          NO LINE COUNT.                         7  1826  M X6Y /15           62
378  3 77   *
379  3 78          B     WRTTX               TO CLOSED TAPE WRITE ROUTINE.          4  1833  B V0T               63
380  3 79   UPTLN  A     *-6,LNCTR           UP LINE COUNT.                         7  1837  A Y37 U08           63
381  3 80          C     LNLIM,LNCTR         PAGE FULL.                             7  1844  C U11 U08           63
382  3 81          BL    GET2                NO                                     5  1851  B U64 T             63
383  3 82          A     *-6,PAGCT           YES, UP PAGE COUNT.                    7  1856  A Y56 U16           63
384  3 83          SBR   LNCTR,0             RESET LINE COUNT.                      7  1863  H U08 000           63
385  3 84          SW    PGCHG               SET PAGE CHANGE SWITCH.                4  1870  , 885               64
386  3 85          B     GET2                                                       4  1874  B U64               64
387  3 86   *
388  3 87   *
389  3 88   CRTN   BCE   NOCNT,COL21,        CANNOT CENTER IF COL 21 BLANK.         8  1878  B Z90 021           64
390  3 89          SW    COL21                                                      4  1886  , 021               64
391  3 90          SBR   X1,COL72            CENTER THE TEXT.                       7  1890  H 089 072           64
392  3 91          SBR   X2,0                                                       7  1897  H 094 000           64
393  3 92   CRTNC  C     0&X1,@  @                                                  7  1904  C 0|0 X6Y           65
394  3 93          SAR   X1                                                         4  1911  Q 089               65
395  3 94          BU    FCNTR                                                      5  1915  B Z31 /             65
396  3 95          A     *-6,X2                                                     7  1920  A Z20 094           65
397  3 96          B     CRTNC                                                      4  1927  B Z04               65
398  3 97   *
399  3 98   FCNTR  A     X1,X2                                                      7  1931  A 089 094           65
400  3 99          MLC   2&X1,2&X2                                                  7  1938  M 0|2 0!2           66
401  4 00          SBR   X2                                                         4  1945  H 094               66
402  4 01   CSBRC  SBR   X1,COL21                                                   7  1949  H 089 021           66
403  4 02          CW    COL21                                                      4  1956  ) 021               66
404  4 03   CRCLR  MLC   @ @,0&X1                                                   7  1960  M X6W 0|0           66
405  4 04          C     X1,X2                                                      7  1967  C 089 094           66
406  4 05          BE    SPRED               FINISHED CENTERING.                    5  1974  B X01 S             67
407  4 06          SBR   X1,1&X1                                                    7  1979  H 089 0|1           67
408  4 07          B     CRCLR                                                      4  1986  B Z60               67
409  4 08   *
410  4 09   NOCNT  MCS   SEQNO,P&10                                                 7  1990  Z X4Z 210           67
411  4 10          MLC   @CANNOT CENTER COMMENT@,P&32                               7  1997  M X8Z 232           67
412  4 11          B     ADTPL                                                      4  2004  B V3X               67
413  4 12          B     WRT1                                                       4  2008  B 863               67
414  4 13          B     SPRED                                                      4  2012  B X01               68
415  4 14   *
416  4 15   *
417  4 16   RRTN   BCE   NORRT,COL21,        CANNOT RIGHT JUSTIFY.                  8  2016  B !78 021           68
418  4 17          BCE   *&5,COL72,                                                 8  2024  B !36 072           68
419  4 18          B     SPRED               NO NEED TO MOVE.                       4  2032  B X01               68
420  4 19          SW    COL21                                                      4  2036  , 021               68
421  4 20          SBR   X1,COL72                                                   7  2040  H 089 072           68
422  4 21   RRCMP  C     0&X1,@ @                                                   7  2047  C 0|0 X6W           69
423  4 22          SAR   X1                                                         4  2054  Q 089               69
424  4 23          BE    RRCMP                                                      5  2058  B !47 S             69
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SEQ PG LIN  LABEL  OP    OPERANDS                                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

425  4 24          MLC   1&X1,COL72          MOVE RIGHT                                       7  2063  M 0|1 072            69
426  4 25          SBR   X2                  END OF MOVE. REUSE CENTER                        4  2070  H 094                69
427  4 26          B     CSBRC               ROUTINE CLEAR                                    4  2074  B Z49                69
428  4 27   *
429  4 28   NORRT  MCS   SEQNO,P&10                                                           7  2078  Z X4Z 210            69
430  4 29          MLC   @CANNOT RIGHT JUSTIFY@,P&31                                          7  2085  M Y0Z 231            70
431  4 30          B     ADTPL                                                                4  2092  B V3X                70
432  4 31          B     WRT1                                                                 4  2096  B 863                70
433  4 32          B     SPRED                                                                4  2100  B X01                70
434  4 33   *
435  4 34   * ROUTINE TO FULL JUSTIFY COMMENT CARDS.
436  4 35   *
437  4 36   JRTN   BCE   *&5,COL16,                                                           8  2104  B J16 016            70
438  4 37          B     *&9                                                                  4  2112  B J24                70
439  4 38          BCE   NOJST,COL21,        CANNOT JUSTIFY, 16 AND 21 BLANK.                 8  2116  B K59 021            70
440  4 39   *
441  4 40          BCE   *&5,COL72,                                                           8  2124  B J36 072            71
442  4 41          B     SPRED               ALREADY JUSTIFIED.                               4  2132  B X01                71
443  4 42          SBR   X1,COL72                                                             7  2136  H 089 072            71
444  4 43   FLSJC  BCE   *&13,0&X1,          FIND LAST NON BLANK CHAR, IF A .                 8  2143  B J63 0|0            71
445  4 44          BCE   SPRED,0&X1,.        NO NEED TO JUSTIFY.                              8  2151  B X01 0|0 .          71
446  4 45          B     JSBR1                                                                4  2159  B J75                71
447  4 46          CW    0&X1                                                                 4  2163  ) 0|0                72
448  4 47          SAR   X1                                                                   4  2167  Q 089                72
449  4 48          B     FLSJC                                                                4  2171  B J43                72
450  4 49   *
451  4 50   JSBR1  SBR   X1,0                START SEARCH AND SHIFT.                          7  2175  H 089 000            72
452  4 51   JBCEB  BCE   JFBLN,COL21&X1,                                                      8  2182  B K13 0S1            72
453  4 52          SBR   X1,1&X1                                                              7  2190  H 089 0|1            72
454  4 53          C     X1,@52@                                                              7  2197  C 089 Y1/            73
455  4 54          BU    JBCEB                                                                5  2204  B J82 /              73
456  4 55          B     NOJST               RAN OUT TO THE END.                              4  2209  B K59                73
457  4 56   *
458  4 57   JFBLN  SW    COL21&X1                                                             4  2213  , 0S1                73
459  4 58          MLC   COL72-1,COL72                                                        7  2217  M 071 072            73
460  4 59          CW    COL21&X1                                                             4  2224  ) 0S1                73
461  4 60          BCE   *&5,COL72,                                                           8  2228  B K40 072            73
462  4 61          B     SPRED               FINISHED WITH JUSTIFY.                           4  2236  B X01                74
463  4 62   *
464  4 63          SBR   X1,1&X1                                                              7  2240  H 089 0|1            74
465  4 64          C     X1,@52@             END OF OPERAND.                                  7  2247  C 089 Y1/            74
466  4 65          BU    JBCEB&8             NO, TRY NEXT SEARCH.                             5  2254  B J90 /              74
467  4 66   *
468  4 67   NOJST  MCS   SEQNO,P&10                                                           7  2259  Z X4Z 210            74
469  4 68          MLC   @CANNOT FULL JUSTIFY@,P&30                                           7  2266  M Y3| 230            74
470  4 69          B     ADTPL                                                                4  2273  B V3X                75
471  4 70          B     WRT1                                                                 4  2277  B 863                75
472  4 71          B     SPRED                                                                4  2281  B X01                75
473  4 72   *
474  4 73   * GENERATE LINE PER CHARACTER IN COLUMN 7.
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

475  4 74   *
476  4 75   GRTN   SW    COL7,COL16                                                7  2285  , 007 016             75
477  4 76          MLC   COL7,COL72                                                7  2292  M 007 072             75
478  4 77          MLC   COL72                                                     4  2299  M 072                 75
479  4 78          BSS   GRTNB,E                                                   5  2303  B L23 E               75
480  4 79          MLC   COL72,TDBLE                                               7  2308  M 072 S32             76
481  4 80          MLC   COL72                                                     4  2315  M 072                 76
482  4 81          MLC   COL72                                                     4  2319  M 072                 76
483  4 82   GRTNB  CW    COL7,COL16                                                7  2323  ) 007 016             76
484  4 83          BSS   NOSRD,E                                                   5  2330  B X09 E               76
485  4 84          B     MVRTX               RETURN DIRECT, BY PASS SPRED RTN      4  2335  B Y05                 76
486  4 85   *
487  4 86   * ENTER HERE ON NON-COMMENT CARDS.
488  4 87   *
489  4 88   SYMOP  MLC   OP,*&8              SYMBOL OR NONE OPERATION.             7  2339  M !6V L53             76
490  4 89          BCE   SETCH,@N0123456789@,*                                     8  2346  B N33 Y4/ *           77
491  4 90          BCE                                                             1  2354  B                     77
492  4 91          BCE                                                             1  2355  B                     77
493  4 92          BCE                                                             1  2356  B                     77
494  4 93          BCE                                                             1  2357  B                     77
495  4 94          BCE                                                             1  2358  B                     77
496  4 95          BCE                                                             1  2359  B                     77
497  4 96          BCE                                                             1  2360  B                     78
498  4 97          BCE                                                             1  2361  B                     78
499  4 98          BCE                                                             1  2362  B                     78
500  4 99          BCE                                                             1  2363  B                     78
501  5 00   *
502  5 01          BCE   BADQ,LSTOP,3         Q FOLLOWED BY A CTL OP. YES.         8  2364  B 93X U12 3           78
503  5 02          BCE   SJOB,OP,J           NO, JOB.                              8  2372  B O06 !6V J           78
504  5 03          BCE   SEJC,OP,E           EJECT.                                8  2380  B O55 !6V E           78
505  5 04          BCE   SSPC,OP,S           SPACE.                                8  2388  B Q48 !6V S           79
506  5 05          BCE   SDRAW,OP,D                                                8  2396  B ?45 !6V D           79
507  5 06   *                                  MUST BE AN END CARD.
508  5 07          BW    RUNOT,CMODE         RUN OUT PAGE IF IN CHART MODE.        8  2404  V 97U 882 1           79
509  5 08          WTM   MR1                 CLOSE CHART AND TEXT WORK             5  2412  U %U2 M               79
510  5 09          RWD   MR1                                                       5  2417  U %U2 R               79
511  5 10          BW    SORRY,NOCHT         NO CHART SWITCH ON.                   8  2422  V M68 884 1           80
512  5 11          BW    RWDSY,NOCHRT                                              8  2430  V M83 802 1           80
513  5 12          MLC   CARDSV&40,COL1&79    RESTOREREAD AREA                     7  2438  M T25 080             80
514  5 13          MLC   @ @,CHTDA&137                                             7  2445  M X6W /06             80
515  5 14          MLC   @ @,TXTDA&137                                             7  2452  M X6W S45             80
516  5 15          B     SYSLNK                                                    4  2459  B 400                 81
517  5 16          DCW   @4CHTC@             TO PHASE3                             5  2467                        81
518  5 17   *
519  5 18   SORRY  B     WRT1                                                      4  2468  B 863                 81
520  5 19          MLC   @RUN TERMINATED,INPUT ERRORS@,P&38                        7  2472  M Y6Y 238             81
521  5 20          B     WRT2                                                      4  2479  B 863                 81
522  5 21   RWDSY  BSP   SYSTP                                                     5  2483  U %U1 B               81
523  5 22          BSP   SYSTP                                                     5  2488  U %U1 B               81
524  5 23          BSP   SYSTP                                                     5  2493  U %U1 B               82
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SEQ PG LIN  LABEL  OP    OPERANDS                                                 SFX CT  LOCN  INSTRUCTION TYPE  CARD

525  5 24          BSP   SYSTP                                                         5  2498  U %U1 B             82
526  5 25          MLC   CARDSV&40,COL1&79    RESTOREREAD AREA                         7  2503  M T25 080           82
527  5 26          MLC   @ @,CHTDA&137                                                 7  2510  M X6W /06           82
528  5 27          MLC   @ @,TXTDA&137                                                 7  2517  M X6W S45           82
529  5 28          B     SYSLNK                                                        4  2524  B 400               82
530  5 29          DCW   @4CHTA@                                                       5  2532                      83
531  5 30   *
532  5 31   *
533  5 32   SETCH  SW    CAVAL                                                         4  2533  , 810               83
534  5 33          BCE   *&5,COL6,           SYMBOL LABEL.                             8  2537  B N49 006           83
535  5 34          SW    LABSW               YES, SET LABEL AVAILABILITY SW.           4  2545  , 886               83
536  5 35          BW    *&5,TMODE           IN TEXT MODE.                             8  2549  V N61 883 1         83
537  5 36          B     TAGTO               NO                                        4  2557  B D76               83
538  5 37          SW    CMODE               YES, SWITCH TO CHART MODE.                4  2561  , 882               83
539  5 38          CW    TMODE                                                         4  2565  ) 883               84
540  5 39          BW    *&8,PGCHG           PAGE NO. JUST CHANGED. YES.               8  2569  V N84 885 1         84
541  5 40          A     *-6,PAGCT           NO, UP PAGE COUNT.                        7  2577  A N77 U16           84
542  5 41          MLC   @A0@,CONCT#2        RESET COORDINATE COUNT.                   7  2584  M Y7| Y7S           84
543  5 42          CW    PGCHG               PAGE CHANGE SW OFF.                       4  2591  ) 885               84
544  5 43          MLC   @7@,LSTOP                                                     7  2595  M Y7T U12           84
545  5 44          B     TAGTO                                                         4  2602  B D76               85
546  5 45   *
547  5 46   * PROCESS JOB CARD.
548  5 47   *
549  5 48   SJOB   BW    JOBEX,JOBSW         1ST JOB CARD. NO.                         8  2606  V O29 888 1         85
550  5 49          SW    JOBSW               YES, NOTE THIS FACT.                      4  2614  , 888               85
551  5 50          MLC   COL72,JOBHD         MOVE JOB HEADING TO SAVE AREA.            7  2618  M 072 862           85
552  5 51          B     GET2                                                          4  2625  B U64               85
553  5 52   *
554  5 53   * NOTE DELETION OF EXTRA JOB CARDS.
555  5 54   *
556  5 55   JOBEX  MCS   SEQNO,P&10                                                    7  2629  Z X4Z 210           85
557  5 56          MLC   @EXTRA JOB CARD DELETED@,P&33                                 7  2636  M Y9V 233           86
558  5 57          B     ADTPL                                                         4  2643  B V3X               86
559  5 58          B     WRT1                                                          4  2647  B 863               86
560  5 59          B     GET2                                                          4  2651  B U64               86
561  5 60   *
562  5 61   * PROCESS EJECT CARD.
563  5 62   *
564  5 63   SEJC   SBR   X1,0                                                          7  2655  H 089 000           86
565  5 64          SW    COL21                                                         4  2662  , 021               86
566  5 65          SBR   LNCTR,0                                                       7  2666  H U08 000           86
567  5 66          BW    *&5,TMODE           TEXT MODE                                 8  2673  V O85 883 1         87
568  5 67          B     RUNOT               NO, RUN OUT TO END OF PAGE.               4  2681  B 97U               87
569  5 68          ZA    &1,EJCPG#4                                                    7  2685  ? Y9W Z0|           87
570  5 69          SW    ADDSW                                                         4  2692  , 887               87
571  5 70          BCE   EJCTX,COL21,        NO OPERAND OPTION.                        8  2696  B P54 021           87
572  5 71          BCE   EPLUS,COL21,&       & IN 21, ADD OPTION.                      8  2704  B P20 021 &         87
573  5 72          CW    ADDSW               MOVE NEW OPTION.                          4  2712  ) 887               88
574  5 73          B     *&8                                                           4  2716  B P27               88
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

575  5 74   EPLUS  SBR   X1,1&X1                                                7  2720  H 089 0|1           88
576  5 75          BCE   BDEJO,X1,6          TOO MANY CHARS IN OPERAND.         8  2727  B Q18 089 6         88
577  5 76          BCE   *&5,COL21&1&X1,                                        8  2735  B P47 0S2           88
578  5 77          B     EPLUS                                                  4  2743  B P20               88
579  5 78          ZA    COL21&X1,EJCPG      FIX FORM OPERAND.                  7  2747  ? 0S1 Z0|           89
580  5 79   EJCTX  BW    *&5,PGCHG           WAS PAGE JUST CHANGED.             8  2754  V P66 885 1         89
581  5 80          B     *&8                 NO                                 4  2762  B P73               89
582  5 81          S     &1,PAGCT            YES, ADJUST FOR PAGE CHANGE.       7  2766  S Y9W U16           89
583  5 82          MLZS  *-1,PAGCT           DROP ZONE.                         7  2773  Y P78 U16           89
584  5 83          BW    EJADD,ADDSW                                            8  2780  V P99 887 1         90
585  5 84          MLC   EJCPG,PAGCT                                            7  2788  M Z0| U16           90
586  5 85          B     *&8                                                    4  2795  B Q06               90
587  5 86   EJADD  A     EJCPG,PAGCT                                            7  2799  A Z0| U16           90
588  5 87          SW    PGCHG                                                  4  2806  , 885               90
589  5 88          CW    COL21                                                  4  2810  ) 021               90
590  5 89          B     GET2                                                   4  2814  B U64               90
591  5 90   *
592  5 91   BDEJO  MCS   SEQNO,P&10                                             7  2818  Z X4Z 210           91
593  5 92          MLC   @INVALID EJECT OPERAND@,P&32                           7  2825  M Z2/ 232           91
594  5 93          B     ADTPL                                                  4  2832  B V3X               91
595  5 94          B     WRT1                                                   4  2836  B 863               91
596  5 95          CW    COL21                                                  4  2840  ) 021               91
597  5 96          B     GET2                                                   4  2844  B U64               91
598  5 97   *
599  5 98   * PROCESS SPACE OPERATION.
600  5 99   *
601  6 00   SSPC   BW    RUNOT,CMODE                                            8  2848  V 97U 882 1         91
602  6 01          CW    CMODE                                                  4  2856  ) 882               92
603  6 02          SW    TMODE                                                  4  2860  , 883               92
604  6 03          MLC   @01@,SAVSP#2        NO OPERAND                         7  2864  M Z2T Z2V           92
605  6 04          BCE   NOSPC,COL21,        FORCED TO 01                       8  2871  B ?19 021           92
606  6 05          BCE   ONECS,COL21&1,                                         8  2879  B Q99 022           92
607  6 06          MLNS  COL21&1,SAVSP       TWO DIGIT OPERAND.                 7  2887  D 022 Z2V           92
608  6 07          MLNS                                                         1  2894  D                   92
609  6 08          B     *&8                                                    4  2895  B R06               93
610  6 09   ONECS  MLNS  COL21,SAVSP         ONE DIGIT OPERAND.                 7  2899  D 021 Z2V           93
611  6 10          MLC   LNCTR,SVCTR#3                                          7  2906  M U08 Z2Y           93
612  6 11          A     SAVSP,SVCTR                                            7  2913  A Z2V Z2Y           93
613  6 12          C     LNLIM,SVCTR         WILL THIS CAUSE PAGE OVERFLOW.     7  2920  C U11 Z2Y           93
614  6 13          BL    SSMLZ               NO.                                5  2927  B R69 T             93
615  6 14          S     LNLIM,SVCTR         YES.                               7  2932  S U11 Z2Y           94
616  6 15          MLNS  SVCTR,SAVSP                                            7  2939  D Z2Y Z2V           94
617  6 16          MLNS                                                         1  2946  D                   94
618  6 17          MCS   SEQNO,P&10                                             7  2947  Z X4Z 210           94
619  6 18          MLC   @SPACE OPERATION OVERFLOWS PAGE@,P&41                  7  2954  M Z5Y 241           94
620  6 19          B     ADTPL                                                  4  2961  B V3X               94
621  6 20          B     WRT1                                                   4  2965  B 863               94
622  6 21   *
623  6 22   SSMLZ  MLZS  *-1,SAVSP                                              7  2969  Y R74 Z2V           95
624  6 23          A     SAVSP,LNCTR                                            7  2976  A Z2V U08           95
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

625  6 24          MLC   SEQNO,TSEQ                                           7  2983  M X4Z /12            95
626  6 25          MLC   PAGCT,TPAGE                                          7  2990  M U16 /19            95
627  6 26          MLC   OP,TOP                                               7  2997  M !6V /13            95
628  6 27          MLC   SAVSP,TLINE                                          7  3004  M Z2V /15            96
629  6 28          B     WRTTX               WRITE SPACE OP ON TEXT TAPE, MR3     4  3011  B V0T                96
630  6 29          B     UPTLN&7                                              4  3015  B Y44                96
631  6 30   *
632  6 31   NOSPC  MCS   SEQNO,P&10                                           7  3019  Z X4Z 210            96
633  6 32          MLC   @NO SPACE OPERAND@,P&27                              7  3026  M Z7U 227            96
634  6 33          B     ADTPL                                                4  3033  B V3X                96
635  6 34          B     WRT1                                                 4  3037  B 863                96
636  6 35          B     SSMLZ                                                4  3041  B R69                97
637  6 36   *
638  6 37   * ROUTINE TO PROCESS DRAW CONTROL CARDS.
639  6 38   *
640  6 39   SDRAW  BCE   *&5,COL21,                                           8  3045  B ?57 021            97
641  6 40          B     *&19                                                 4  3053  B ?75                97
642  6 41          MCS   SEQNO,P&10                                           7  3057  Z X4Z 210            97
643  6 42          MLC   @BLANK OPERAND IN DRAW CTL CARD@,P&41                7  3064  M !0U 241            97
644  6 43          B     WRT1                                                 4  3071  B 863                97
645  6 44          C     COL11,@SYMBOL@                                       7  3075  C 011 !1|            98
646  6 45          BE    SDDA                                                 5  3082  B A85 S              98
647  6 46          C     COL11,@LINEDO@                                       7  3087  C 011 !1W            98
648  6 47          BE    SDDLD                                                5  3094  B A96 S              98
649  6 48          C     COL11,@LINEAC@                                       7  3099  C 011 !2S            98
650  6 49          BE    SDDLA                                                5  3106  B B07 S              98
651  6 50          C     COL11,@ARROWD@                                       7  3111  C 011 !2Y            99
652  6 51          BE    SDDAD                                                5  3118  B B18 S              99
653  6 52          C     COL11,@ARROWR@                                       7  3123  C 011 !3U            99
654  6 53          BE    SDDAR                                                5  3130  B B29 S              99
655  6 54          C     COL11,@ARROWL@                                       7  3135  C 011 !4|            99
656  6 55          BE    SDDAL                                                5  3142  B B40 S              99
657  6 56          C     COL11,@ARROWU@                                       7  3147  C 011 !4W           100
658  6 57          BE    SDDAU                                                5  3154  B B51 S             100
659  6 58   *
660  6 59          MCS   SEQNO,P&10                                           7  3159  Z X4Z 210           100
661  6 60          MLC   @INVALID LABEL NAME@,P&29                            7  3166  M !6U 229           100
662  6 61          B     ADTPL                                                4  3173  B V3X               100
663  6 62          B     WRT1                                                 4  3177  B 863               100
664  6 63          B     GET2                                                 4  3181  B U64               100
665  6 64   *
666  6 65   SDDA   MLC   COL21,DS                                             7  3185  M 021 943           101
667  6 66          B     GET2                                                 4  3192  B U64               101
668  6 67   SDDLD  MLC   COL21,DLD                                            7  3196  M 021 944           101
669  6 68          B     GET2                                                 4  3203  B U64               101
670  6 69   SDDLA  MLC   COL21,DLA                                            7  3207  M 021 945           101
671  6 70          B     GET2                                                 4  3214  B U64               101
672  6 71   SDDAD  MLC   COL21,DAD                                            7  3218  M 021 946           102
673  6 72          B     GET2                                                 4  3225  B U64               102
674  6 73   SDDAR  MLC   COL21,DAR                                            7  3229  M 021 947           102
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

675  6 74          B     GET2                                                       4  3236  B U64               102
676  6 75   SDDAL  MLC   COL21,DAL                                                  7  3240  M 021 948           102
677  6 76          B     GET2                                                       4  3247  B U64               102
678  6 77   SDDAU  MLC   COL21,DAU                                                  7  3251  M 021 949           103
679  6 78          B     GET2                                                       4  3258  B U64               103
680  6 79   *
681  6 80   * R O U T I N E  T O  D E T E R M I N E  O P E R A T I O N  C O D E
682  6 81   *
683  6 82   GETOP  SBR   OPRET&3             SAVE FOR RETURN                        4  3262  H C41               103
684  6 83   OPBCE  BCE   *&5,COL6,*          COMMENT CARD                           8  3266  B B78 006 *         103
685  6 84          B     *&12                NO                                     4  3274  B B89               103
686  6 85          MLC   OPBCE&7,OP#1        YES, FORCE OP TO *.                    7  3278  M B73 !6V           103
687  6 86          B     OPRET                                                      4  3285  B C38               103
688  6 87          SBR   X3,OPTAB-6                                                 7  3289  H 099 C36           104
689  6 88          SW    COL16                                                      4  3296  , 016               104
690  6 89   UPOPX  SBR   X3,6&X3             FIND OP IN TABLE.                      7  3300  H 099 0?6           104
691  6 90          BCE   *&13,1&X3,|         NOT IN.                                8  3307  B C27 0?1 |         104
692  6 91          C     6&X3,COL20                                                 7  3315  C 0?6 020           104
693  6 92          BU    UPOPX                                                      5  3322  B C00 /             104
694  6 93          MLC   1&X3,OP                                                    7  3327  M 0?1 !6V           105
695  6 94          CW    COL16                                                      4  3334  ) 016               105
696  6 95   OPRET  B     0                                                          4  3338  B 000               105
697  6 96   OPTAB  DCW   0                   REFERENCE POINT, OP CODE TABLE.        1  3342                      105
698  6 97          DCW   @JJOB  @                                                   6  3348                      105
699  6 98          DCW   @SSPACE@                                                   6  3354                      105
700  6 99          DCW   @EEJECT@                                                   6  3360                      105
701  7 00          DCW   @NSKIP @                                                   6  3366                      106
702  7 01          DCW   @0NOTE @            IMPERATIVE OPERATIONS.                 6  3372                      106
703  7 02          DCW   @1BLOCK@                                                   6  3378                      106
704  7 03          DCW   @2IO   @                                                   6  3384                      106
705  7 04          DCW   @3DECID@                                                   6  3390                      106
706  7 05          DCW   @4MODFY@                                                   6  3396                      106
707  7 06          DCW   @5PREDF@                                                   6  3402                      107
708  7 07          DCW   @6START@                                                   6  3408                      107
709  7 08          DCW   @6STOP @                                                   6  3414                      107
710  7 09          DCW   @6HALT @                                                   6  3420                      107
711  7 10          DCW   @6BEGIN@                                                   6  3426                      107
712  7 11          DCW   @6WAIT @                                                   6  3432                      107
713  7 12          DCW   @6ENTER@                                                   6  3438                      108
714  7 13          DCW   @6EXIT @                                                   6  3444                      108
715  7 14          DCW   @7GOTO @                                                   6  3450                      108
716  7 15          DCW   @8SUBRT@                                                   6  3456                      108
717  7 16          DCW   @9YES  @                                                   6  3462                      108
718  7 17          DCW   @9NO   @                                                   6  3468                      108
719  7 18          DCW   @ZEND  @                                                   6  3474                      109
720  7 19   *                              INSERT ADDITIONAL OPERATIONS
721  7 20   *                              HERE.
722  7 21          DCW   @|@                 DENOTES END OF TABLE.                  1  3475                      109
723  7 22   *
724  7 23   * START PROCESS OF SYMBOL AND NONE OPERATIONS.
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD

725  7 24   *
726  7 25   TAGTO  BCE   *&5,OP,9                                                         8  3476  B D88 !6V 9        109
727  7 26          B     *&13                                                             4  3484  B E00              109
728  7 27          BCE   *&5,LSTOP,3                                                      8  3488  B E00 U12 3        109
729  7 28          B     BADQ                                                             4  3496  B 93X              109
730  7 29          BCE   *&5,LSTOP,3                                                      8  3500  B E12 U12 3        109
731  7 30          B     *&13                                                             4  3508  B E24              110
732  7 31          BCE   *&5,OP,9                                                         8  3512  B E24 !6V 9        110
733  7 32          B     BADQ                                                             4  3520  B 93X              110
734  7 33          BCE   LOPAG,OP,7                                                       8  3524  B 37V !6V 7        110
735  7 34   LGYON  MLC   OP,*&8              NO.                                          7  3532  M !6V E46          110
736  7 35          BCE   FIXOP,@789@,*       LINK, GOTO, YES OR NO OPERATION.             8  3539  B 41X !6Y *        110
737  7 36          BCE                       NO,                                          1  3547  B                  111
738  7 37          BCE                                                                    1  3548  B                  111
739  7 38   SYORN  BCE   NAMPL,OP,9                                                       8  3549  B 63V !6V 9        111
740  7 39          BCE   *&13,OP,0            NOTE OR NONE.                               8  3557  B E77 !6V 0        111
741  7 40          BCE   *&5,OP,N                                                         8  3565  B E77 !6V N        111
742  7 41          B     REMC6&7             NO                                           4  3573  B F14              111
743  7 42          BCE   REMC6&7,COL6,        YES, COL 6 BLANK. YES.                      8  3577  B F14 006          111
744  7 43          MCS   SEQNO,P&10          NO , FLAG INVALID.                           7  3585  Z X4Z 210          112
745  7 44          MLC   @LABEL NOT PERMITTED@,P&30                                       7  3592  M !8X 230          112
746  7 45          B     ADTPL                                                            4  3599  B V3X              112
747  7 46          B     WRT1                                                             4  3603  B 863              112
748  7 47   REMC6  MLC   @ @,COL6                                                         7  3607  M X6W 006          112
749  7 48          BCE   LOAYN,OP,7                                                       8  3614  B 69T !6V 7        112
750  7 49          BCE   *&5,LSTOP,7         LAST OP A GOTO                               8  3622  B F34 U12 7        113
751  7 50          B     TSHAL               NO                                           4  3630  B 77Y              113
752  7 51   *                                  YES, MOVE REST OF INPUT TO
753  7 52   *                                  OUTPUT.
754  7 53   MVRST  MLC   SEQNO,CSEQ                                                       7  3634  M X4Z 973          113
755  7 54          MLC   PAGCT,CPAGE                                                      7  3641  M U16 977          113
756  7 55          MLC   CONCT,CCOOR                                                      7  3648  M Y7S 979          113
757  7 56          MLC   OP,COPCD                                                         7  3655  M !6V 980          114
758  7 57          MLC   COL15,CINLA                                                      7  3662  M 015 990          114
759  7 58          MLC   COL20,COP                                                        7  3669  M 020 995          114
760  7 59          BCE   ASWAS,OP,6                                                       8  3676  B I15 !6V 6        114
761  7 60          BCE   GNONE,OP,N                                                       8  3684  B V5S !6V N        114
762  7 61          B     FLOAT                                                            4  3692  B F96              115
763  7 62   *
764  7 63   *
765  7 64   * THIS ROUTINE FLOATES AND CENTERS THE TEXT INFORMATION WHICH
766  7 65   * APPEARS INSIDE EACH SYMBOL.
767  7 66   *
768  7 67   FLOAT  SW    COL72&1                                                          4  3696  , 073              115
769  7 68          MLC   BLANK,COL80                                                      7  3700  M 941 080          115
770  7 69          CW    COL72&1                                                          4  3707  ) 073              115
771  7 70          MLC   @0@,FCTR#1                                                       7  3711  M !8Y !8Z          115
772  7 71          SBR   X2,0                                                             7  3718  H 094 000          115
773  7 72          SBR   X3                                                               4  3725  H 099              115
774  7 73          SBR   X1,13                                                            7  3729  H 089 013          116
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SEQ PG LIN  LABEL  OP     OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

775  7 74          B      CLTFD                CLEAR FINAL TEXT FIELDS.            4  3736  B 27/              116
776  7 75          BCE    NOFLT,COL21,         NO NEED TO FLOAT, COL 21 BLANK.     8  3740  B 29T 021          116
777  7 76   *
778  7 77   YYYYY  BCE    XXXXX,COL21&X1,                                          8  3748  B G83 0S1          116
779  7 78          MLNS   0&X1,0&X1                                                7  3756  D 0|0 0|0          116
780  7 79          SBR    X1                                                       4  3763  H 089              116
781  7 80          C      X1,X2                X1 TOO LOW.                         7  3767  C 089 094          117
782  7 81          BE     ASIS                 YES, CANNOT CENTER, 13& CHAR.       5  3774  B H89 S            117
783  7 82          B      YYYYY                                                    4  3779  B G48              117
784  7 83   *
785  7 84   XXXXX  BCE    YYYYY&8,COL20&X1,                                        8  3783  B G56 0S0          117
786  7 85          SW     COL21&X2                                                 4  3791  , 0K1              117
787  7 86          MLC    COL21-1&X1,CST1&X3                                       7  3795  M 0S0 |?8          117
788  7 87          CW     COL21&X2                                                 4  3802  ) 0K1              117
789  7 88   *
790  7 89          SBR    X3,13&X3                                                 7  3806  H 099 0A3          118
791  7 90          A      *-6,FCTR                                                 7  3813  A H13 !8Z          118
792  7 91          BCE    TRUNK,FCTR,5                                             8  3820  B 01U !8Z 5        118
793  7 92          SBR    X2,1&X1                                                  7  3828  H 094 0|1          118
794  7 93          C      COL21&X2,@  @                                            7  3835  C 0K1 X6Y          118
795  7 94          BE     FINIS                                                    5  3842  B 04Y S            119
796  7 95          C      X2,@52@                                                  7  3847  C 094 Y1/          119
797  7 96          BL     FINIS                                                    5  3854  B 04Y T            119
798  7 97          SBR    X1,13&X2                                                 7  3859  H 089 0J3          119
799  7 98          C      X1,@53@                                                  7  3866  C 089 !9/          119
800  7 99          BH     *&8                                                      5  3873  B H85 U            119
801  8 00          SBR    X1,53                                                    7  3878  H 089 053          120
802  8 01          B      YYYYY                                                    4  3885  B G48              120
803  8 02   ASIS   B      CLTFD                                                    4  3889  B 27/              120
804  8 03          MCS    SEQNO,P&10                                               7  3893  Z X4Z 210          120
805  8 04          MLC    @BOX COMMENTS NOT CENTERED@,P&36                         7  3900  M J1W 236          120
806  8 05          B      ADTPL                                                    4  3907  B V3X              120
807  8 06          B      WRT1                                                     4  3911  B 863              120
808  8 07   ASWAS  NOP                                                             1  3915  N                  121
809  8 08          MLC    BLANK,CST5           USE TEXT AS IS.                     7  3916  M 941 |60          121
810  8 09          MLC    COL72                                                    4  3923  M 072              121
811  8 10          MLC                                                             1  3927  M                  121
812  8 11          MLC                                                             1  3928  M                  121
813  8 12          MLC                                                             1  3929  M                  121
814  8 13          BCE    *&5,OP,6                                                 8  3930  B I42 !6V 6        121
815  8 14          B      NOFLT                                                    4  3938  B 29T              122
816  8 15          MLC    CST1,CST4                                                7  3942  M |08 |47          122
817  8 16          C      CST2,@             @                                     7  3949  C |21 J2Z          122
818  8 17          BE     ASWAS1                                                   5  3956  B I86 S            122
819  8 18          MCS    SEQNO,P&10                                               7  3961  Z X4Z 210          122
820  8 19          MLC    @COMMENTS TRUNCATED IN TERMINAL BOX@,P&45                7  3968  M J6T 245          122
821  8 20          B      WRT1                                                     4  3975  B 863              123
822  8 21          MLC    BLANK,CST2                                               7  3979  M 941 |21          123
823  8 22   ASWAS1 BCE    *&5,CST1-12,*                                            8  3986  B I98 996 *        123
824  8 23          B      NOFLT                                                    4  3994  B 29T              123
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SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

825  8 24          MLC   CST1&1,CST4                                                    7  3998  M |09 |47           123
826  8 25          MLC                                                                  1  4005  M                   123
827  8 26          B     NOFLT                                                          4  4006  B 29T               123
828  8 27          B     NOFLT                                                          4  4010  B 29T               124
829  8 28   *
830  8 29   TRUNK  BCE   FINIS,COL21&1&X1,                                              8  4014  B 04Y 0S2           124
831  8 30          MCS   SEQNO,P&10                                                     7  4022  Z X4Z 210           124
832  8 31          MLC   @BOX COMMENTS TRUNCATED@,P&33                                  7  4029  M J8V 233           124
833  8 32          B     ADTPL                                                          4  4036  B V3X               124
834  8 33          B     WRT1                                                           4  4040  B 863               124
835  8 34          B     FINIS                                                          4  4044  B 04Y               124
836  8 35   *
837  8 36   FINIS  MLC   @0@,CCTR#1           FIELDS HAVE BEEN BROKEN UP.               7  4048  M !8Y J8W           125
838  8 37          SBR   X1,0                 NOW CENTER.                               7  4055  H 089 000           125
839  8 38          BCE   BYPL1,OP,8           DO NOT CENTER 1ST LINE OF LINK.           8  4062  B 14Z !6V 8         125
840  8 39   FNMLC  MLC   CST1&X1,FLD                                                    7  4070  M ||8 J9Z           125
841  8 40          C     BLANK,FLD-1                                                    7  4077  C 941 J9Y           125
842  8 41          BE    SHFTL                                                          5  4084  B 17Z S             126
843  8 42          C     BLANK,FLD-3                                                    7  4089  C 941 J9W           126
844  8 43          BE    SHFTL                                                          5  4096  B 17Z S             126
845  8 44          C     BLANK,FLD-5                                                    7  4101  C 941 J9U           126
846  8 45          BE    SHFTL                                                          5  4108  B 17Z S             126
847  8 46          C     BLANK,FLD-7                                                    7  4113  C 941 J9S           126
848  8 47          BE    SHFTL                                                          5  4120  B 17Z S             127
849  8 48          C     BLANK,FLD-9                                                    7  4125  C 941 J9|           127
850  8 49          BE    SHFTL                                                          5  4132  B 17Z S             127
851  8 50          C     BLANK,FLD-11                                                   7  4137  C 941 J8Y           127
852  8 51          BE    SHFTL                                                          5  4144  B 17Z S             127
853  8 52   BYPL1  EQU   *&1                                                               4149
854  8 53          A     *-6,CCTR                                                       7  4149  A 14Z J8W           127
855  8 54          C     CCTR,FCTR                                                      7  4156  C J8W !8Z           128
856  8 55          BE    TFLOT                                                          5  4163  B 20Y S             128
857  8 56          SBR   X1,13&X1                                                       7  4168  H 089 0/3           128
858  8 57          B     FNMLC                                                          4  4175  B 07|               128
859  8 58   SHFTL  SBR   SHLRT&3                                                        4  4179  H 20X               128
860  8 59          MLC   BLANK,CST1&X1                                                  7  4183  M 941 ||8           128
861  8 60          MLC   FLD#13,CST1-1&X1                                               7  4190  M J9Z ||7           129
862  8 61          MLC   CST1&X1,FLD                                                    7  4197  M ||8 J9Z           129
863  8 62   SHLRT  B     0                                                              4  4204  B 000               129
864  8 63   *
865  8 64   TFLOT  BCE   NOFLT,OP,8           DO NOT FLOAT LINK TEXT.                   8  4208  B 29T !6V 8         129
866  8 65          C     @3@,FCTR                                                       7  4216  C K0| !8Z           129
867  8 66          BCE   SHFDW,FCTR,4                                                   8  4223  B 24Z !8Z 4         130
868  8 67          BH    NOFLT                                                          5  4231  B 29T U             130
869  8 68          BL    SHFDW                                                          5  4236  B 24Z T             130
870  8 69          B     SHFDW                                                          4  4241  B 24Z               130
871  8 70          B     NOFLT                                                          4  4245  B 29T               130
872  8 71   *
873  8 72   SHFDW  SBR   DWRET&3                                                        4  4249  H 27|               130
874  8 73          MLC   CST4,CST5                                                      7  4253  M |47 |60           130
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SEQ PG LIN  LABEL  OP    OPERANDS                                                 SFX CT  LOCN  INSTRUCTION TYPE  CARD

875  8 74          MLC                                                                 1  4260  M                  131
876  8 75          MLC                                                                 1  4261  M                  131
877  8 76          MLC                                                                 1  4262  M                  131
878  8 77          MLC   BLANK                                                         4  4263  M 941              131
879  8 78   DWRET  B     0                                                             4  4267  B 000              131
880  8 79   *
881  8 80   CLTFD  SBR   CLTFR&3                                                       4  4271  H 29S              131
882  8 81          MLC   BLANK,CST5                                                    7  4275  M 941 |60          131
883  8 82          MLC   CST5                                                          4  4282  M |60              132
884  8 83          MLC                                                                 1  4286  M                  132
885  8 84          MLC                                                                 1  4287  M                  132
886  8 85          MLC                                                                 1  4288  M                  132
887  8 86   CLTFR  B     0                                                             4  4289  B 000              132
888  8 87   *
889  8 88   *
890  8 89   NOFLT  MLC   BLANK,CX2CD         RESET EXITS TO BLANKS.                    7  4293  M 941 |98          132
891  8 90          MLC                                                                 1  4300  M                  132
892  8 91          MLC                                                                 1  4301  M                  133
893  8 92          MLC                                                                 1  4302  M                  133
894  8 93          MLC                                                                 1  4303  M                  133
895  8 94          MLC                                                                 1  4304  M                  133
896  8 95          MLC                                                                 1  4305  M                  133
897  8 96          MLC                                                                 1  4306  M                  133
898  8 97          BCE   WCOUT,OP,N          NONE OP, YES                              8  4307  B 72W !6V N        133
899  8 98          BCE   *&5,OP,6            TERMINAL OP                               8  4315  B 32X !6V 6        134
900  8 99          B     SVLST               NO                                        4  4323  B U57              134
901  9 00          BCE   WCOUT,COL21,*       YES, * IN COL 21. YES.                    8  4327  B 72W 021 *        134
902  9 01          C     COL20,@EXIT @        EXIT OP FORCES END OF LOGIC              7  4335  C 020 K0V          134
903  9 02          BE    WCOUT                                                         5  4342  B 72W S            134
904  9 03          C     COL20,@HALT @                                                 7  4347  C 020 K1|          134
905  9 04          BE    WCOUT                                                         5  4354  B 72W S            135
906  9 05          C     COL20,@STOP @                                                 7  4359  C 020 K1V          135
907  9 06          BE    WCOUT                                                         5  4366  B 72W S            135
908  9 07          B     SVLST               NO                                        4  4371  B U57              135
909  9 08   *
910  9 09   LOPAG  BCE   *&5,LSTOP,7                                                   8  4375  B 38X U12 7        135
911  9 10          B     LGYON                                                         4  4383  B E32              135
912  9 11   *
913  9 12          MCS   SEQNO,P&10                                                    7  4387  Z X4Z 210          136
914  9 13          MLC   @INVALID GOTO LOGIC@,P&29                                     7  4394  M K3T 229          136
915  9 14          B     ADTPL                                                         4  4401  B V3X              136
916  9 15          B     WRT1                                                          4  4405  B 863              136
917  9 16          SW    NOCHT                                                         4  4409  , 884              136
918  9 17          B     LGYON                                                         4  4413  B E32              136
919  9 18   *
920  9 19   FIXOP  SBR   X2,0                                                          7  4417  H 094 000          136
921  9 20          SBR   X1                                                            4  4424  H 089              137
922  9 21          C     COL21,@ @                                                     7  4428  C 021 X6W          137
923  9 22          BU    FIXOP1                                                        5  4435  B 46S /            137
924  9 23          MCS   SEQNO,P&10                                                    7  4440  Z X4Z 210          137
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

925  9 24          MLC   @INVALID OPERAND@,P&27                                 7  4447  M K4Y 227          137
926  9 25          B     WRT1                                                   4  4454  B 863              137
927  9 26          SW    NOCHT                                                  4  4458  , 884              137
928  9 27   FIXOP1 MLC   BLANK,OPFIX#10                                         7  4462  M 941 K5Y          138
929  9 28   BCEFX  BCE   OPISF,COL21&X1,,                                       8  4469  B 51/ 0S1 ,        138
930  9 29          BCE   OPISF,COL21&X1,                                        8  4477  B 51/ 0S1          138
931  9 30          MLC   COL21&X1,OPFIX-9&X1                                    7  4485  M 0S1 KUZ          138
932  9 31          SBR   X1,1&X1                                                7  4492  H 089 0|1          138
933  9 32          BCE   OPISF,X1,0         TO OPISF IF C%X1)#10                8  4499  B 51/ 089 0        139
934  9 33          B     BCEFX                                                  4  4507  B 46Z              139
935  9 34   *
936  9 35   OPISF  C     OPFIX,@LINK      @                                     7  4511  C K5Y K6Y          139
937  9 36          BU    SHIFT                                                  5  4518  B 54V /            139
938  9 37          MCS   SEQNO,P&10                                             7  4523  Z X4Z 210          139
939  9 38          MLC   @LINK IS INVALID LABEL@,P&32                           7  4530  M K8Z 232          139
940  9 39          B     ADTPL                                                  4  4537  B V3X              140
941  9 40          B     WRT1                                                   4  4541  B 863              140
942  9 41   *
943  9 42   SHIFT  BCE   *&5,OP,8            LINK OPERATION.                    8  4545  B 55X !6V 8        140
944  9 43          B     SYORN               NO.                                4  4553  B E49              140
945  9 44          SW    COL21&1&X1          YES, SHIFT OPERAND.                4  4557  , 0S2              140
946  9 45          MLC   COL21&24&X1,COL72                                      7  4561  M 0U5 072          140
947  9 46   *                                CHAIN STRIPE.
948  9 47          SBR   *&11                                                   4  4568  H 58S              140
949  9 48          CW    COL21&1&X1                                             4  4572  ) 0S2              141
950  9 49          MLC   @ @,*                                                  7  4576  M X6W 58S          141
951  9 50          MLC   @XXXX@                                                 4  4583  M K9T              141
952  9 51          MLC   DS                                                     4  4587  M 943              141
953  9 52          MLC   DS                                                     4  4591  M 943              141
954  9 53          MLC   DS                                                     4  4595  M 943              141
955  9 54          MLC   DS                                                     4  4599  M 943              141
956  9 55          MLC   DS                                                     4  4603  M 943              142
957  9 56          MLC   DS                                                     4  4607  M 943              142
958  9 57          MLC   DS                                                     4  4611  M 943              142
959  9 58          MLC   DS                                                     4  4615  M 943              142
960  9 59          MLC   DS                                                     4  4619  M 943              142
961  9 60          MLC   @ XX @                                                 4  4623  M K9X              142
962  9 61          MLC   OPFIX               ADJUSTED LABEL.                    4  4627  M K5Y              142
963  9 62          B     SYORN                                                  4  4631  B E49              143
964  9 63   *
965  9 64   NAMPL  MLC   OPFIX,CX1LA         LABEL TO EXIT1.                    7  4635  M K5Y |70          143
966  9 65          BCE   YTHNO,COL16,Y       SET CONDITION NAMES.               8  4642  B 66Y 016 Y        143
967  9 66          MLC   @NO @,CX1CD                                            7  4650  M L0| |79          143
968  9 67          MLC   @YES@,CX2CD                                            7  4657  M L0T |98          143
969  9 68          B     *&15                                                   4  4664  B 68S              143
970  9 69   YTHNO  MLC   @YES@,CX1CD                                            7  4668  M L0T |79          144
971  9 70          MLC   @NO @,CX2CD                                            7  4675  M L0| |98          144
972  9 71          MLC   OP,LSTOP                                               7  4682  M !6V U12          144
973  9 72          B     GET2                                                   4  4689  B U64              144
974  9 73   *
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                   SFX CT  LOCN  INSTRUCTION TYPE  CARD

  975  9 74  LOAYN  BCE   *&12,LSTOP,9                                                   8  4693  B 71S U12 9         144
  976  9 75         MLC   OPFIX,CX1LA                                                    7  4701  M K5Y |70           145
  977  9 76         B     *&8                                                            4  4708  B 71Z               145
  978  9 77         MLC   OPFIX,CX2LA                                                    7  4712  M K5Y |89           145
  979  9 78         SBR   GET21&3,GET2        RESET EXIT.                                7  4719  H 77X U64           145
  980  9 79  WCOUT  B     WCHRT               TO CLOSED MR1 WRITE RTN.                   4  4726  B V2|               145
  981  9 80  *
  982  9 81         A     *-6,CONCT                                                      7  4730  A 73| Y7S           145
  983  9 82         MLC   @7@,LSTOP                                                      7  4737  M Y7T U12           146
  984  9 83         BCE   *&5,CONCT-1,D                                                  8  4744  B 75W Y7/ D         146
  985  9 84         B     GET21                                                          4  4752  B 77U               146
  986  9 85         A     *-6,PAGCT                                                      7  4756  A 75W U16           146
  987  9 86         MLC   @A0@,CONCT                                                     7  4763  M Y7| Y7S           146
  988  9 87         SW    PGCHG                                                          4  4770  , 885               146
  989  9 88  GET21  B     GET2                                                           4  4774  B U64               147
  990  9 89  TSHAL  BCE   *&5,COL6,           THIS SYMBOL HAVE A LABEL.                  8  4778  B 79| 006           147
  991  9 90         B     ALYON                                                          4  4786  B 88Z               147
  992  9 91         MLC   CONCT,TEMPC#2                                                  7  4790  M Y7S L0V           147
  993  9 92         A     *-6,TEMPC                                                      7  4797  A 79X L0V           147
  994  9 93         BCE   *&12,TEMPC-1,D                                                 8  4804  B 82T L0U D         147
  995  9 94         ZA    *-6,TEMPP#4                                                    7  4812  ? 81S L0Z           148
  996  9 95         B     DTEMP                                                          4  4819  B 83X               148
  997  9 96         MLC   @A0@,TEMPC                                                     7  4823  M Y7| L0V           148
  998  9 97         ZA    &1,TEMPP                                                       7  4830  ? Y9W L0Z           148
  999  9 98  DTEMP  MLZS  *-1,TEMPP                                                      7  4837  Y 84S L0Z           148
 1000  9 99         A     PAGCT,TEMPP                                                    7  4844  A U16 L0Z           148
 1001 10 00         BCE   MVTT2,LSTOP,9                                                  8  4851  B 87U U12 9         149
 1002 10 01         MLC   TEMPC,CX1CN                                                    7  4859  M L0V |76           149
 1003 10 02         MLC   TEMPP                                                          4  4866  M L0Z               149
 1004 10 03         B     USEWT                                                          4  4870  B 91V               149
 1005 10 04  MVTT2  MLC   TEMPC,CX2CN                                                    7  4874  M L0V |95           149
 1006 10 05         MLC   TEMPP                                                          4  4881  M L0Z               149
 1007 10 06         B     USEWT                                                          4  4885  B 91V               149
 1008 10 07  ALYON  BCE   *&12,LSTOP,9                                                   8  4889  B 90Y U12 9         150
 1009 10 08         MLC   COL15,CX1LA                                                    7  4897  M 015 |70           150
 1010 10 09         B     *&8                                                            4  4904  B 91V               150
 1011 10 10         MLC   COL15,CX2LA                                                    7  4908  M 015 |89           150
 1012 10 11  *
 1013 10 12  USEWT  SBR   GET21&3,RETHR                                                  7  4915  H 77X 92W           150
 1014 10 13         B     WCOUT                                                          4  4922  B 72W               150
 1015 10 14  RETHR  SBR   GET21&3,GET2                                                   7  4926  H 77X U64           151
 1016 10 15         B     MVRST                                                          4  4933  B F34               151
 1017 10 16  *
 1018 10 17  BADQ   MCS   SEQNO,P&10                                                     7  4937  Z X4Z 210           151
 1019 10 18         MLC   @INVALID DECID SEQUENCE@,P&33                                  7  4944  M L3/ 233           151
 1020 10 19         MLC   @7@,LSTOP            FORCE TO GOTO - NO MORE ERRORS            7  4951  M Y7T U12           151
 1021 10 20         B     ADTPL                                                          4  4958  B V3X               151
 1022 10 21         B     WRT1                                                           4  4962  B 863               152
 1023 10 22         SW    NOCHT                ERROR, NO CHART PRINTED.                  4  4966  , 884               152
 1024 10 23         B     GET2                                                           4  4970  B U64               152
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 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

1025 10 24   *
1026 10 25   * CLOSED RTN USED TO FILL REST OF A CHART PAGE WITH NONE OPS.
1027 10 26   *
1028 10 27   RUNOT  SBR   RUNRT&3                                                4  4974  H /6Y              152
1029 10 28          BCE   RUNOK,LSTOP,7                                          8  4978  B |1Z U12 7        152
1030 10 29          MCS   SEQNO,P&10                                             7  4986  Z X4Z 210          152
1031 10 30          MLC   @INVALID PROGRAM LOGIC@,P&32                           7  4993  M L5S 232          152
1032 10 31          B     ADTPL                                                  4  5000  B V3X              153
1033 10 32          B     WRT1                                                   4  5004  B 863              153
1034 10 33          MLC   OP,LSTOP                                               7  5008  M !6V U12          153
1035 10 34          SW    NOCHT                                                  4  5015  , 884              153
1036 10 35   *
1037 10 36   RUNOK  C     CONCT,@A0@          PAGE FULL ANYWAY.                  7  5019  C Y7S Y7|          153
1038 10 37          BE    AROWN               YES                                5  5026  B /6/ S            153
1039 10 38   RUNMV  MLC   @N@,COPCD           NO, FORCE NONE OPS TO FILL         7  5031  M L5T 980          153
1040 10 39          MLC   CONCT,CCOOR         PAGE.                              7  5038  M Y7S 979          154
1041 10 40          MLC   SEQNO,CSEQ                                             7  5045  M X4Z 973          154
1042 10 41          BCE   *&15,OP,E                                              8  5052  B |7U !6V E        154
1043 10 42          S     &1,CSEQ               ADJUST FOR TEXT MODE             7  5060  S Y9W 973          154
1044 10 43          MLZS  *-1,CSEQ             FORCING END OF PAGE.              7  5067  Y |7S 973          154
1045 10 44          MLC   BLANK,CINLA                                            7  5074  M 941 990          155
1046 10 45          MLC   BLANK,CX2CD                                            7  5081  M 941 |98          155
1047 10 46          MLC                                                          1  5088  M                  155
1048 10 47          MLC                                                          1  5089  M                  155
1049 10 48          MLC                                                          1  5090  M                  155
1050 10 49          MLC                                                          1  5091  M                  155
1051 10 50          MLC                                                          1  5092  M                  155
1052 10 51          MLC                                                          1  5093  M                  156
1053 10 52          MLC                                                          1  5094  M                  156
1054 10 53          MLC   BLANK,CST5                                             7  5095  M 941 |60          156
1055 10 54          MLC   CST5                                                   4  5102  M |60              156
1056 10 55          MLC                                                          1  5106  M                  156
1057 10 56          MLC                                                          1  5107  M                  156
1058 10 57          MLC                                                          1  5108  M                  156
1059 10 58          MLC   BLANK,COP                                              7  5109  M 941 995          157
1060 10 59          MLC                                                          1  5116  M                  157
1061 10 60          MLC   PAGCT,CPAGE                                            7  5117  M U16 977          157
1062 10 61          B     WCHRT               WRITE OUTPUT ON MR1.               4  5124  B V2|              157
1063 10 62          A     *-6,CONCT                                              7  5128  A /2Y Y7S          157
1064 10 63          C     CONCT,@D0@          PAGE FULL.                         7  5135  C Y7S L5V          157
1065 10 64          BU    RUNMV               NO                                 5  5142  B |3/ /            157
1066 10 65          MLC   @A0@,CONCT          YES, RESET COUNT.                  7  5147  M Y7| Y7S          158
1067 10 66          A     *-6,PAGCT           UP PAGE COUNT.                     7  5154  A /5U U16          158
1068 10 67   AROWN  SW    PGCHG                                                  4  5161  , 885              158
1069 10 68   RUNRT  B     0                                                      4  5165  B 000              158
1070 10 69   *
1071 10 70   *
1072 10 71   * CLOSED RTN TO READ 1 INPUT RECORD.
1073 10 72   *
1074 10 73   GETIN  SBR   GETNR&3                                                4  5169  H /9|              158
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

1075 10 74          B     SYSIO                                                          4  5173  B 500               158
1076 10 75          DCW   &IOCON3                                                        3  5179  300                 158
1077 10 76          ORG   *-2                                                                      5178
1078 10 77          DC    &INPUT&1                                                       3  5180  001                 159
1079 10 78          DC    @R@                                                            1  5181                      159
1080 10 79          BEF   *&5                                                            5  5182  B /9/ K             159
1081 10 80   GETNR  B     0                                                              4  5187  B 000               159
1082 10 801         BCE   MESS0,LSTOP,                                                   8  5191  B S1| U12           159
1083 10 802         MLC   @END CARD MISSING,RUN TERMINATED@,P&40                         7  5199  M L8W 240           159
1084 10 803         B     WRT1                                                           4  5206  B 863               160
1085 10 810  MESS0  BW    MESS2,85                                                       8  5210  V S6Z 085 1         160
1086 10 82          BW    MESS1,NOSTOP                                                   8  5218  V S6| 803 1         160
1087 10 83          RWD   MR5                                                            5  5226  U %U3 R             160
1088 10 84          MLC   @SET UP PRINTER FOR 6 LINES/INCH.@,P&41                        7  5231  M M1Y 241           160
1089 10 85          MLC   @HIT START.@,P&52                                              7  5238  M M2Y 252           160
1090 10 86          B     MESSG                                                          4  5245  B 660               161
1091 10 87          H     444,444                                                        7  5249  . 444 444           161
1092 10 88          B     GO2                                                            4  5256  B T4Y               161
1093 10 89   MESS1  RWD   MR5                                                            5  5260  U %U3 R             161
1094 10 90          B     GO2                                                            4  5265  B T4Y               161
1095 10 91   MESS2  BW    MESS3,NOSTOP                                                   8  5269  V T2V 803 1         161
1096 10 92          RWU   MR5                                                            5  5277  U %U3 U             161
1097 10 93          MLC   @DISMOUNT MASTER TAPE 3.@,P&30                                 7  5282  M M5/ 230           162
1098 10 94          MLC   @MOUNT SCRATCH.@,P&45                                          7  5289  M M6V 245           162
1099 10 95          MLC   @SET UP PRINTER FOR 6 LINES/INCH.@,P&79                        7  5296  M M9X 279           162
1100 10 96          MLC   @HIT START.@,P&90                                              7  5303  M N0X 290           162
1101 10 97          B     MESSG                                                          4  5310  B 660               162
1102 10 98          H     444,444                                                        7  5314  . 444 444           162
1103 10 99          B     GO2                                                            4  5321  B T4Y               163
1104 11 00   MESS3  RWU   MR5                                                            5  5325  U %U3 U             163
1105 11 01          MLC   @DISMOUNT MASTER TAPE 3.@,P&32                                 7  5330  M N3| 232           163
1106 11 02          MLC   @MOUNT SCRATCH.@,P&47                                          7  5337  M N4U 247           163
1107 11 03          B     MESSG                                                          4  5344  B 660               163
1108 11 04   GO2    MLC   CARDSV&40,COL1&79    RESTOREREAD AREA                          7  5348  M T25 080           163
1109 11 05          MLC   @ @,TXTDA&137                                                  7  5355  M X6W S45           164
1110 11 06          MLC   @ @,CHTDA&137                                                  7  5362  M X6W /06           164
1111 11 07          BW    PRPCHL,PREPCH                                                  8  5369  V U6X 801 1         164
1112 11 08   EOFJOB BCE   DAEND,COL1&1,D                                                 8  5377  B U0Y 002 D         164
1113 11 09          BCE   VERIFY,COL1&1,V                                                8  5385  B U4Z 002 V         164
1114 11 10          BCE   SYSTEM,COL1&1,S                                                8  5393  B U5Y 002 S         165
1115 11 11          H     999,999                                                        7  5401  . 999 999           165
1116 11 12   DAEND  RWD   SYSTP                                                          5  5408  U %U1 R             165
1117 11 13          MLC   COL80,P&81                                                     7  5413  M 080 281           165
1118 11 14          B     WRT1                                                           4  5420  B 863               165
1119 11 15          B     WRT1                                                           4  5424  B 863               165
1120 11 16          B     WRT1                                                           4  5428  B 863               165
1121 11 17          B     WRT1                                                           4  5432  B 863               166
1122 11 18          B     WRT1                                                           4  5436  B 863               166
1123 11 19          B     SYSLNK                                                         4  5440  B 400               166
1124 11 20          DCW   @1CONA@                                                        5  5448                      166
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                 SFX CT  LOCN  INSTRUCTION TYPE  CARD

1125 11 21   VERIFY B     SYSLNK                                                        4  5449  B 400               166
1126 11 22          DCW   @5VERA@                                                       5  5457                      166
1127 11 23   SYSTEM B     SYSLNK                                                        4  5458  B 400               166
1128 11 24          DCW   @6CONA@                                                       5  5466                      167
1129 11 25   PRPCHL MLC   COL1&179,PNCHSV&40     SAVE PUNCH AREA                        7  5467  M 180 U05           167
1130                MLC   BLANK,COL1&179                                                7  5474  M 941 180           167
1131                MLC   BLANK,COL1&140                                                7  5481  M 941 141           167
1132 11 28          B     PUNCH                                                         4  5488  B 789               167
1133 11 29          MLC   PNCHSV&40,COL1&179     RESTORE PUNCH AREA                     7  5492  M U05 180           167
1134 11 30          B     EOFJOB                                                        4  5499  B T7X               168
1135 11 31   *
1136 11 32   * CLOSED ROUTINE TO WRITE TEXT DATA ON MR3.
1137 11 33   *
1138 11 34   WRTTX  SBR   WTXRT&3                                                       4  5503  H V1Z               168
1139 11 35          B     SYSIO                                                         4  5507  B 500               168
1140 11 36          DCW   &IOCON2                                                       3  5513  200                 168
1141 11 37          ORG   *-2                                                                     5512
1142 11 38          DC    &TXTDA-1                                                      3  5514  /07                 169
1143 11 39          DC    @W@                                                           1  5515                      169
1144 11 40   WTXRT  B     0                                                             4  5516  B 000               169
1145 11 41   *
1146 11 42   *
1147 11 43   * CLOSED RTN TO WRITE CHART DATA ON MR 1.
1148 11 44   *
1149 11 45   WCHRT  SBR   WCHTR&3                                                       4  5520  H V3W               169
1150 11 46          B     SYSIO                                                         4  5524  B 500               169
1151 11 47          DCW   &IOCON2                                                       3  5530  200                 169
1152 11 48          ORG   *-2                                                                     5529
1153 11 49          DC    &CHTDA-1                                                      3  5531  968                 170
1154 11 50          DC    @W@                                                           1  5532                      170
1155 11 51   WCHTR  B     0                    RETURN                                   4  5533  B 000               170
1156 11 52   *
1157 11 53   ADTPL  SBR   *&11                                                          4  5537  H V5/               170
1158 11 54          A     *-6,PLCTR     CLOSED RTN TO ADD 1 TO PRE-LIST LINE            7  5541  A V4/ X5/           170
1159 11 55          B     000                    COUNT.                                 4  5548  B 000               170
1160 11 56   *
1161 11 57   GNONE  BCE   NOFLT,COL21,         ENTER HERE TO GENERATE EXTRA             8  5552  B 29T 021           171
1162 11 58          MLC   @00@,NONCT#2          NONE OPS IF OPERAND SO                  7  5560  M N4W N4Y           171
1163 11 59          BCE   *&19,COL21&1,         SPECIFYS.                               8  5567  B V9T 022           171
1164 11 60          MLNS  COL21&1,NONCT                                                 7  5575  D 022 N4Y           171
1165 11 61          MLNS  COL21,NONCT-1                                                 7  5582  D 021 N4X           171
1166 11 62          B     *&8                                                           4  5589  B W0|               172
1167 11 63          MLNS  COL21,NONCT                                                   7  5593  D 021 N4Y           172
1168 11 64          C     NONCT,@01@                                                    7  5600  C N4Y Z2T           172
1169 11 65          BE    NOFLT                                                         5  5607  B 29T S             172
1170 11 66          BH    NOFLT                                                         5  5612  B 29T U             172
1171 11 67          B     GGNON                                                         4  5617  B W6|               172
1172 11 68   *
1173 11 69   GGONO  SBR   GET21&3,GGNON                                                 7  5621  H 77X W6|           172
1174 11 70          MLC   CONCT,CCOOR                                                   7  5628  M Y7S 979           173
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 SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

1175 11 71          MLC   PAGCT,CPAGE                                            7  5635  M U16 977           173
1176 11 72          MLC   BLANK,CX2CD                                            7  5642  M 941 |98           173
1177 11 73          MLC                                                          1  5649  M                   173
1178 11 74          MLC                                                          1  5650  M                   173
1179 11 75          MLC                                                          1  5651  M                   173
1180 11 76          MLC                                                          1  5652  M                   173
1181 11 77          MLC                                                          1  5653  M                   174
1182 11 78          MLC                                                          1  5654  M                   174
1183 11 79          MLC                                                          1  5655  M                   174
1184 11 80          B     WCOUT                                                  4  5656  B 72W               174
1185 11 81   *
1186 11 82   GGNON  SBR   GET21&3,GET2                                           7  5660  H 77X U64           174
1187 11 83          S     &1,NONCT                                               7  5667  S Y9W N4Y           174
1188 11 84          MLZS  *-1,NONCT                                              7  5674  Y W7Z N4Y           174
1189 11 85          MLC   CONCT,CCOOR                                            7  5681  M Y7S 979           175
1190 11 86          MLC   PAGCT,CPAGE                                            7  5688  M U16 977           175
1191 11 87          C     NONCT,@00@                                             7  5695  C N4Y N4W           175
1192 11 88          BE    NOFLT                                                  5  5702  B 29T S             175
1193 11 89   *
1194 11 90          C     CONCT,@C9@                                             7  5707  C Y7S N5|           175
1195 11 91          BU    GGONO                                                  5  5714  B W2/ /             175
1196 11 92   *
1197 11 93          MLC   @SKIP OPERAND CAUSES PAGE OVERFLOW@,P&44               7  5719  M N8T 244           176
1198 11 94          MCS   SEQNO,P&10                                             7  5726  Z X4Z 210           176
1199 11 95          B     WRT1                                                   4  5733  B 863               176
1200 11 96          B     NOFLT    REMOVE IF CONDITION ALLOWED.*************     4  5737  B 29T               176
1201 11 97          B     GGONO                                                  4  5741  B W2/               176
        301  SEQNO  DCW   #05                                                    5  5749              AREA    176
        308  PLCTR        #02                                                    2  5751              AREA    176
        324               @INVALID OP@                                          10  5761              LIT     177
                          @57@                                                   2  5763              LIT     177
        367  TWOCH        #02                                                    2  5765              AREA    177
                          @ @                                                    1  5766              LIT     177
                          @  @                                                   2  5768              LIT     177
        411               @CANNOT CENTER COMMENT@                               21  5789              LIT     177
        430               @CANNOT RIGHT JUSTIFY@                                20  5809              LIT     178
                          @52@                                                   2  5811              LIT     178
        469               @CANNOT FULL JUSTIFY@                                 19  5830              LIT     179
        490               @N0123456789@                                         11  5841              LIT     179
        520               @RUN TERMINATED,INPUT ERRORS@                         27  5868              LIT     180
                          @A0@                                                   2  5870              LIT     180
        542  CONCT        #02                                                    2  5872              AREA    180
                          @7@                                                    1  5873              LIT     180
        557               @EXTRA JOB CARD DELETED@                              22  5895              LIT     181
                          &1                                                     1  5896              LIT     181
        569  EJCPG        #04                                                    4  5900              AREA    181
        593               @INVALID EJECT OPERAND@                               21  5921              LIT     182
                          @01@                                                   2  5923              LIT     182
        604  SAVSP        #02                                                    2  5925              AREA    182
        611  SVCTR        #03                                                    3  5928              AREA    182
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SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD
		619			@SPACE OPERATION OVERFLOWS PAGE@		30	5958		LIT	183
		633			@NO SPACE OPERAND@		16	5974		LIT	184
		643			@BLANK OPERAND IN DRAW CTL CARD@		30	6004		LIT	185
		645			@SYMBOL@		6	6010		LIT	185
		647			@LINEDO@		6	6016		LIT	186
		649			@LINEAC@		6	6022		LIT	186
		651			@ARROWD@		6	6028		LIT	186
		653			@ARROWR@		6	6034		LIT	186
		655			@ARROWL@		6	6040		LIT	186
		657			@ARROWU@		6	6046		LIT	186
		661			@INVALID LABEL NAME@		18	6064		LIT	187
		686	OP		#01		1	6065		AREA	187
					@789@		3	6068		LIT	187
		745			@LABEL NOT PERMITTED@		19	6087		LIT	188
					@0@		1	6088		LIT	188
		771	FCTR		#01		1	6089		AREA	188
					@53@		2	6091		LIT	188
		805			@BOX COMMENTS NOT CENTERED@		25	6116		LIT	189
		817			@ @		13	6129		LIT	189
		820			@COMMENTS TRUNCATED IN TERMINAL BOX@		34	6163		LIT	190
		832			@BOX COMMENTS TRUNCATED@		22	6185		LIT	191
		837	CCTR		#01		1	6186		AREA	191
		861	FLD		#13		13	6199		AREA	191
					@3@		1	6200		LIT	191
		902			@EXIT @		5	6205		LIT	192
		904			@HALT @		5	6210		LIT	192
		906			@STOP @		5	6215		LIT	192
		914			@INVALID GOTO LOGIC@		18	6233		LIT	192
		925			@INVALID OPERAND@		15	6248		LIT	193
		928	OPFIX		#10		10	6258		AREA	193
		936			@LINK @		10	6268		LIT	193
		939			@LINK IS INVALID LABEL@		21	6289		LIT	194
					@XXXX@		4	6293		LIT	194
					@ XX @		4	6297		LIT	194
					@NO @		3	6300		LIT	194
					@YES@		3	6303		LIT	194
		992	TEMPC		#02		2	6305		AREA	194
		995	TEMPP		#04		4	6309		AREA	195
		1019			@INVALID DECID SEQUENCE@		22	6331		LIT	195
		1031			@INVALID PROGRAM LOGIC@		21	6352		LIT	196
					@N@		1	6353		LIT	196
					@DO@		2	6355		LIT	196
		1083			@END CARD MISSING,RUN TERMINATED@		31	6386		LIT	197
		1088			@SET UP PRINTER FOR 6 LINES/INCH.@		32	6418		LIT	198
		1089			@HIT START.@		10	6428		LIT	199
		1097			@DISMOUNT MASTER TAPE 3.@		23	6451		LIT	199
		1098			@MOUNT SCRATCH.@		14	6465		LIT	200
		1099			@SET UP PRINTER FOR 6 LINES/INCH.@		32	6497		LIT	201
		1100			@HIT START.@		10	6507		LIT	202
		1105			@DISMOUNT MASTER TAPE 3.@		23	6530		LIT	202

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 SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

       1106               @MOUNT SCRATCH.@                                          14  6544              LIT    203
                          @00@                                                       2  6546              LIT    203
       1162  NONCT        #02                                                        2  6548              AREA   203
                          @C9@                                                       2  6550              LIT    203
       1197               @SKIP OPERAND CAUSES PAGE OVERFLOW@                       33  6583              LIT    204
1202 11 98   *
1203 11 99          EX    START               TO PHASE 2 PIVOT.                               B 964              205
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 SEQ PG LIN  LABEL  OP    OPERANDS                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD

1204 12 00          JOB   PHASE2,PASS2
1205 12 01          DCW   @$ADD     @                                      9  6592                     208
1206 12 02          DSA   LOWP2                                            3  6595  /07                208
1207 12 03          DSA   LOWP2                                            3  6598  /07                208
1208 12 04          DSA   HIGHP2                                           3  6601  W98                208
1209 12 05          DCW   @030865@                                         6  6607                     208
1210 12 06   LOWP2  EQU   1107                                                1107
1211 12 07   HIGHP2 EQU   1698                                                1698
1212 12 08          ORG   START                                                      0964
1213 12 09   *
1214 12 10          ORG   CHTDA&138                                                  1107
1215 12 11   *
1216 12 12   FAZE3  BW    *&5,CAVAL           CHART DATA AVAILABLE.        8  1107  V /19 810 1        209
1217 12 13          B     OVLA3               NO.                          4  1115  B T61              209
1218 12 14          SW    LATAB                                            4  1119  , X00              209
1219 12 15          CS    0                                                4  1123  / 000              209
1220 12 16          SBR   X3                                               4  1127  H 099              209
1221 12 17   FAZ3C  CS    0&X3                                             4  1131  / 0?0              209
1222 12 18          SBR   X3                                               4  1135  H 099              209
1223 12 19          BW    FAZ3C,LATAB                                      8  1139  V /31 X00 1        210
1224 12 20   *
1225 12 21          SBR   X1,LATAB-1          INITIALIZE TABLE INDEX.      7  1147  H 089 W99          210
1226 12 22          CS    0                  SET LIMIT OF LABLE TABLE TO   4  1154  / 000              210
1227 12 23          SBR   X3                  HIGHEST CORE AVAILABLE, * PUT 4  1158  H 099              210
1228 12 24          MLCWA @*@,0&X3            IN LAST POSITIONS            7  1162  L U15 0?0          210
1229 12 25          MLCWA 0&X3                TO INDICATE                  4  1169  L 0?0              210
1230 12 26          MLCWA                                                  1  1173  L                  210
1231 12 27          MLCWA                                                  1  1174  L                  211
1232 12 28          MLCWA                                                  1  1175  L                  211
1233 12 29          MLCWA                                                  1  1176  L                  211
1234 12 30          MLCWA                                                  1  1177  L                  211
1235 12 31          MLCWA                                                  1  1178  L                  211
1236 12 32          MLCWA                                                  1  1179  L                  211
1237 12 33          MLCWA                                                  1  1180  L                  211
1238 12 34          MLCWA                                                  1  1181  L                  212
1239 12 35          MLCWA                                                  1  1182  L                  212
1240 12 36          MLCWA                                                  1  1183  L                  212
1241 12 37          MLCWA                                                  1  1184  L                  212
1242 12 38          MLCWA                                                  1  1185  L                  212
1243 12 39          MLCWA                                                  1  1186  L                  212
1244 12 40          MLCWA                                                  1  1187  L                  212
1245 12 41          MLCWA                                                  1  1188  L                  213
1246 12 42          MLCWA                                                  1  1189  L                  213
1247 12 43          MLCWA                                                  1  1190  L                  213
1248 12 44          MLCWA                                                  1  1191  L                  213
1249 12 45          MLCWA                                                  1  1192  L                  213
1250 12 46          BW    *&5,LABSW          ANY LABLES AVAILABLE          8  1193  V S05 886 1        213
1251 12 47          B     OVLA3              NO                            4  1201  B T61              213
1252 12 48   *
1253 12 49   RD3    B     RDCHT               TO CLOSED READ ROUTINE.      4  1205  B T84              214
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 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

1254 12 50          BCE   RD3,CHTDA-1,0       IF TEXT READ NEXT RECORD            8  1209  B S05 968 0         214
1255 12 51          BCE   RD3,CINLA-9,        NO LABEL                            8  1217  B S05 981           214
1256 12 52          MLCWA CINLA,10&X1        PUT LABEL IN TABLE                   7  1225  L 990 0/0           214
1257 12 53          MLNS  CCOOR,16&X1        CONNECTOR                            7  1232  D 979 0/6           214
1258 12 54          MLC                                                           1  1239  M                   214
1259 12 55          MLNS  CPAGE,14&X1                                             7  1240  D 977 0/4           215
1260 12 56          MLC                                                           1  1247  M                   215
1261 12 57          SBR   X1,16&X1           TABLE FULL                           7  1248  H 089 0/6           215
1262 12 58          BCE   TBFUL,1&X1,*        YES IF * FOUND.                     8  1255  B S67 0|1 *         215
1263 12 59          B     RD3                 NO, GET NEXT CHART RECORD.          4  1263  B S05               215
1264 12 60   *
1265 12 61   TBFUL  B     EJECT                                                   4  1267  B 704               215
1266 12 62          B     WRT1                                                    4  1271  B 863               215
1267 12 63          MLC   JOBHD,P&92                                              7  1275  M 862 292           216
1268 12 64          B     WRT1                                                    4  1282  B 863               216
1269 12 65          MLC   @ CAUSES LABEL TABLE OVERFLOW@,P&48                     7  1286  M U43 248           216
1270 12 66          MLC   CINLA               LABEL AND SEQNO WHICH CAUSED        4  1293  M 990               216
1271 12 67          MCS   SEQNO,P&6          TABLE OVERFLOW                       7  1297  Z X4Z 206           216
1272 12 68          B     WRTSK               WRITE AFTER RESTORE.                4  1304  B 863               216
1273 12 69          MLC   @ @,CHTDA                                               7  1308  M U44 969           217
1274 12 70          MLC   @ @,CHTDA&137                                           7  1315  M U44 /06           217
1275 12 71   RWDS3  BSP   SYSTP                                                   5  1322  U %U1 B             217
1276 12 72          BSP   SYSTP                                                   5  1327  U %U1 B             217
1277 12 73          BSP   SYSTP                                                   5  1332  U %U1 B             217
1278 12 74          BSP   SYSTP                                                   5  1337  U %U1 B             217
1279 12 75          BSP   SYSTP                                                   5  1342  U %U1 B             217
1280 12 76          BSP   SYSTP                                                   5  1347  U %U1 B             218
1281 12 77          B     SYSLNK              TO NEXT JOB                         4  1352  B 400               218
1282 12 78          DCW   @4CHTA@                                                 5  1360                      218
1283 12 79   *
1284 12 80   OVLA3  MLC   @ @,CHTDA          CLEAR GMWM FOR NEXT PHASE            7  1361  M U44 969           218
1285 12 81          MLC   @ @,CHTDA&137                                           7  1368  M U44 /06           218
1286 12 82          B     SYSLNK                                                  4  1375  B 400               218
1287 12 83          DCW   @4CHTD@             TO NEXT PHASE                       5  1383                      218
1288 12 84   *
1289 12 85   * CLOSED ROUTINE TO READ CHART DATA FROM MR1.
1290 12 86   *
1291 12 87   RDCHT  SBR   RD3RT&3                                                 4  1384  H U05               219
1292 12 88          B     SYSIO                                                   4  1388  B 500               219
1293 12 89          DCW   &IOCON2                                                 3  1394  200                 219
1294 12 90          ORG   *-2                                                          1393
1295 12 91          DC    &CHTDA-1                                                3  1395  968                 220
1296 12 92          DC    @R@                                                     1  1396                      220
1297 12 93          BEF   *&5                                                     5  1397  B U06 K             220
1298 12 94   RD3RT  B     0                   RETURN.                             4  1402  B 000               220
1299 12 95   *
1300 12 96          RWD   MR1                 END OF FILE.                        5  1406  U %U2 R             220
1301 12 97          B     OVLA3               TO PHASE 4.                         4  1411  B T61               220
                    DCW   @*@                                                     1  1415             LIT    221
        1269              @ CAUSES LABEL TABLE OVERFLOW@                         28  1443             LIT    221
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 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

                          @ @                                                    1  1444              LIT    221
1302 12 98   *
1303 12 99          EX    START                                                       B 964               222
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 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

1304 13 00          JOB   PHASE2,PASS3
1305 13 01          DCW   @$ADD     @                                              9  1453                    225
1306 13 02          DSA   LOWP3                                                    3  1456  /07               225
1307 13 03          DSA   LOWP3                                                    3  1459  /07               225
1308 13 04          DSA   HIGHP3                                                   3  1462  W98               225
1309 13 05          DCW   @030865@                                                 6  1468                    225
1310 13 06   LOWP3  EQU   1107                                                        1107
1311 13 07   HIGHP3 EQU   1698                                                        1698
1312 13 08          ORG   START                                                         0964
1313 13 09   *
1314 13 10          ORG   CHTDA&138                                                     1107
1315 13 11   *
1316 13 12   FAZE4  SBR   X3,0&X1              LIMIT OF LABEL TABLE.               7  1107  H 099 0|0         226
1317 13 13          SW    CHTDA&137           FOR GMWM ON OUTPUT                   4  1114  , /06             226
1318 13 14          BW    *&5,CAVAL                                                8  1118  V /30 810 1       226
1319 13 15          B     OVLY4                                                    4  1126  B V91             226
1320 13 16   *
1321 13 17   RD4    B     RD41                 TO CLOSED READ ROUTINE.             4  1130  B V40             226
1322 13 18          BCE   WRTM2,CHTDA-1,0      IF TEXT RECORD WO AND RD NEXT RC    8  1134  B V26 968 0       226
1323 13 19   *
1324 13 20          BCE   SIFX2,CX1LA-9,      NO EXIT1 LABEL                       8  1142  B /76 |61         227
1325 13 21          MLC   CX1LA,LOOKL                                              7  1150  M |70 V15         227
1326 13 22          A     *-6,CSEQ                                                 7  1157  A /57 973         227
1327 13 23          B     LOOK                 TO CLOSED LOOK UP RTN.              4  1164  B T27             227
1328 13 24          MLC   LOOKC,CX1CN                                              7  1168  M V05 |76         227
1329 13 25          MLC                                                            1  1175  M                 227
1330 13 26   *
1331 13 27   SIFX2  BCE   SIFLK,CX2LA-9,      NO TXIT2 LABEL                       8  1176  B S10 |80         228
1332 13 28          MLC   CX2LA,LOOKL                                              7  1184  M |89 V15         228
1333 13 29          A     *-6,CSEQ                                                 7  1191  A /91 973         228
1334 13 30          B     LOOK                                                     4  1198  B T27             228
1335 13 31          MLC   LOOKC,CX2CN                                              7  1202  M V05 |95         228
1336 13 32          MLC                                                            1  1209  M                 228
1337 13 33   *
1338 13 34   SIFLK  BCE   *&5,COPCD,8          LINK OPERATION.                     8  1210  B S22 980 8       229
1339 13 35          B     WRTM2                NO                                  4  1218  B V26             229
1340 13 36   *
1341 13 37          MLC   CST1-3,LOOKL        YES                                  7  1222  M |05 V15         229
1342 13 38          B     LOOK                                                     4  1229  B T27             229
1343 13 39          MLC   LOOKC,CST1                                               7  1233  M V05 |08         229
1344 13 40          MCS   LOOKP,CST2                                               7  1240  Z V03 |21         229
1345 13 41          BCE   DOT1,CST2-3,                                             8  1247  B S59 |18         230
1346 13 42          B     SIFLK1                                                   4  1255  B T23             230
1347 13 43   DOT1   MLC   @.@,CST2-3                                               7  1259  M W00 |18         230
1348 13 44          BCE   DOT2,CST2-2,                                             8  1266  B S78 |19         230
1349 13 45          B     SIFLK1                                                   4  1274  B T23             230
1350 13 46   DOT2   MLC   @.@,CST2-2                                               7  1278  M W00 |19         230
1351 13 47          BCE   DOT3,CST2-1,                                             8  1285  B S97 |20         231
1352 13 48          B     SIFLK1                                                   4  1293  B T23             231
1353 13 49   DOT3   MLC   @.@,CST2-1                                               7  1297  M W00 |20         231
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

1354 13 50          BCE   DOT4,CST2,                                                   8  1304  B T16 |21            231
1355 13 51          B     SIFLK1                                                       4  1312  B T23                231
1356 13 52   DOT4   MLC   @.@,CST2                                                     7  1316  M W00 |21            231
1357 13 53   SIFLK1 B     WRTM2                                                        4  1323  B V26                232
1358 13 54   *
1359 13 55   * CLOSED LABEL TABLE LOOK UP ROUTINE.
1360 13 56   *
1361 13 57   LOOK   SBR   LOOKR&3                                                      4  1327  H U99                232
1362 13 58          MLC   BLK6,LOOKC          RESET CONNECTOR AND PAGE HOLD            7  1331  M V25 V05            232
1363 13 59          MLC                       AREAS.                                   1  1338  M                    232
1364 13 60          SBR   X1,LATAB-1          INITIALIZE LOOK UP INDEX.                7  1339  H 089 W99            232
1365 13 61   *
1366 13 62   LOKCM  C     10&X1,LOOKL                                                  7  1346  C 0/0 V15            232
1367 13 63          BE    LKFWD                                                        5  1353  B U54 S              232
1368 13 64          SBR   X1,16&X1                                                     7  1358  H 089 0/6            233
1369 13 65          C     10&X1,BLK6                                                   7  1365  C 0/0 V25            233
1370 13 66          BE    *&13                                                         5  1372  B T89 S              233
1371 13 67          C     X1,X3               END OF TABLE.                            7  1377  C 089 099            233
1372 13 68          BU    LOKCM               NO, TRY NEXT ENTRY.                      5  1384  B T46 /              233
1373 13 69   *
1374 13 691         BW    LOOKR,NONO                                                   8  1389  V U96 805 1          233
1375 13 70   *                                  YES, INDICATE UNDEFINED LABEL.
1376 13 71          BW    MOVEND,EJCTFL                                                8  1397  V U28 809 1          234
1377 13 72          B     EJECT                                                        4  1405  B 704                234
1378 13 73          MLC   JOBHD,P&92                                                   7  1409  M 862 292            234
1379 13 74          B     WRT1                                                         4  1416  B 863                234
1380 13 75          B     WRT1                                                         4  1420  B 863                234
1381 13 76          SW    EJCTFL                                                       4  1424  , 809                234
1382 13 77   MOVEND MLC   @ IS NOT DEFINED@,P&32                                       7  1428  M W15 232            234
1383 13 78          MLC   LOOKL                                                        4  1435  M V15                235
1384 13 79          MCS   CSEQ,P&6                                                     7  1439  Z 973 206            235
1385 13 80          B     WRT1                                                         4  1446  B 863                235
1386 13 81          B     LOOKR                                                        4  1450  B U96                235
1387 13 82   *
1388 13 83   LKFWD  MLNS  16&X1,LOOKC        MOVE CONNECTOR AND PAGE TO                7  1454  D 0/6 V05            235
1389 13 84          MLC                       TO HOLD AREAS. SUPPRES ZONES             1  1461  M                    235
1390 13 85          MLNS  14&X1,LOOKP        IN LOW ORDER POSITIONS WHICH              7  1462  D 0/4 V03            235
1391 13 86          MLC                       ARE USED AS FLAGS FOR NEXT PHASE         1  1469  M                    236
1392 13 87   *
1393 13 88          C     CPAGE,LOOKP         ON PAGE CONNECTION.                      7  1470  C 977 V03            236
1394 13 89          BE    *&8                 YES.                                     5  1477  B U89 S              236
1395 13 90          MLZS  @-@,14&X1          NO,FLAG OFF PAGE.                         7  1482  Y W16 0/4            236
1396 13 91          MLZS  @-@,16&X1          FLAG LABEL IS USED.                       7  1489  Y W16 0/6            236
1397 13 92   *
1398 13 93   LOOKR  B     0                   RETURN.                                  4  1496  B 000                236
1399 13 94   LOOKP  DCW   #4                                                           4  1503                       236
1400 13 95   LOOKC  DCW   #2                                                           2  1505                       237
1401 13 96   LOOKL  DCW   #10                                                         10  1515                       237
1402 13 97   BLK6   DCW   @          @       10 BLANKS                                10  1525                       237
1403 13 98   *
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 SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

1404 13 99   WRTM2  NOP                                                                1  1526  N                  237
1405 14 00          B     SYSIO                                                        4  1527  B 500              237
1406 14 01          DCW   &IOCON4                                                      3  1533  400                237
1407 14 02          ORG   *-2                                                                    1532
1408 14 03          DC    &CHTDA-1                                                     3  1534  968                238
1409 14 04          DC    @W@                                                          1  1535                     238
1410 14 05          B     RD4                                                          4  1536  B /30              238
1411 14 06   *
1412 14 07   *
1413 14 08   * CLOSED RTN TO READ CHART DATA ON MR1.
1414 14 09   *
1415 14 10   RD41   SBR   RD41R&3                                                      4  1540  H V61              238
1416 14 11          B     SYSIO                                                        4  1544  B 500              238
1417 14 12          DCW   &IOCON2                                                      3  1550  200                238
1418 14 13          ORG   *-2                                                                    1549
1419 14 14          DC    &CHTDA-1                                                     3  1551  968                239
1420 14 15          DC    @R@                                                          1  1552                     239
1421 14 16          BEF   *&5                  END OF FILE.                            5  1553  B V62 K            239
1422 14 17   RD41R  B     0                    NO, RETURN.                             4  1558  B 000              239
1423 14 18   *
1424 14 19          RWD   MR1                                                          5  1562  U %U2 R            239
1425 14 20          WTM   MR2                                                          5  1567  U %U4 M            239
1426 14 21          RWD   MR2                                                          5  1572  U %U4 R            240
1427 14 22          MLC   @ @,CHTDA           CLEAR GMWM FOR NEXT PHASE                7  1577  M W17 969          240
1428 14 23          MLC   @ @,CHTDA&137                                                7  1584  M W17 /06          240
1429 14 24   OVLY4  B     SYSLNK               TO NEXT PHASE                           4  1591  B 400              240
1430 14 25          DCW   @4CHTE@                                                      5  1599                     240
1431 14 26   *
1432 14 27          LTORG *                                                                          1600
                    DCW   @.@                                                          1  1600             LIT    240
        1382              @ IS NOT DEFINED@                                           15  1615             LIT    241
                          @-@                                                          1  1616             LIT    241
                          @ @                                                          1  1617             LIT    241
1433 14 28          ORG   1700                                                                       1700
1434 14 29   LATAB  EQU   *&1                  COMMON TO PHASES 3, 4, AND 5.              1700
1435 14 30   *                                   IN PHASES 3, 4 AND 5.
1436 14 31          EX    START                                                                 B 964              242
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 SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD

1437 14 32          JOB   PHASE2,PASS4
1438 14 33          DCW   @$ADD     @                                                9  1708                      245
1439 14 34          DSA   LOWP4                                                      3  1711  /07                 245
1440 14 35          DSA   LOWP4                                                      3  1714  /07                 245
1441 14 36          DSA   HIGHP4                                                     3  1717  W98                 245
1442 14 37          DCW   @030865@                                                   6  1723                      245
1443 14 38   LOWP4  EQU   1107                                                          1107
1444 14 39   HIGHP4 EQU   1698                                                          1698
1445 14 40   *
1446 14 41   *              THIS PHASE ALSO PRINTS ANY UNREFERENCED LABELS.
1447 14 42   *
1448 14 43          ORG   START                                                              0964
1449 14 44          ORG   CHTDA&138                                                          1107
1450 14 45   *
1451 14 46   FAZE5  BW    *&5,CAVAL           CHART DATA AVAILABLE.                  8  1107  V /19 810 1         246
1452 14 47          B     OVLY5               BYPASS THIS PHASE.                     4  1115  B T99               246
1453 14 48          SW    CHTDA&137          FOR GMWM ON OUTPUT                      4  1119  , /06               246
1454 14 49   *
1455 14 50          B     WRT1                                                       4  1123  B 863               246
1456 14 51          C     6&X1,AB6#6                                                 7  1127  C 0|6 U37           246
1457 14 52          BE    FAZ5A                                                      5  1134  B S39 S             246
1458 14 53          SBR   X1,LATAB-1          INTIALIZE TABLE X-REG.                 7  1139  H 089 W99           246
1459 14 54   *
1460 14 550  BMUNR  BM    UNSBR,16&X1        LABEL USED                              8  1146  V /66 0/6 K         247
1461 14 551         BW    UNSBR,NONO                                                 8  1154  V /66 805 1         247
1462 14 56          B     UNREF               NO, TO PRINT RTN AND RETURN.           4  1162  B /89               247
1463 14 57   UNSBR  SBR   X1,16&X1           YES.                                    7  1166  H 089 0/6           247
1464 14 58          C     X1,X3               END OF TABLE.                          7  1173  C 089 099           247
1465 14 59          BU    BMUNR               NO.                                    5  1180  B /46 /             247
1466 14 60          B     FAZ5A               YES, TO FLAG ROUTINE.                  4  1185  B S39               248
1467 14 61   *
1468 14 62   UNREF  BW    UNREF1,EJCTFL                                              8  1189  V S20 809 1         248
1469 14 63          B     EJECT                                                      4  1197  B 704               248
1470 14 64          SW    EJCTFL                                                     4  1201  , 809               248
1471 14 65          MLC   JOBHD,P&92                                                 7  1205  M 862 292           248
1472 14 66          B     WRT1                                                       4  1212  B 863               248
1473 14 67          B     WRT1                                                       4  1216  B 863               248
1474 14 68   UNREF1 MLC   @ IS NOT REFERENCED@,P&35                                  7  1220  M U55 235           249
1475 14 69          MLC   10&X1                                                      4  1227  M 0/0               249
1476 14 70          B     WRT1                                                       4  1231  B 863               249
1477 14 71          B     UNSBR                                                      4  1235  B /66               249
1478 14 72   *
1479 14 73   *
1480 14 74   * START OF ROUTINES TO FLAG OFF PAGE ENTRANCES.
1481 14 75   *
1482 14 76   FAZ5A  B     RED52                                                      4  1239  B T72               249
1483 14 77          BCE   WOTXT,CHTDA-1,0     IF TEXT WO AND READ NEXT RECORD        8  1243  B T59 968 0         249
1484 14 78          MLC   BLANK,CFLAG                                                7  1251  M 941 /05           249
1485 14 79          BCE   WMR1A,CINLA-9,     INCOMING LABEL.NO.                      8  1258  B T39 981           250
1486 14 80          SBR   X1,LATAB-1          YES.                                   7  1266  H 089 W99           250
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 SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD

1487 14 81          C     6&X1,AB6                                                7  1273  C 0|6 U37           250
1488 14 82          BE    WMR1A                                                   5  1280  B T39 S             250
1489 14 83   *
1490 14 84   FAZCM  C     CINLA,10&X1         MATCH TO TABLE                      7  1285  C 990 0/0           250
1491 14 85          BE    FLAGO                FOUND. YES.                        5  1292  B T20 S             250
1492 14 86          SBR   X1,16&X1            NO, TRY NEXT.                       7  1297  H 089 0/6           251
1493 14 87          C     X1,X3                                                   7  1304  C 089 099           251
1494 14 88          BU    FAZCM                                                   5  1311  B S85 /             251
1495 14 89          B     WMR1A                                                   4  1316  B T39               251
1496 14 90   *
1497 14 91   FLAGO  BM    *&5,14&X1           FLAG ON.                            8  1320  V T32 0/4 K         251
1498 14 92          B     WMR1A                NO.                                4  1328  B T39               251
1499 14 93          MLC   @1@,CFLG1            FLAG OFF PAGE ENTRANCE.            7  1332  M U56 |99           252
1500 14 94   *
1501 14 95   WMR1A  NOP                                                           1  1339  N                   252
1502 14 96          BCE   *&5,COPCD,8          LINK OPERATION.                    8  1340  B T52 980 8         252
1503 14 97          B     *&8                                                     4  1348  B T59               252
1504 14 98          MLC   @1@,COPCD                                               7  1352  M U56 980           252
1505 14 99   WOTXT  B     SYSIO                                                   4  1359  B 500               252
1506 15 00          DCW   &IOCON2                                                 3  1365  200                 252
1507 15 01          ORG   *-2                                                            1364
1508 15 02          DC    &CHTDA-1                                                3  1366  968                 253
1509 15 03          DC    @W@                                                     1  1367                      253
1510 15 04          B     FAZ5A                BACK TO READ NEXT RECORD.          4  1368  B S39               253
1511 15 05   *
1512 15 06   *
1513 15 07   * CLOSED RTN TO READ MR2 MODIFIED CHART DATA.
1514 15 08   *
1515 15 09   RED52  SBR   RED5R&3                                                 4  1372  H T93               253
1516 15 10          B     SYSIO                                                   4  1376  B 500               253
1517 15 11          DCW   &IOCON4                                                 3  1382  400                 253
1518 15 12          ORG   *-2                                                            1381
1519 15 13          DC    &CHTDA-1                                                3  1383  968                 254
1520 15 14          DC    @R@                                                     1  1384                      254
1521 15 15          BEF   *&5                                                     5  1385  B T94 K             254
1522 15 16   RED5R  B     0                                                       4  1390  B 000               254
1523 15 17   *
1524 15 18          WTM   MR1                  CLOSE TAPES. NO TM IF THIS         5  1394  U %U2 M             254
1525 15 19   OVLY5  RWD   MR1                  PHASE BYPASSED.                    5  1399  U %U2 R             254
1526 15 20          RWD   MR2                                                     5  1404  U %U4 R             255
1527 15 21          MLC   @ @,CHTDA&137                                           7  1409  M U57 /06           255
1528 15 22          MLC   @ @,CHTDA                                               7  1416  M U57 969           255
1529 15 23          B     SYSLNK                                                  4  1423  B 400               255
1530 15 24          DCW   @4CHTF@                                                 5  1431                      255
        1456 AB6    DCW   #06                                                     6  1437            AREA      255
        1474              @ IS NOT REFERENCED@                                   18  1455            LIT       256
                          @1@                                                     1  1456            LIT       256
                          @ @                                                     1  1457            LIT       256
1531 15 25          EX    START                TO PHASE 5 PIVOT.                           B 964               257
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 SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

1532 15 26          JOB   PHASE2,SYMBL TABLE PRINT
1533 15 27          DCW   @$ADD     @                                            9  1466                    260
1534 15 28          DSA   START                                                  3  1469  964               260
1535 15 29          DSA   START                                                  3  1472  964               260
1536 15 30          DSA   HIGH5A                                                 3  1475  W98               260
1537 15 31          DCW   @030865@                                               6  1481                    260
1538 15 32   HIGH5A EQU   1698                                                      1698
1539 15 33          ORG   START                                                          0964
1540 15 34          B     FAZE5A             PIVOT TO NEXT INSTRUCTION.          4  0964  B 968             261
1541 15 35   *
1542 15 36   * CHTDA IS NOW OVERLAYED SINCE NEXT PHASES HAVE THEIR OWN DA-S.
1543 15 37   *
1544 15 38   FAZE5A BW    *&5,LABSW         ANY LABELS TO BE PRINTED.            8  0968  V 980 886 1       261
1545 15 39          B     TOV5A                 NO.                              4  0976  B /49             261
1546 15 40   *
1547 15 41          B     FAZ5H               PRINT HEADING                      4  0980  B /58             261
1548 15 42          SBR   X1,LATAB-1           SORT LABEL TABLE.                 7  0984  H 089 W99         261
1549 15 43   SORT   SBR   X2,0&X1                                                7  0991  H 094 0|0         261
1550 15 44   SORT2  SBR   X2,16&X2                                               7  0998  H 094 0J6         262
1551 15 45          C     X2,X3                                                  7  1005  C 094 099         262
1552 15 46          BE    SORT1                                                  5  1012  B |54 S           262
1553 15 47          C     10&X2,10&X1                                            7  1017  C 0J0 0/0         262
1554 15 48          BL    SORT2                                                  5  1024  B 998 T           262
1555 15 49          MLC   16&X1,SVLT#16                                          7  1029  M 0/6 S38         262
1556 15 50          MLC   16&X2,16&X1        YES.                                7  1036  M 0J6 0/6         263
1557 15 51          MLC   SVLT,16&X2                                             7  1043  M S38 0J6         263
1558 15 52          B     SORT2                                                  4  1050  B 998             263
1559 15 53   *
1560 15 54   SORT1  MLC   16&X1,TEMPS                                            7  1054  M 0/6 S22         263
1561 15 55          MLC                                                          1  1061  M                 263
1562 15 56          MLC                                                          1  1062  M                 263
1563 15 57   *
1564 15 58          MLNS  TEMPS,P&25          PRINT SIFTED TABLE ENTRY.          7  1063  D S22 225         263
1565 15 59          MLC                                                          1  1070  M                 264
1566 15 60          MCS   TEMPS-2,P&22                                           7  1071  Z S20 222         264
1567 15 61          C     TEMPS-6,LSTTS#10                                       7  1078  C S16 S48         264
1568 15 62          MLC   TEMPS-6,LSTTS                                          7  1085  M S16 S48         264
1569 15 63          BU    *&8                                                    5  1092  B /04 /           264
1570 15 64          MLC   @MULTIPLY DEFINED@,P&42                                7  1097  M S64 242         264
1571 15 65          MLC   TEMPS-6,P&17                                           7  1104  M S16 217         265
1572 15 66          B     WRT1                                                   4  1111  B 863             265
1573 15 67          A     *-6,SYMCT                                              7  1115  A /15 S88         265
1574 15 68          BCE   FAZ5H,SYMCT-1,7                                        8  1122  B /58 S87 7       265
1575 15 69          SBR   X1,16&X1                                               7  1130  H 089 0/6         265
1576 15 70          C     X1,X3               MORE TO BE SORTED.                 7  1137  C 089 099         266
1577 15 71          BU    SORT                YES                                5  1144  B 991 /           266
1578 15 72   *                                  NO, TO NEXT PHASE
1579 15 73   TOV5A  B     SYSLNK                                                 4  1149  B 400             266
1580 15 74          DCW   @4CHTG@                                                5  1157                    266
1581 15 75   *
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                   SFX CT  LOCN  INSTRUCTION TYPE  CARD

1582 15 76   FAZ5H  SBR   FAZ5R&3                                                         4  1158  H S06              266
1583 15 77          B     EJECT                                                           4  1162  B 704              266
1584 15 78          MLC   JOBHD,P&92                                                      7  1166  M 862 292          266
1585 15 79          B     WRT1                                                            4  1173  B 863              267
1586 15 80          B     WRT1                                                            4  1177  B 863              267
1587 15 81          MLC   @LABEL      DEFINED AT@,P&28                                    7  1181  M S85 228          267
1588 15 82          B     WRTSK                                                           4  1188  B 863              267
1589 15 83          B     WRT1                                                            4  1192  B 863              267
1590 15 84          SBR   SYMCT#3,0                                                       7  1196  H S88 000          267
1591 15 85   FAZ5R  B     0                                                               4  1203  B 000              267
1592 15 86          DCW   #10                                                            10  1216                     268
1593 15 87          DCW   #4                                                              4  1220                     268
1594 15 88   TEMPS  DCW   #2                                                              2  1222                     268
        1555 SVLT   DCW   #16                                                            16  1238             AREA    268
        1567 LSTTS        #10                                                            10  1248             AREA    269
        1570              @MULTIPLY DEFINED@                                             16  1264             LIT     269
        1587              @LABEL      DEFINED AT@                                        21  1285             LIT     270
        1590 SYMCT        #03                                                             3  1288             AREA    270
1595 15 89          EX    START                                                                B 964              271
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 SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD

1596 15 90          JOB   PHASE2,PASS5
1597 15 91          DCW   @$ADD     @                                                9  1297                     274
1598 15 92          DSA   START                                                      3  1300  964                274
1599 15 93          DSA   START                                                      3  1303  964                274
1600 15 94          DSA   HIGHP5                                                     3  1306  !00                274
1601 15 95          DCW   @030865@                                                   6  1312                     274
1602 15 96   HIGHP5 EQU   2000                                                          2000
1603 15 97          ORG   START                                                              0964
1604 15 98   *
1605 15 99          B     FAZ5B               PIVOT TO 1ST INSTRUCTION.              4  0964  B /07              275
1606 16 00          DCW   #1                                                         1  0968                     275
1607 16 01   BRARA  DA    1X137,C                                                       0969   1105              279
1608 16 02   BRTPG        6,9                 THIS PAGE.                                0977            FIELD  279
1609 16 03   BRTCO        10,11               THIS COORDINATE                           0979            FIELD  279
1610 16 04   BRE1L        93,102             EXIT 1,LABEL                               1070            FIELD  279
1611 16 05   BRE1P        103,106                   PAGE                                1074            FIELD  280
1612 16 06   BRE1C        107,108                   CONNECTOR.                          1076            FIELD  280
1613 16 07   BRE2L        112,121            EXIT 2,LABEL                               1089            FIELD  280
1614 16 08   BRE2P        122,125                   PAGE                                1093            FIELD  280
1615 16 09   BRE2C        126,127                   CONNECTOR.                          1095            FIELD  280
1616 16 10          DCW   #1                                                         1  1106                     280
1617 16 11   *
1618 16 12   FAZ5B  SBR   X1,BRTAB-1          INITIALIZE TABLE INDEX.                7  1107  H 089 X73          280
1619 16 13          BW    *&5,LABSW                                                  8  1114  V /26 886 1        281
1620 16 14          B     ND5B                                                       4  1122  B T32              281
1621 16 15          BW    ND5B,REFTBL                                                8  1126  V T32 804 1        281
1622 16 16          MLC   GPMARK,BRARA&137                                           7  1134  M 942 /06          281
1623 16 17   READ5  NOP                                                              1  1141  N                  281
1624 16 18   *
1625 16 19          B     SYSIO                                                      4  1142  B 500              281
1626 16 20          DCW   &IOCON4                                                    3  1148  400                281
1627 16 21          ORG   *-2                                                                1147
1628 16 22          DC    &BRARA-1                                                   3  1149  968                282
1629 16 23          DC    @R@                                                        1  1150                     282
1630 16 24          BEF   CLOZ5                                                      5  1151  B T23 K            282
1631 16 25          BCE   READ5,BRARA-1,0                                            8  1156  B /41 968 0        282
1632 16 26   *
1633 16 27          BCE   *&5,BRTCO&1,8       LINK.                                  8  1164  B /76 980 8        282
1634 16 28          B     BRTC1                                                      4  1172  B S01              282
1635 16 29          MLC   BRTCO&29,SAVBR     YES,SAVE LINK CONNECTOR                 7  1176  M |08 X17          283
1636 16 30          MLC   BRTCO&42,SAVBR-2   PAGE                                    7  1183  M |21 X15          283
1637 16 31          MLC   BRTCO&26,SAVBR-6   LABEL                                   7  1190  M |05 X11          283
1638 16 32          B     TSTEX               TEST TO SEE IF IT GOES IN TABLE.       4  1197  B S47              283
1639 16 33   BRTC1  EQU   *&1                                                           1201
1640 16 34          BCE   BRTC2,BRE1L-9,      EXIT1 LABEL.NO.                        8  1201  B S22 |61          283
1641 16 35          MLC   BRE1C,SAVBR#16      YES,SAVE EXIT1                         7  1209  M |76 X17          284
1642 16 36          MLC                                                              1  1216  M                  284
1643 16 37          MLC                                                              1  1217  M                  284
1644 16 38          B     TSTEX               TO CLOSED TEST ROUTINE.                4  1218  B S47              284
1645 16 39   *
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 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

1646 16 40   BRTC2  BCE   READ5,BRE2L-9,      EXIT2 LABEL.NO.                      8  1222  B /41 |80          284
1647 16 41          MLC   BRE2C,SAVBR         YES, SAVE EXIT 2.                    7  1230  M |95 X17          284
1648 16 42          MLC                                                            1  1237  M                  284
1649 16 43          MLC                                                            1  1238  M                  285
1650 16 44          B     TSTEX               TO CLOSED TEST ROUTINE.              4  1239  B S47              285
1651 16 45          B     READ5               GET NEXT RECORD.                     4  1243  B /41              285
1652 16 46   *
1653 16 47   *
1654 16 48   TSTEX  SBR   TSTER&3             SAVE FOR RETURN.                     4  1247  H T22              285
1655 16 49          C     SAVBR-2,BRTPG       SAVED PAGE EQUAL THIS PAGE.          7  1251  C X15 977          285
1656 16 50          BU    PUTBR               NO, CAN BE PUT IN TABLE.             5  1258  B S89 /            285
1657 16 51          MLC   BRTCO,SAVBC#2                                            7  1263  M 979 X19          285
1658 16 52          A     *-6,SAVBC                                                7  1270  A S70 X19          286
1659 16 53          C     SAVBR,SAVBC         SEQUENCIAL CONNECTION.               7  1277  C X17 X19          286
1660 16 54          BE    TSTER               YES, DO NOT PUT IN TABLE.            5  1284  B T19 S            286
1661 16 55   *
1662 16 56   PUTBR  MLCWA SAVBR,16&X1         RESET WM                             7  1289  L X17 0/6          286
1663 16 57          MLC   BRTCO,16&X1                                              7  1296  M 979 0/6          286
1664 16 58          MLC                                                            1  1303  M                  286
1665 16 59          SBR   X1,16&X1            TABLE FULL                           7  1304  H 089 0/6          287
1666 16 60          BCE   PRTBF,1&X1,*        YES, PRINT TABLE, CLOSED RTN.        8  1311  B T55 0|1 *        287
1667 16 61   TSTER  B     0                   RETURN TO MAIN ROUTINE.              4  1319  B 000              287
1668 16 62   *
1669 16 63   CLOZ5  RWD   MR2                 CLOSE CHART TAPE USED.               5  1323  U %U4 R            287
1670 16 64          B     PRTBF               TO CLOSED PRINT ROUTINE.             4  1328  B T55              287
1671 16 65   ND5B   EQU   *&1                                                         1332
1672 16 66          MLC   @ @,BRARA&137                                            7  1332  M X20 /06          287
1673 16 67          MLC   @ @,BRARA                                                7  1339  M X20 969          288
1674 16 68          B     SYSLNK                                                   4  1346  B 400              288
1675 16 69          DCW   @4CHTH@                                                  5  1354                     288
1676 16 70   *
1677 16 71   * CLOSED SORT AND PRINT ROUTINE.
1678 16 72   *
1679 16 73   PRTBF  SBR   PBFRT&3             SAVE FOR RETURN.                     4  1355  H W18              288
1680 16 74          SBR   BRLIM#3,0&X1        SAVE LIMIT OF TABLE DATA.            7  1359  H X23 0|0          288
1681 16 75          C     X1,BRDSA            ANYTHING IN TABLE                    7  1366  C 089 X01          288
1682 16 76          BE    PBFRT               NO.                                  5  1373  B W15 S            288
1683 16 77   *                                  YES, SORT AND PRINT
1684 16 78   *                                  PRINT HEADING FIRST, CLOSED RTN.
1685 16 79          B     BRHED                                                    4  1378  B W19              289
1686 16 80          SBR   X3,0                                                     7  1382  H 099 000          289
1687 16 81          SBR   X1,BRTAB-1          INITIALIZE SORT                      7  1389  H 089 X73          289
1688 16 82   ASORT  SBR   X2,0&X1             START LOOP.                          7  1396  H 094 0|0          289
1689 16 83   BSORT  SBR   X2,16&X2           LOOP.                                 7  1403  H 094 0J6          289
1690 16 84          C     X2,BRLIM                                                 7  1410  C 094 X23          289
1691 16 85          BE    FSORT               1 ITEM IS SIFTED, NOW PRINT.         5  1417  B U59 S            290
1692 16 86          C     16&X1,16&X2        SIFT.                                 7  1422  C 0/6 0J6          290
1693 16 87          BH    BSORT               NO.                                  5  1429  B U03 U            290
1694 16 88          MLC   16&X1,SAVBR        SWAP.                                 7  1434  M 0/6 X17          290
1695 16 89          MLC   16&X2,16&X1                                              7  1441  M 0J6 0/6          290
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

1696 16 90          MLC   SAVBR,16&X2                                                    7  1448  M X17 0J6           290
1697 16 91          B     BSORT                                                          4  1455  B U03               291
1698 16 92   *
1699 16 93   FSORT  C     10&X1,LSTBR#10     SAME LABEL AS LAST                          7  1459  C 0/0 X33           291
1700 16 94          MLC   10&X1,LSTBR                                                    7  1466  M 0/0 X33           291
1701 16 95          BE    PSORT               YES                                        5  1473  B V08 S             291
1702 16 96          C     X3,@00@             NO, X3 EQUAL 0.                            7  1478  C 099 X35           291
1703 16 97          BE    *&12                YES                                        5  1485  B V01 S             291
1704 16 98          B     WRT1B               NO, PRINT LINE FOR LAST LABEL.             4  1490  B W72               291
1705 16 99          SBR   X3,0                RESET X3 LINE INDEX                        7  1494  H 099 000           292
1706 17 00          MLC   LSTBR,P&16          MOVE NEW LABEL TO PRINT                    7  1501  M X33 216           292
1707 17 01   *
1708 17 02   PSORT  SW    11&X1,15&X1                                                    7  1508  , 0/1 0/5           292
1709 17 03          MCS   14&X1,P&21&X3                                                  7  1515  Z 0/4 2B1           292
1710 17 04          MLC   16&X1,P&24&X3                                                  7  1522  M 0/6 2B4           292
1711 17 05          CW    11&X1,15&X1                                                    7  1529  ) 0/1 0/5           293
1712 17 06          SBR   X3,9&X3                                                        7  1536  H 099 0?9           293
1713 17 07          C     X3,@90@                                                        7  1543  C 099 X37           293
1714 17 08          BU    *&12                                                           5  1550  B V66 /             293
1715 17 09          B     WRT1B                                                          4  1555  B W72               293
1716 17 10          SBR   X3,0                                                           7  1559  H 099 000           293
1717 17 11          SBR   X1,16&X1           SORT FINISHED                               7  1566  H 089 0/6           294
1718 17 12          C     X1,BRLIM                                                       7  1573  C 089 X23           294
1719 17 13          BU    ASORT               NO.                                        5  1580  B T96 /             294
1720 17 14          C     X3,@00@             YES                                        7  1585  C 099 X35           294
1721 17 15          BE    *&5                                                            5  1592  B W01 S             294
1722 17 16          B     WRT1                                                           4  1597  B 863               294
1723 17 17          MLC   @          @,LSTBR   RESET LAST LABEL SAVE                     7  1601  M X47 X33           295
1724 17 18          SBR   X1,BRTAB-1          RESET TABLE INDEX.                         7  1608  H 089 X73           295
1725 17 19   PBFRT  B     000                                                            4  1615  B 000               295
1726 17 20   *
1727 17 21   BRHED  SBR   BRHRT&3                                                        4  1619  H W71               295
1728 17 22          MLC   @00@,BRLCT#2                                                   7  1623  M X35 X49           295
1729 17 23          B     EJECT                                                          4  1630  B 704               295
1730 17 24          B     WRT1                                                           4  1634  B 863               295
1731 17 25          MLC   JOBHD,P&92                                                     7  1638  M 862 292           296
1732 17 26          B     WRT1                                                           4  1645  B 863               296
1733 17 27          B     WRT1                                                           4  1649  B 863               296
1734 17 28          MLC   @LABEL         REFERENCES@,P&30                                7  1653  M X73 230           296
1735 17 29          B     WRTSK                                                          4  1660  B 863               296
1736 17 30          B     WRT1                SKIP A LINE.                               4  1664  B 863               296
1737 17 31   BRHRT  B     0                                                              4  1668  B 000               296
1738 17 32   *
1739 17 33   WRT1B  SBR   BRWRT&3                                                        4  1672  H W98               297
1740 17 34          B     WRT1                                                           4  1676  B 863               297
1741 17 35          A     *-6,BRLCT                                                      7  1680  A W80 X49           297
1742 17 36          BCE   BRHED,BRLCT-1,7                                                8  1687  B W19 X48 7         297
1743 17 37   BRWRT  B     0                                                              4  1695  B 000               297
1744 17 38   BRDSA  DCW   BRTAB-1                                                        3  1701  X73                 297
1745 17 39          LTORG *                                                                        1702
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 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

       1641  SAVBR  DCW   #16                                                   16  1717              AREA   298
       1657  SAVBC        #02                                                    2  1719              AREA   298
                          @ @                                                    1  1720              LIT    298
       1680  BRLIM        #03                                                    3  1723              AREA   298
       1699  LSTBR        #10                                                   10  1733              AREA   298
                          @00@                                                   2  1735              LIT    298
                          @90@                                                   2  1737              LIT    298
       1723               @          @                                          10  1747              LIT    299
       1728  BRLCT        #02                                                    2  1749              AREA   299
       1734               @LABEL          REFERENCES@                           24  1773              LIT    299
1746 17 40   BRTAB  DC    0                                                      1  1774                     299
1747 17 41          END   START                                                           / 964 080          300
1743 17 37   BRWRT  B     0                                                      4  1695  B 000              297            *****
1744 17 38   BRDSA  DCW   BRTAB-1                                                3  1701  X73                297
1745 17 39          LTORG *                                                                1702
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SEQ PG LIN LABEL OP OPERANDS SFX CT LOCN INSTRUCTION TYPE CARD

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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                  1             4CHTH
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?   2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040    3

                          AREA COMMON TO PASS6-PASS8---PHASE2,SFP                   4CHTH              PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101  1 01   000    JOB   AREA COMMON TO PASS6-PASS8---PHASE2,SFP
 102  1 02          CTL   640
 103  1 03          DCW   @$ADD     @                                                 9  0341                        4
 104  1 04          DSA   WRT1                                                        3  0344  863                   4
 105  1 05          DSA   START                                                       3  0347  956                   4
 106  1 06          DSA   HIGHP6                                                      3  0350  ?0|                   4
 107  1 07          DCW   @030865@                                                    6  0356                        4
 108  1 08   HIGHP6 EQU   7000                                                           7000
 109  1 09          ORG   863                                                                  0863
 110  1 10   CAVAL  EQU   810                                                            0810
 111  1 11   JOBHD  EQU   862                                                            0862
 112  1 12   *
 113  1 13   WRT1   SBR   WRT1R&3                                                     4  0863  H 881                 5
 114  1 14          MLC   @0&@,657                                                    7  0867  M 944 657             5
 115  1 15          B     PRINT                                                       4  0874  B 747                 5
 116  1 16   WRT1R  B     0                                                           4  0878  B 000                 5
 117  1 17   *
 118  1 18   * E Q U A T E S  F O R  T A P E S,  X - R E G S, S W I T C H E S
 119  1 19   * A N D  B L O C K  S I Z E S.
 120  1 20   *
 121  1 21   IOCON2 EQU   200                  INT. TAPE                                 0200
 122  1 22   IOCON4 EQU   400                  INT   TAPE                                0400
 123  1 23   SYSIO  EQU   500                                                            0500
 124  1 24   SYSLNK EQU   400                                                            0400
 125  1 25   EJECT  EQU   704                                                            0704
 126  1 26   PRINT  EQU   747                                                            0747
 127  1 27   PUNCH  EQU   789                                                            0789
 128  1 28   WRTSK  EQU   WRT1                                                           0863
 129  1 29   WRT2   EQU   WRT1                                                           0863
 130  1 30   START  EQU   956                                                            0956
 131  1 31   *
 132  1 32   MR1    EQU   %U2                                                            %U2
 133  1 33   MR2    EQU   %U4                                                            %U4
 134  1 34   *
 135  1 35   X1     EQU   89                                                             0089
 136  1 36   X2     EQU   94                                                             0094
 137  1 37   X3     EQU   99                                                             0099
 138  1 38   *
 139  1 39   SYSTP  EQU   %U1                                                            %U1
 140  1 40   *
 141  1 41   P      EQU   200                                                            0200
 142  1 42          DCW   #35                                                        35  0916                        6
 143  1 43   BLANK  DC    #17                                                        17  0933                        7
 144  1 44   GPMARK DC    @}@                  GROUP MARK                             1  0934                        7
 145  1 45   DS     DCW   @.@                  CHAR TO DRAW SYMBOLS                   1  0935                        7
 146  1 46   DLD    DCW   @.@                  CHAR FOR LINES DOWN                    1  0936                        7
 147  1 47   DLA    DCW   @.@                  CHAR FOR LINES ACROSS                  1  0937                        7
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

148  1 48   DAD    DCW   @.@                 ARROWS DOWN                      1  0938                       7
149  1 49   DAR    DCW   @.@                 ARROWS TO RIGHT                  1  0939                       8
150  1 50   DAL    DCW   @.@                 ARROWS TO LEFT                   1  0940                       8
151  1 51   DAU    DCW   @.@                 ARROWS UP, FUTURE EXPANSION.     1  0941                       8
152  1 52          DCW   #1                                                   1  0942                       8
153  1 53          LTORG *                                                          0943
                   DCW   @0&@                                                 2  0944              LIT      8
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD

154  1 54          JOB   PHASE2-PASS6
155  1 55   *
156  1 56   * INPUT IS MR1, OUTPUT MR2.
157  1 57   * THIS PHASE TAKES THE CHART DATA AND CHANGES THE ORDER OF
158  1 58   * SEQUENCE FROM AO...A9 B0...B9 C0...C9 TO A0 B0 C0...A9 B9 C9.
159  1 59   *
160  1 60          ORG   START                                                            0956
161  1 61          B     FAZE6               PHASE 6 PIVOT.                    4  0956  B W2T                9
162  1 62   *
163  1 63          DCW   #1                                                1  0960                       9
164  1 64   IN     DA    1X137,C            INPUT,MR1                          0961   1097               13
165  1 65                1,1                                                   0961              FIELD   13
166  1 66          DCW   #1                                                1  1098                      13
167  1 67          DCW   #1                                                1  1099                      13
168  1 68   OUT    DA    3X137,X1,C         OUTPUT,MR2,BF#3                    1100   1510               24
169  1 69                1,1                                                   1100              FIELD   24
170  1 70          DCW   #1                                                1  1511                      25
171  1 71   BLOCK  DA    30X137,X2,C        HOLD AREA                          1512   5621              138
172  1 72                1,1                                                   1512              FIELD  138
173  1 73   DCEND2 DCW   #1                                                1  5622                     143
174  1 74   *
175  1 75   FAZE6  BW    *&5,CAVAL           CHART DATA AVAILABLE.             8  5623  V W3V 810 1         143
176  1 76          B     OVLY6               NO, BYPASS THIS PHASE.            4  5631  B Y2Z               143
177  1 77          MLC   GPMARK,IN&137                                         7  5635  M 934 |98           143
178  1 78          MLC   GPMARK,OUT&X0&411                                     7  5642  M 934 V11           143
179  1 79          MLC   GPMARK,DCEND2                                         7  5649  M 934 W2S           144
180  1 80   *
181  1 81   AGAIN  SBR   BLCTR#3,0           INITIALIZE BLOCK COUNT AND XREGS  7  5656  H Z3X 000           144
182  1 82          SBR   X1                                                    4  5663  H 089               144
183  1 83          SBR   X2                                                    4  5667  H 094               144
184  1 84          SBR   X3                                                    4  5671  H 099               144
185  1 85   *
186  1 86   BRIN   B     RIN                 TO CLOSED READ RTN.               4  5675  B Y0S               144
187  1 87          BCE   WOTXT1,IN-1,0                                         8  5679  B Z0X 960 0         144
188  1 88          MLC   IN&136,BLOCK&136                                      7  5687  M |97 WM8           145
189  1 89          SBR   X2,137&X2          FILL HOLD AREA WITH 30 REC.        7  5694  H 094 1L7           145
190  1 90          C     X2,@11|@                                              7  5701  C 094 Z4|           145
191  1 91          BU    BRIN                NO.                               5  5708  B W7V /             145
192  1 92   *                                  YES.
193  1 93          SBR   X2,0                START MOVE TO OUTPUT.             7  5713  H 094 000           145
194  1 94   MOVBK  MLC   BLOCK&136,OUT&136                                     7  5720  M WM8 ST6           146
195  1 95          SBR   X1,137&X1                                             7  5727  H 089 1T7           146
196  1 96          C     X1,@411@                                              7  5734  C 089 Z4T           146
197  1 97          BE    WBOUT               YES, TO CLOSED RTN.               5  5741  B Y7W S             146
198  1 98   *
199  1 99          A     &11,BLCTR                                             7  5746  A Z4V Z3X           146
200  2 00          BCE   BMLNS,BLCTR,3       3 RECORDS JUST WRITTEN. YES.      8  5753  B X7S Z3X 3         147
201  2 01          SBR   X2,1370&X2                                            7  5761  H 094 TP0           147
202  2 02          B     MOVBK               AWAY.                             4  5768  B X2|               147
203  2 03   *
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

204  2 04   BMLNS  MLNS  @0@,BLCTR                                                   7  5772  D Z4W Z3X           147
205  2 05          BCE   AGAIN,BLCTR-2,3     30 RECORDS WRITTEN. YES.                8  5779  B W5W Z3V 3         147
206  2 06          SBR   X3,137&X3                                                   7  5787  H 099 1C7           148
207  2 07          SBR   X2                  3 RECORD MOVE.                          4  5794  H 094               148
208  2 08          B     MOVBK                                                       4  5798  B X2|               148
209  2 09   *
210  2 10   * CLOSED RTN TO READ 1 UNBLOCKED RECORD FROM MR1.
211  2 11   *
212  2 12   RIN    SBR   RINRT&3                                                     4  5802  H Y2T               148
213  2 13          B     SYSIO                                                       4  5806  B 500               148
214  2 14          DCW   &IOCON2                                                     3  5812  200                 148
215  2 15          ORG   *-2                                                               5811
216  2 16          DC    &IN-1                                                       3  5813  960                 149
217  2 17          DC    @R@                                                         1  5814                      149
218  2 18          BEF   *&5                                                         5  5815  B Y2U K             149
219  2 19   RINRT  B     0                   RETURN.                                 4  5820  B 000               149
220  2 20   *
221  2 21          WTM   MR2                 CLOSE TAPES.                            5  5824  U %U4 M             149
222  2 22   OVLY6  RWD   MR2                                                         5  5829  U %U4 R             149
223  2 23          RWD   MR1                                                         5  5834  U %U2 R             150
224  2 24          MLC   @ @,IN&137                                                  7  5839  M Z4X |98           150
225  2 25          MLC   @ @,IN                                                      7  5846  M Z4X 961           150
226  2 26          MLC   @ @,OUT&X0&411                                              7  5853  M Z4X V11           150
227  2 27          MLC   @ @,DCEND2                                                  7  5860  M Z4X W2S           150
228  2 28          B     SYSLNK                                                      4  5867  B 400               150
229  2 29          DCW   @4CHTI@                                                     5  5875                      151
230  2 30   *
231  2 31   * CLOSED RTN TO WRITE 3 BLOCKED RECORDS ON MR2.
232  2 32   *
233  2 33   WBOUT  SBR   BOUTR&3                                                     4  5876  H Z0W               151
234  2 34          SBR   X1,0                                                        7  5880  H 089 000           151
235  2 35          MLC   @1@,OUT-1&X0                                                7  5887  M Z4Y |99           151
236  2 36          B     SYSIO                                                       4  5894  B 500               151
237  2 37          DCW   &IOCON4                                                     3  5900  400                 151
238  2 38          ORG   *-2                                                               5899
239  2 39          DC    &OUT-1&X0                                                   3  5901  |99                 152
240  2 40          DC    @W@                                                         1  5902                      152
241  2 41   BOUTR  B     0                                                           4  5903  B 000               152
242  2 42   *
243  2 43   WOTXT1 NOP                                                                 1  5907  N                   152
244  2 44          B     SYSIO                                                       4  5908  B 500               152
245  2 45          DCW   &IOCON4                                                     3  5914  400                 152
246  2 46          ORG   *-2                                                               5913
247  2 47          DC    &IN-1                                                       3  5915  960                 153
248  2 48          DC    @W@                                                         1  5916                      153
249  2 49          BEF   MH2                                                         5  5917  B Z2W K             153
250  2 50          B     BRIN                                                        4  5922  B W7V               153
251  2 51   MH2    WTM   MR2                                                         5  5926  U %U4 M             153
252  2 52          B     OVLY6                                                       4  5931  B Y2Z               153
       181  BLCTR  DCW   #03                                                         3  5937             AREA     154
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

                         @11|@                                                        3  5940              LIT    154
                         @411@                                                        3  5943              LIT    154
                         &11                                                          2  5945              LIT    154
                         @0@                                                          1  5946              LIT    154
                         @ @                                                          1  5947              LIT    154
                         @1@                                                          1  5948              LIT    154
253  2 53   *
254  2 54          EX    START               TO PHASE 6.                                     B 956                155
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

255  2 55          JOB   PHASE2,PASS7
256  2 56          DCW   @$ADD     @                                                   9  5957                     158
257  2 57          DSA   START                                                         3  5960  956                158
258  2 58          DSA   START                                                         3  5963  956                158
259  2 59          DSA   HIGHP6                                                        3  5966  ?0|                158
260  2 60          DCW   @030865@                                                      6  5972                     158
261  2 61          ORG   START                                                                   0956
262  2 62          B     FAZE7                                                         4  0956  B A45              159
263  2 63   *
264  2 64   * I/O AREAS AND INTERNAL TABLE AREA.
265  2 65   *
266  2 66          DA    30X55,X1,C         INTERNAL LINE TABLE                           0960   2609              207
267  2 67   TPG          1,4                 THIS PAGE NO.                                0963             FIELD  207
268  2 68   TCON         5,6                 THIS COORDINATE                              0965             FIELD  212
269  2 69   TOPCD        7,7                 THIS OP CODE                                 0966             FIELD  217
270  2 70   INLAB        8,8                 1ST CHAR OF INPUT LABEL.                     0967             FIELD  222
271  2 71   X1L          9,9                 EXIT1. 1ST CHAR OF LABEL TO.                 0968             FIELD  227
272  2 72   X1P          10,13                      PAGE TO.                              0972             FIELD  232
273  2 73   X1C          14,15                      COORDINATE TO.                        0974             FIELD  237
274  2 74   X2L          16,16               EXIT2. 1ST CHAR OF LABEL TO.                 0975             FIELD  242
275  2 75   X2P          17,20                      PAGE TO.                              0979             FIELD  247
276  2 76   X2C          21,22                      COORDINATE TO.                        0981             FIELD  252
277  2 77   FLAGS        23,55               FLAGS.                                       1014             FIELD  257
278  2 78   F1           23                                                               0982             SBFLD
279  2 79   F2           24                                                               0983             SBFLD
280  2 80   F3           25                                                               0984             SBFLD
281  2 81   F4           26                                                               0985             SBFLD
282  2 82   F5           27                                                               0986             SBFLD
283  2 83   F6           28                                                               0987             SBFLD
284  2 84   F7           29                                                               0988             SBFLD
285  2 85   F8           30                                                               0989             SBFLD
286  2 86   F9           31                                                               0990             SBFLD
287  2 87   F10          32                                                               0991             SBFLD
288  2 88   F11          33                                                               0992             SBFLD
289  2 89   F12          34                                                               0993             SBFLD
290  2 90   F13          35                                                               0994             SBFLD
291  2 91   F14          36                                                               0995             SBFLD
292  2 92   F15          37                                                               0996             SBFLD
293  2 93   F16          38                                                               0997             SBFLD
294  2 94   F17          39                                                               0998             SBFLD
295  2 95   F18          40                                                               0999             SBFLD
296  2 96   F19          41                                                               1000             SBFLD
297  2 97   F20          42                                                               1001             SBFLD
298  2 98   F21          43                                                               1002             SBFLD
299  2 99   F22          44                                                               1003             SBFLD
300  3 00   F23          45                                                               1004             SBFLD
301  3 01   F24          46                                                               1005             SBFLD
302  3 02   F25          47                                                               1006             SBFLD
303  3 03   F26          48                                                               1007             SBFLD
304  3 04   F27          49                                                               1008             SBFLD
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

305  3 05   F28          50                                                        1009                SBFLD
306  3 06   F29          51                                                        1010                SBFLD
307  3 07   F30          52                                                        1011                SBFLD
308  3 08   F31          53                                                        1012                SBFLD
309  3 09   F32          54                                                        1013                SBFLD
310  3 10   F33          55                                                        1014                SBFLD
311  3 11   DCEND1 DCW   #1                                                     1  2610                       262
312  3 12   *                                 EQUATES OF TABLE SIZE FOR
313  3 13   B1     EQU   55                     X-REG MANIPULATION.                0055
314  3 14   B3     EQU   165                                                       0165
315  3 15   B10    EQU   550                                                       0550
316  3 16   DA2    DA    3X40,X2,C              LINE TABLE OUTPUT,MR1              2611   2730            265
317  3 17                1,4                    THIS PAGE.                         2614                FIELD  265
318  3 18   OCOOR        5,6                    THIS COORDINATE                    2616                FIELD  266
319  3 19                7,7                    SPARE                              2617                FIELD  266
320  3 20   OFLG         8,40                   FLAGS.                             2650                FIELD  267
321  3 21          DCW   #1                                                     1  2731                       267
322  3 22   *
323  3 23   *
324  3 24   CTFL7  DCW   #1                                                     1  2732                       267
325  3 25   DA3    DA    3X137,X3,C                                                2733   3143            278
326  3 26                6,9                    PAGE                               2741                FIELD  278
327  3 27                10,11                  COOR                               2743                FIELD  279
328  3 28                12,12                  OP CODE                            2744                FIELD  279
329  3 29   CIINL        13,13                  INPUT LABEL, 1ST CHAR.             2745                FIELD  280
330  3 30   CIX1L        93,93                 EXIT1 LABEL,1ST CHAR.               2825                FIELD  280
331  3 31                103,106               PAGE                                2838                FIELD  281
332  3 32   CIX1C        107,108               COORD.                              2840                FIELD  281
333  3 33   CIX2L        112,112               EXIT2 LABEL,1ST CHAR.               2844                FIELD  282
334  3 34                122,125               PAGE                                2857                FIELD  282
335  3 35   CIX2C        126,127               COORD.                              2859                FIELD  283
336  3 36   TOF32        131,131               TO INTERNAL FLAG 32.                2863                FIELD  283
337  3 37          DCW   #1                                                     1  3144                       284
338  3 38   *
339  3 39   *
340  3 40   *
341  3 41   FAZE7  BW    *&5,CAVAL              CHART DATA AVAILABLE.            8  3145  V A57 810 1         284
342  3 42          B     OVLY7                  NO, TO NEXT PHASE.               4  3153  B D50               284
343  3 43          MLC   GPMARK,DCEND1                                          7  3157  M 934 O10           284
344  3 44          MLC   GPMARK,DA2&120&X0                                      7  3164  M 934 P31           284
345  3 45          MLC   GPMARK,DA3&411&X0                                      7  3171  M 934 A44           285
346  3 46   *
347  3 47   NXT7   SBR   X1,0                   INITIALIZE TABLE INDEX.          7  3178  H 089 000           285
348  3 48   BLNKGM MCW   @ @,DA3&X0&137        ERASE GM IF TEXT REC RD           7  3185  M J5U Q70           285
349  3 49   NXT7I  B     R1IBK                  READ 1 INPUT BLOCK, 3 RECORDS.   4  3192  B D21               285
350  3 50          BCE   BLNKGM,CTFL7,0        READ NEXT REC IF TEXT             8  3196  B A85 P32 0         285
351  3 51          SBR   X3,0                   INPUT XREG RESET.                7  3204  H 099 000           286
352  3 52   *                                 START MOVE TO TABLE.
353  3 53   SMTOT  MLC   BLANK,FLAGS            RESET ALL TABLE FLAGS            7  3211  M 933 |/4           286
354  3 54          MLC   BLANK                                                  4  3218  M 933               286
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

355  3 55          MLC   TOF32,F32           INCOMING CONNECTOR, OFF PAGE.         7  3222  M QF3 |/3            286
356  3 56   *
357  3 57          MLC   CIX2C,X2C           MOVE IN REST, CHAINED. X2 CON         7  3229  M QE9 9Y1            286
358  3 58          MLC                       X2 PAGE                               1  3236  M                    286
359  3 59          MLC   CIX2L               X2 LABEL, 1ST CHAR.                   4  3237  M QD4                286
360  3 60          MLC   CIX1C               X1 CON                                4  3241  M QD0                287
361  3 61          MLC                       X1 PAGE                               1  3245  M                    287
362  3 62          MLC   CIX1L               X1 LABEL, 1ST CHAR.                   4  3246  M QB5                287
363  3 63          MLC   CIINL                 INPUT LABEL, 1ST CHAR.              4  3250  M PD5                287
364  3 64          MLC                       OP CODE                               1  3254  M                    287
365  3 65          MLC                       THIS COORDINATE                       1  3255  M                    287
366  3 66          MLC                       THIS PAGE.                            1  3256  M                    287
367  3 67   *
368  3 68          SBR   X1,B1&X1                                                  7  3257  H 089 0V5            288
369  3 69          C     X1,@W50@            TABLE FULL.                           7  3264  C 089 J5X            288
370  3 70          BE    SPASS               YES. START TABLE PASSES.              5  3271  B B99 S              288
371  3 71          SBR   X3,137&X3          NO,INPUT EMPTY.                        7  3276  H 099 1C7            288
372  3 72          C     X3,@411@                                                  7  3283  C 099 J6|            288
373  3 73          BU    SMTOT               NO.                                   5  3290  B B11 /              288
374  3 74          B     NXT7I               YES.                                  4  3295  B A92                289
375  3 75   *
376  3 76   SPASS  NOP                       START TABLE PASSES. EACH IS A         1  3299  N                    289
377  3 77          B     PAS1                CLOSED RTN TO FACILITATE              4  3300  B E26                289
378  3 78          B     PAS2                MAINTENANCE.                          4  3304  B G38                289
379  3 79          B     PAS3                                                      4  3308  B H26                289
380  3 80          B     PAS4                                                      4  3312  B 03|                289
381  3 81          B     PAS6                                                      4  3316  B 34Y                289
382  3 82          B     PAS7                                                      4  3320  B 86|                290
383  3 83          B     PAS5                                                      4  3324  B 13Z                290
384  3 84          B     PAS8                                                      4  3328  B /8W                290
385  3 85          B     PAS9                                                      4  3332  B U6U                290
386  3 86          B     PAS10                                                     4  3336  B W7T                290
387  3 87   *
388  3 88   *
389  3 89          SBR   X1,0                START OUTPUT MOVEMENT.                7  3340  H 089 000            290
390  3 90          SBR   X2,0                                                      7  3347  H 094 000            290
391  3 91   SOMOV  MLC   FLAGS,OFLG          FLAGS                                 7  3354  M |/4 ON0            291
392  3 92          MLC   TCON,OCOOR          THIS COORDINATE                       7  3361  M 9W5 OJ6            291
393  3 93          MLC                       THIS PAGE                             1  3368  M                    291
394  3 94          SBR   X2,40&X2                                                  7  3369  H 094 0M0            291
395  3 95          C     X2,@120@            OUTPUT FULL.                          7  3376  C 094 J6T            291
396  3 96          BE    WRT7                YES.                                  5  3383  B E02 S              291
397  3 97          SBR   X1,B1&X1                                                  7  3388  H 089 0V5            292
398  3 98          C     X1,@W50@                                                  7  3395  C 089 J5X            292
399  3 99          BU    SOMOV               NO.                                   5  3402  B C54 /              292
400  4 00          B     NXT7                YES, START NEXT PAGE WORTH.           4  3407  B A78                292
401  4 01   *
402  4 02   * THIS IS COMMON PIVOT RETURN FOR ALL TABLE PASSES.
403  4 03   *
404  4 04   PASRT  B     0                                                         4  3411  B 000                292
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SEQ PG LIN  LABEL  OP    OPERANDS                                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD

405  4 05   *
406  4 06   * THIS IS A SERIES OF INDIVIDUAL DCW-S OF 1 TO FACILITATE THE
407  4 07   * SETTING OF FLAGS USING CHAINING.
408  4 08   *
409  4 09          DCW   1                                                                  1  3415                     292
410  4 10          DCW   1                                                                  1  3416                     292
411  4 11          DCW   1                                                                  1  3417                     293
412  4 12          DCW   1                                                                  1  3418                     293
413  4 13          DCW   1                                                                  1  3419                     293
414  4 14   F      DCW   1                                                                  1  3420                     293
415  4 15   *
416  4 16   * CLOSED RTN TO READ INPUT FROM MR2.
417  4 17   *
418  4 18   R1IBK  SBR   R1IRT&3                                                            4  3421  H D49              293
419  4 19          B     SYSIO                                                              4  3425  B 500              293
420  4 20          DCW   &IOCON4                                                            3  3431  400                293
421  4 21          ORG   *-2                                                                         3430
422  4 22          DC    &DA3-1&X0                                                          3  3432  P32                294
423  4 23          DC    @R@                                                                1  3433                     294
424  4 24          BEF   OVLY7                                                              5  3434  B D50 K            294
425  4 25          SBR   X3,0                FOR ASSURANCE.                                 7  3439  H 099 000          294
426  4 26   R1IRT  B     0                                                                  4  3446  B 000              294
427  4 27   *
428  4 28   OVLY7  WTM   MR1                 CLOSE TAPES.                                   5  3450  U %U2 M            294
429  4 29          RWD   MR2                                                                5  3455  U %U4 R            295
430  4 30          RWD   MR1                                                                5  3460  U %U2 R            295
431  4 31          MLC   @ @,DCEND1                                                         7  3465  M J5U O10          295
432  4 32          MLC   @ @,DA2&X0&120                                                     7  3472  M J5U P31          295
433  4 33          MLC   @ @,DA3&X0                                                         7  3479  M J5U P33          295
434  4 34          MLC   @ @,DA3&X0&411                                                     7  3486  M J5U A44          295
435  4 35          B     SYSLNK                                                             4  3493  B 400              296
436  4 36          DCW   @4CHTJ@                                                            5  3501                     296
437  4 37   *
438  4 38   * CLOSED RTN TO WRITE OUTPUT ON MR1. X2 IS RESET.
439  4 39   *
440  4 40   WRT7   SBR   WRT7R&3                                                            4  3502  H E25              296
441  4 41          SBR   X2,0                                                               7  3506  H 094 000          296
442  4 42          B     SYSIO                                                              4  3513  B 500              296
443  4 43          DCW   &IOCON2                                                            3  3519  200                296
444  4 44          ORG   *-2                                                                         3518
445  4 45          DC    &DA2&X0                                                            3  3520  O11                297
446  4 46          DC    @W@                                                                1  3521                     297
447  4 47   WRT7R  B     0                                                                  4  3522  B 000              297
448  4 48   *
449  4 49   *
450  4 50   * PASS 1, CONNECT SEQUENCIAL VERTICAL CONNECTIONS.
451  4 51   *
452  4 52   PAS1   SBR   PASRT&3                                                            4  3526  H D14              297
453  4 53          SBR   X1,0                                                               7  3530  H 089 000          297
454  4 54   PAS1Z  BCE   PAS1B,TOPCD,3       CHK EXIT 1 IF NOT A Q P.                       8  3537  B E76 9W6 3        297
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SEQ PG LIN  LABEL  OP    OPERANDS                                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD

455  4 55          C     X1P,TPG                                                          7  3545  C 9X2 9W3           298
456  4 56          BU    PAS1B                                                            5  3552  B E76 /             298
457  4 57          SBR   X2,B3&X1                                                         7  3557  H 094 1W5           298
458  4 58          C     X1C,TCON&X2                                                      7  3564  C 9X4 9O5           298
459  4 59          BE    PAS1X                                                            5  3571  B F07 S             298
460  4 60   PAS1B  C     X2P,TPG                                                          7  3576  C 9X9 9W3           298
461  4 61          BU    PAS1A                                                            5  3583  B F69 /             299
462  4 62          SBR   X2,B3&X1                                                         7  3588  H 094 1W5           299
463  4 63          C     X2C,TCON&X2                                                      7  3595  C 9Y1 9O5           299
464  4 64          BU    PAS1A                                                            5  3602  B F69 /             299
465  4 65   PAS1X  BCE   *&17,TOPCD,0                                                     8  3607  B F31 9W6 0         299
466  4 66          B     PAS1E                                                            4  3615  B F47               299
467  4 67          BCE   *&5,TOPCD,N                                                      8  3619  B F31 9W6 N         300
468  4 68          B     PAS1E                 OPERATIONS AND UNCONNECTING                4  3627  B F47               300
469  4 69          BCE   PAS1A,F2,             NONE OPERATIONS IN SEQUENCE.               8  3631  B F69 9Y3           300
470  4 70          BCE   PAS1A,TCON,0          ALSO NOTE OPERATIONS.                      8  3639  B F69 9W5 0         300
471  4 71   PAS1E  EQU   *&1                                                                 3647
472  4 72          MLC   F,F6                  SET FLAGS 3,5 AND 6 OF THIS                7  3647  M D20 9Y7           300
473  4 73          MLC                         BLOCK.                                     1  3654  M                   300
474  4 74          MLC   F,F3                                                             7  3655  M D20 9Y4           301
475  4 75          MLC   F,F2&X2               FLAG 2 OF NEXT VERTICAL BLOCK.             7  3662  M D20 9Q3           301
476  4 76   *
477  4 77   PAS1A  SBR   X1,B1&X1                                                         7  3669  H 089 0V5           301
478  4 78          BCE   *&5,TCON,9            ROW 9                                      8  3676  B F88 9W5 9         301
479  4 79          B     PAS1Z                  NO.                                       4  3684  B E37               301
480  4 80          BCE   PAS1C,X2P,            YES, EXIT2 PAGE NO.     NO.                8  3688  B G26 9X9           302
481  4 81          C     X2P,TPG                  YES. ON PAGE CONNECTION                 7  3696  C 9X9 9W3           302
482  4 82          BE    PAS1D                 YES                                        5  3703  B G19 S             302
483  4 83          MLC   F,F27                 NO, SET OFF PAGE EXIT2.                    7  3708  M D20 ||8           302
484  4 84          B     PAS1C                                                            4  3715  B G26               302
485  4 85   PAS1D  MLC   F,F28                                                            7  3719  M D20 ||9           302
486  4 86   PAS1C  BCE   PASRT,TCON-1,C        LAST BLOCK. YES, TO RETURN PIVOT           8  3726  B D11 9W4 C         303
487  4 87          B     PAS1A                 NO, UP TO NEXT COLUMN.                     4  3734  B F69               303
488  4 88   *
489  4 89   * P A S S  2.  FLAG OFF PAGE EXIT1.
490  4 90   *                ALSO OFF PAGE EXIT 2.
491  4 91   *
492  4 92   PAS2   SBR   PASRT&3                                                          4  3738  H D14               303
493  4 93          SBR   X1,0                                                             7  3742  H 089 000           303
494  4 94   *
495  4 95   PAS2A  BCE   PA2B,X1P,                                                        8  3749  B G76 9X2           303
496  4 96          C     X1P,TPG               YES, IS THIS AN OFF PAGE.                  7  3757  C 9X2 9W3           303
497  4 97          BE    PA2B                  NO.                                        5  3764  B G76 S             304
498  4 98          MLC   F,F29                 YES, SET EXIT1 OFF PAGE FLAG.              7  3769  M D20 |/0           304
499  4 99   *
500  5 00   PA2B   BCE   PAS2B,X2P,                                                       8  3776  B H03 9X9           304
501  5 01          C     X2P,TPG                                                          7  3784  C 9X9 9W3           304
502  5 02          BE    PAS2B                                                            5  3791  B H03 S             304
503  5 03          MLC   F,F27                                                            7  3796  M D20 ||8           304
504  5 04   PAS2B  C     TCON,@C9@                                                        7  3803  C 9W5 J6V           305
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

505  5 05          BE    PASRT                                                    5  3810  B D11 S             305
506  5 06          SBR   X1,B1&X1                                                 7  3815  H 089 0V5           305
507  5 07          B     PAS2A                                                    4  3822  B G49               305
508  5 08   *
509  5 09   * P A S S  3.  CONNECT LINES BETWEEN HORIZONTAL SYMBOLS.
510  5 10   *
511  5 11   PAS3   SBR   PASRT&3                                                  4  3826  H D14               305
512  5 12          SBR   X1,0                                                     7  3830  H 089 000           305
513  5 13   PAS3C  EQU   *&1                                                         3837
514  5 14          BCE   PAS3A,X1L,                                               8  3837  B I99 9W8           306
515  5 15          BCE   PAS3A,F29,1         OFF PAGE SET, YES.                   8  3845  B I99 |/0 1         306
516  5 16   *
517  5 17          MLC   TCON,SAVC#2         IS CONNECTOR TO 10 GREATER           7  3853  M 9W5 J6X           306
518  5 18          A     *-6,SAVC-1          THAN THIS CONNECTOR.                 7  3860  A H60 J6W           306
519  5 19          C     X1C,SAVC                                                 7  3867  C 9X4 J6X           306
520  5 20          BE    PAS3B               YES                                  5  3874  B I62 S             307
521  5 21   *
522  5 22          A     *-6,SAVC-1          IS CONNECTOR TO 20 GREATER           7  3879  A H79 J6W           307
523  5 23          C     X1C,SAVC            THAN THIS CONNECTOR.                 7  3886  C 9X4 J6X           307
524  5 24          BU    PAS3A               NO.                                  5  3893  B I99 /             307
525  5 25          SBR   X2,B1&X1            YES, IS ADJACENT SYMBOL A NONE.      7  3898  H 094 0V5           307
526  5 26          BCE   *&5,TOPCD&X2,N                                           8  3905  B I17 906 N         307
527  5 27          B     PAS3A               NO.                                  4  3913  B I99               308
528  5 28   *                                  YES. SET FLAGS 24,25,7,9,10,12
529  5 29   *                                  AND 13 OF ADJACENT ENVIRONMENT.
530  5 30          MLC   F,F25&X2            25                                   7  3917  M D20 |!6           308
531  5 31          MLC                       24                                   1  3924  M                   308
532  5 32          MLC   F,F13&X2            13                                   7  3925  M D20 9R4           308
533  5 33          MLC                       12                                   1  3932  M                   308
534  5 34          MLC   F,F10&X2            10                                   7  3933  M D20 9R1           308
535  5 35          MLC                       9                                    1  3940  M                   308
536  5 36          MLC   F,F7&X2             7                                    7  3941  M D20 9Q8           309
537  5 37          SBR   X2,B1&X2            ALSO FLAG 1 OF 3RD COLUMN.           7  3948  H 094 0N5           309
538  5 38          MLC   F,F1&X2                                                  7  3955  M D20 9Q2           309
539  5 39   *
540  5 40   PAS3B  MLC   F,F13               FLAGS 13,                            7  3962  M D20 9Z4           309
541  5 41          MLC                       12                                   1  3969  M                   309
542  5 42          MLC   F,F10               10                                   7  3970  M D20 9Z1           309
543  5 43          MLC                       9                                    1  3977  M                   309
544  5 44          MLC   F,F7                7 OF PRESENT ENVIRONMENT AND         7  3978  M D20 9Y8           310
545  5 45          SBR   X2,B1&X1            FLAG 1 OF ADJACENT.                  7  3985  H 094 0V5           310
546  5 46          MLC   F,F1&X2                                                  7  3992  M D20 9Q2           310
547  5 47   *
548  5 48   PAS3A  C     TCON,@C9@           FINISHED.                            7  3999  C 9W5 J6V           310
549  5 49          BE    PASRT               YES.                                 5  4006  B D11 S             310
550  5 50   PAS3D  SBR   X1,B1&X1            NO. IN COLUMN C UP XREG BY 2         7  4011  H 089 0V5           311
551  5 51          BCE   PAS3A,TCON-1,C                                           8  4018  B I99 9W4 C         311
552  5 52          B     PAS3C                                                    4  4026  B H37               311
553  5 53   *
554  5 54   * P A S S  4.  DRAW LINE VERTICALLY THRU BLANK ENVIRONMENTS.
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

555  5 55   *
556  5 56   PAS4   SBR   PASRT&3                                                  4  4030  H D14               311
557  5 57          SBR   X1,0                                                     7  4034  H 089 000           311
558  5 58   *
559  5 59   PAS4A  BCE   *&5,TOPCD,N         NONE OPERATION                       8  4041  B 05T 9W6 N         311
560  5 60          B     PAS4B               NO.                                  4  4049  B 11W               312
561  5 61          BCE   *&5,F2,1            YES, IS FLAG 2 ON                    8  4053  B 06V 9Y3 1         312
562  5 62          B     PAS4B               NO.                                  4  4061  B 11W               312
563  5 63   *
564  5 64          MLC   F,F26               YES SET FLAGS 26                     7  4065  M D20 ||7           312
565  5 65          MLC   F,F23               23                                   7  4072  M D20 ||4           312
566  5 66          MLC   F,F6                6                                    7  4079  M D20 9Y7           312
567  5 67          MLC                       5                                    1  4086  M                   312
568  5 68          MLC   F,F3                3.                                   7  4087  M D20 9Y4           313
569  5 69   *
570  5 70          BCE   PAS4B,TCON,9                                             8  4094  B 11W 9W5 9         313
571  5 71          SBR   X2,B3&X1                                                 7  4102  H 094 1W5           313
572  5 72          MLC   F,F2&X2                                                  7  4109  M D20 9Q3           313
573  5 73   PAS4B  C     TCON,@C9@                                                7  4116  C 9W5 J6V           313
574  5 74          BE    PASRT                                                    5  4123  B D11 S             314
575  5 75          SBR   X1,B1&X1                                                 7  4128  H 089 0V5           314
576  5 76          B     PAS4A                                                    4  4135  B 04/               314
577  5 77   *
578  5 78   * P A S S  5.  DRAW LINES DOWN AND TO THE LEFT, IE.  B2 TO A3.
579  5 79   *
580  5 80   PAS5   SBR   PASRT&3                                                  4  4139  H D14               314
581  5 81          SBR   X3,0                                                     7  4143  H 099 000           314
582  5 82          SBR   X1,B1&X3            START WITH ENVIRONMENT A2.           7  4150  H 089 0E5           314
583  5 83   *
584  5 84   PAS5B  BCE   PAS5C,X1L,          TRY EXIT 1.                          8  4157  B 19T 9W8           315
585  5 85          BCE   PAS5C,F7,1                                               8  4165  B 19T 9Y8 1         315
586  5 86          BCE   PAS5C,F29,1                                              8  4173  B 19T |/0 1         315
587  5 87          BCE   PAS5C,TOPCD,3       EXIT 2 ONLY IF DECISION SYMBOL.      8  4181  B 19T 9W6 3         315
588  5 88          B     PAS5D                                                    4  4189  B 22|               315
589  5 89   *
590  5 90   PAS5C  BCE   PAS5A,X2L,                                               8  4193  B 31| 9X5           316
591  5 91          BCE   PAS5A,F27,1                                              8  4201  B 31| ||8 1         316
592  5 92          MLC   X2C,SAVC                                                 7  4209  M 9Y1 J6X           316
593  5 93          B     PAS5D&7                                                  4  4216  B 22X               316
594  5 94   PAS5D  EQU   *&1                                                         4220
595  5 95          MLC   X1C,SAVC            IS THIS COORDINATE NUMBER 9          7  4220  M 9X4 J6X           316
596  5 96          BCE   PAS5A,TCON,9                                             8  4227  B 31| 9W5 9         317
597  5 97          A     @9@,SAVC            GREATER THAN CONNECTOR TO.           7  4235  A J6Y J6X           317
598  5 98          C     TCON,SAVC           IE. B2 VS A3, C4 VS B5               7  4242  C 9W5 J6X           317
599  5 99          BU    PAS5A               NO,                                  5  4249  B 31| /             317
600  6 00          BCE   PAS5A,F5,1                                               8  4254  B 31| 9Y6 1         317
601  6 01   *
602  6 02          MLC   F,F5                YES, SET FLAGS 5                     7  4262  M D20 9Y6           318
603  6 03          MLC                       4                                    1  4269  M                   318
604  6 04          MLC                       AND 3 OF THIS BLOCK.                 1  4270  M                   318
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SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

605  6 05   *
606  6 06          MLC   F,F22&X3             SET FLAGS IN PREVIOUS ADJACENT           7  4271  M D20 |?3           318
607  6 07          MLC   F,F19&X3             BLOCK                                    7  4278  M D20 |?0           318
608  6 08          MLC                        18                                       1  4285  M                   318
609  6 09          MLC                        17                                       1  4286  M                   318
610  6 10          MLC                        16                                       1  4287  M                   319
611  6 11          MLC   F,F6&X3              6                                        7  4288  M D20 9H7           319
612  6 12          MLC                        5                                        1  4295  M                   319
613  6 13          SBR   X2,B3&X3                                                      7  4296  H 094 1F5           319
614  6 14          MLC   F,F2&X2                                                       7  4303  M D20 9Q3           319
615  6 15   *
616  6 16   PAS5A  SBR   X3,B1&X3                                                      7  4310  H 099 0E5           319
617  6 17          SBR   X1,B1&X1                                                      7  4317  H 089 0V5           319
618  6 18          BCE   PAS5A,TCON-1,A       USELESS TO WORK IN COL A.                8  4324  B 31| 9W4 A         320
619  6 19          C     TCON,@B9@                                                     7  4332  C 9W5 J7|           320
620  6 20          BU    PAS5B                                                         5  4339  B 15X /             320
621  6 21          B     PASRT                                                         4  4344  B D11               320
622  6 22   *
623  6 23   * P A S S  6.  DRAW LINES DOWN WITHIN THE SAME COLUMN.
624  6 24   *
625  6 25   PAS6   SBR   PASRT&3                                                       4  4348  H D14               320
626  6 26          SBR   X1,0                                                          7  4352  H 089 000           320
627  6 27   *
628  6 28   PAS6B  MLC   X1,PASX1#3           SAVE X1.                                 7  4359  M 089 J7T           321
629  6 29   PAS6E  BCE   PAS6A,X1L,           EXIT1 LABEL, NO.                         8  4366  B 54/ 9W8           321
630  6 30          BCE   PAS6A,F29,1          FLAG 29 ON, YES.                         8  4374  B 54/ |/0 1         321
631  6 31          C     TCON-1,X1C-1         GOING TO SAME COLUMN.                    7  4382  C 9W4 9X3           321
632  6 32          BU    PAS6A                NO.                                      5  4389  B 54/ /             321
633  6 33          SBR   X2,B3&X1                                                      7  4394  H 094 1W5           322
634  6 34          C     X1C,TCON&X2          AVOID LINES TO NEXT                      7  4401  C 9X4 9O5           322
635  6 35          BE    PAS6A                VERTICAL SYMBOL.                         5  4408  B 54/ S             322
636  6 36          C     TCON,X1C             GOING DOWN                               7  4413  C 9W5 9X4           322
637  6 37          BH    *&5                                                           5  4420  B 42Z U             322
638  6 38          B     PAS6A                NO                                       4  4425  B 54/               322
639  6 39   *                                   YES
640  6 40          SBR   X2,0&X1                                                       7  4429  H 094 0|0           323
641  6 41          SBR   X3                                                            4  4436  H 099               323
642  6 42   *
643  6 43          MLC   F,F7                                                          7  4440  M D20 9Y8           323
644  6 44          MLC   F,F9                                                          7  4447  M D20 9Z0           323
645  6 45          MLC   F,F10                                                         7  4454  M D20 9Z1           323
646  6 46          MLC   F,F12                                                         7  4461  M D20 9Z3           323
647  6 47          MLC   F,F15                                                         7  4468  M D20 9Z6           324
648  6 48          MLC   F,F18                                                         7  4475  M D20 9Z9           324
649  6 49   *
650  6 50   PAS6C  SBR   X2,B3&X2                                                      7  4482  H 094 1O5           324
651  6 51          C     X1C,TCON&X2                                                   7  4489  C 9X4 9O5           324
652  6 52          BE    PAS6F                                                         5  4496  B 56| S             324
653  6 53   *
654  6 54          MLC   F,F21&X3                                                      7  4501  M D20 |?2           325
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SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

655  6 55          MLC   F,F18&X2                                                       7  4508  M D20 9R9           325
656  6 56          MLC   F,F15&X2                                                       7  4515  M D20 9R6           325
657  6 57          MLC   F,F12&X2                                                       7  4522  M D20 9R3           325
658  6 58          MLC                                                                  1  4529  M                   325
659  6 59          SBR   X3,B3&X3                                                       7  4530  H 099 1F5           325
660  6 60          B     PAS6C                                                          4  4537  B 48S               326
661  6 61   *
662  6 62   PAS6A  BCE   PAS6D,TCON,8                                                   8  4541  B 60Y 9W5 8         326
663  6 63          SBR   X1,B3&X1                                                       7  4549  H 089 1W5           326
664  6 64          B     PAS6E                                                          4  4556  B 36W               326
665  6 65   *
666  6 66   PAS6F  MLC   F,F2&X2                                                        7  4560  M D20 9Q3           326
667  6 67          MLC   F,F17&X3                                                       7  4567  M D20 9I8           326
668  6 68          MLC                                                                  1  4574  M                   326
669  6 69          MLC   F,F22&X3                                                       7  4575  M D20 |?3           327
670  6 70          MLC   F,F6&X3                                                        7  4582  M D20 9H7           327
671  6 71          MLC   F,F6&X3                                                        7  4589  M D20 9H7           327
672  6 72          MLC                                                                  1  4596  M                   327
673  6 73          SBR   X1,0&X3             MANIPULATE X1 TO DRAW MORE                 7  4597  H 089 0?0           327
674  6 74          B     PAS6A               THAN 1 LINE DOWN.                          4  4604  B 54/               327
675  6 75   PAS6D  MLC   PASX1,X1                                                       7  4608  M J7T 089           328
676  6 76          BCE   PASXA,TCON-1,C      TO SUPPLEMENT PASS 6 RTN.                  8  4615  B 63U 9W4 C         328
677  6 77          SBR   X1,B1&X1                                                       7  4623  H 089 0V5           328
678  6 78          B     PAS6B                                                          4  4630  B 35Z               328
679  6 79   *
680  6 80   * P A S S  6  S U P P L E M E N T.
681  6 81   *
682  6 82   *              MAKE CONNECTIONS TO THE RIGHT TO ALREADY CREADTED
683  6 83   *              LINES DOWN.
684  6 84   *
685  6 85   PASXA  SBR   X1,0                                                           7  4634  H 089 000           328
686  6 86   PASXZ  MLC   X1,PASX1                                                       7  4641  M 089 J7T           329
687  6 87   *
688  6 88   PASXB  BCE   PASXD,X1L,                                                     8  4648  B 81V 9W8           329
689  6 89          BCE   PASXD,F29,1                                                    8  4656  B 81V |/0 1         329
690  6 90          BCE   PASXD,F7,1                                                     8  4664  B 81V 9Y8 1         329
691  6 91          C     TCON-1,X1C-1                                                   7  4672  C 9W4 9X3           329
692  6 92          BU    PASXD                                                          5  4679  B 81V /             330
693  6 93          BCE   PASXD,F21,                                                     8  4684  B 81V ||2           330
694  6 94          BCE   PASXD,F11                                                      7  4692  B 81V 9Z2           330
695  6 95          C     TCON,X1C                                                       7  4699  C 9W5 9X4           330
696  6 96          BH    *&5                                                            5  4706  B 71V U             330
697  6 97          B     PASXD                                                          4  4711  B 81V               330
698  6 98          SBR   X2,B3&X1                                                       7  4715  H 094 1W5           331
699  6 99          C     X1C,TCON&X2         AVOID LINES TO NEXT                        7  4722  C 9X4 9O5           331
700  7 00          BE    PASXD                VERTICAL SYMBOL.                          5  4729  B 81V S             331
701  7 01          MLC   PASX1,X2                                                       7  4734  M J7T 094           331
702  7 02   PASXH  BCE   PASXE,F7&X2,                                                   8  4741  B 77X 9Q8           331
703  7 03          BCE   PASXE,F21&X2,                                                  8  4749  B 77X |!2           332
704  7 04          BCE   PASXE,F13&X2,1                                                 8  4757  B 77X 9R4 1         332
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

705  7 05          C     X1C,X1C&X2                                              7  4765  C 9X4 9P4          332
706  7 06          BE    PASXG                                                   5  4772  B 80| S            332
707  7 07   PASXE  C     TCON,TCON&X2                                            7  4777  C 9W5 9O5          332
708  7 08          BE    PASXD                                                   5  4784  B 81V S            333
709  7 09          SBR   X2,B3&X2                                                7  4789  H 094 1O5          333
710  7 10          B     PASXH                                                   4  4796  B 74/              333
711  7 11   PASXG  MLC   F,F10                                                   7  4800  M D20 9Z1          333
712  7 12          MLC                                                           1  4807  M                  333
713  7 13          MLC   F,F7                                                    7  4808  M D20 9Y8          333
714  7 14   PASXD  SBR   X1,B3&X1                                                7  4815  H 089 1W5          333
715  7 15          BCE   PASXC,TCON,8                                            8  4822  B 83U 9W5 8        334
716  7 16          B     PASXB                                                   4  4830  B 64Y              334
717  7 17   PASXC  BCE   PASRT,TCON-1,C                                          8  4834  B D11 9W4 C        334
718  7 18          MLC   PASX1,X1                                                7  4842  M J7T 089          334
719  7 19          SBR   X1,B1&X1                                                7  4849  H 089 0V5          334
720  7 20          B     PASXZ                                                   4  4856  B 64/              334
721  7 21   *
722  7 22   * P A S S  7.  SAME AS PASS 6 EXCEPT THE LINE DRAWN VERTICALLY
723  7 23   *              IS 3 SPACES TO THE LEFT.
724  7 24   *
725  7 25   PAS7   SBR   PASRT&3                                                 4  4860  H D14              335
726  7 26          SBR   X1,0                                                    7  4864  H 089 000          335
727  7 27   *
728  7 28   PAS7B  MLC   X1,PASX1                                                7  4871  M 089 J7T          335
729  7 29   PAS7E  BCE   PAS7A,X1L,                                              8  4878  B |9X 9W8          335
730  7 30          BCE   PAS7A,F29,1                                             8  4886  B |9X |/0 1        335
731  7 31          BCE   PAS7A,F7,1          ACCOUNT FOR PASS 6 WORK.            8  4894  B |9X 9Y8 1        336
732  7 32          C     TCON-1,X1C-1                                            7  4902  C 9W4 9X3          336
733  7 33          BU    PAS7A                                                   5  4909  B |9X /            336
734  7 34          SBR   X2,B3&X1                                                7  4914  H 094 1W5          336
735  7 35          C     X1C,TCON&X2                                             7  4921  C 9X4 9O5          336
736  7 36          BE    PAS7A                                                   5  4928  B |9X S            336
737  7 37          C     TCON,X1C                                                7  4933  C 9W5 9X4          337
738  7 38          BH    *&5                                                     5  4940  B 94Z U            337
739  7 39          B     PAS7A                                                   4  4945  B |9X              337
740  7 40          SBR   X2,0&X1                                                 7  4949  H 094 0|0          337
741  7 41          SBR   X3                                                      4  4956  H 099              337
742  7 42          MLC   F,F7                                                    7  4960  M D20 9Y8          337
743  7 43          MLC   F,F9                                                    7  4967  M D20 9Z0          338
744  7 44          MLC   F,F14                                                   7  4974  M D20 9Z5          338
745  7 45          MLC   F,F16                                                   7  4981  M D20 9Z7          338
746  7 46   PAS7C  SBR   X2,B3&X2                                                7  4988  H 094 1O5          338
747  7 47          C     X1C,TCON&X2                                             7  4995  C 9X4 9O5          338
748  7 48          BE    PAS7F                                                   5  5002  B /1W S            339
749  7 49          MLC   F,F20&X3                                                7  5007  M D20 |?1          339
750  7 50          MLC   F,F16&X2                                                7  5014  M D20 9R7          339
751  7 51          MLC   F,F14&X2                                                7  5021  M D20 9R5          339
752  7 52          MLC   F,F9&X2                                                 7  5028  M D20 9R0          339
753  7 53          MLC                                                           1  5035  M                  339
754  7 54          BCE   PAS7X,F7&X2,                                            8  5036  B |8W 9Q8          340
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SEQ PG LIN  LABEL  OP    OPERANDS                                                 SFX CT  LOCN  INSTRUCTION TYPE  CARD

755  7 55          C     X1P,X1P&X2                                                    7  5044  C 9X2 9P2          340
756  7 56          BU    PAS7X                                                         5  5051  B |8W /            340
757  7 57          C     X1C,X1C&X2                                                    7  5056  C 9X4 9P4          340
758  7 58          BU    PAS7X                                                         5  5063  B |8W /            340
759  7 59          MLC   @ @,F16&X2                                                    7  5068  M J5U 9R7          340
760  7 60          MLC   @ @,F14&X2                                                    7  5075  M J5U 9R5          341
761  7 61          B     PAS7A                                                         4  5082  B |9X              341
762  7 62   PAS7X  EQU   *&1                                                              5086
763  7 63          SBR   X3,B3&X3                                                      7  5086  H 099 1F5          341
764  7 64          B     PAS7C                                                         4  5093  B 98Y              341
765  7 65   PAS7A  BCE   PAS7D,TCON,8                                                  8  5097  B /5W 9W5 8        341
766  7 66          SBR   X1,B3&X1                                                      7  5105  H 089 1W5          341
767  7 67          B     PAS7E                                                         4  5112  B 87Y              342
768  7 68   PAS7F  MLC   F,F2&X2                                                       7  5116  M D20 9Q3          342
769  7 69          MLC   F,F16&X3                                                      7  5123  M D20 9I7          342
770  7 70   ****
771  7 71          MLC   F,F22&X3                                                      7  5130  M D20 |?3          342
772  7 72          MLC   F,F6&X3                                                       7  5137  M D20 9H7          342
773  7 73          MLC                                                                 1  5144  M                  342
774  7 74          SBR   X1,0&X3                                                       7  5145  H 089 0?0          343
775  7 75          B     PAS7A                                                         4  5152  B |9X              343
776  7 76   PAS7D  MLC   PASX1,X1                                                      7  5156  M J7T 089          343
777  7 77          BCE   PASSA,TCON-1,C                                                8  5163  B /8S 9W4 C        343
778  7 78          SBR   X1,B1&X1                                                      7  5171  H 089 0V5          343
779  7 79          B     PAS7B                                                         4  5178  B 87/              343
780  7 80   PASSA  B     PASRT               SUPPLEMENT COULD BE ADDED HERE.           4  5182  B D11              344
781  7 81   *
782  7 82   * P A S S  8.  DRAW LINES DOWN AND TO THE RIGHT, FROM COLS A & B.
783  7 83   *                USE EXIT1.
784  7 84   *
785  7 85   PAS8   SBR   PASRT&3                                                       4  5186  H D14              344
786  7 86          SBR   X1,0                                                          7  5190  H 089 000          344
787  7 87   *
788  7 88   PAS8B  BCE   PAS8A,X1L,          EXIT1 LABEL, NO.                          8  5197  B T5V 9W8          344
789  7 89          BCE   PAS8A,F29,1         F29 ON, YES, OFF PAGE.                    8  5205  B T5V |/0 1        344
790  7 90   *
791  7 91          MLC   TCON,SAVC           CONNECTOR NO. GOING TO 11                 7  5213  M 9W5 J6X          344
792  7 92          A     @11@,SAVC           GREATER THAN PRESENT COORDINATE.          7  5220  A J7V J6X          345
793  7 93          C     SAVC,X1C                                                      7  5227  C J6X 9X4          345
794  7 94          BU    PAS8A               NO.                                       5  5234  B T5V /            345
795  7 95   *                                  YES.
796  7 96          BCE   PAS8C,F17,1         FLAG 17 ON. YES, TRY ALT. ROUTE           8  5239  B T8S 9Z8 1        345
797  7 97          BCE   PAS8D,F14,1         NO, LINE 14 USED, YES                     8  5247  B S7U 9Z5 1        345
798  7 98          MLC   F,F17               NO, USE LINE 14.                          7  5255  M D20 9Z8          346
799  7 99          MLC                                                                 1  5262  M                  346
800  8 00          MLC   F,F14                                                         7  5263  M D20 9Z5          346
801  8 01          B     PAS8E                                                         4  5270  B T0T              346
802  8 02   PAS8D  BCE   PAS8C,F15,1         LINE 15 USED ALSO, YES.                   8  5274  B T8S 9Z6 1        346
803  8 03          MLC   F,F12                                                         7  5282  M D20 9Z3          346
804  8 04          MLC   F,F10                                                         7  5289  M D20 9Z1          347
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SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

805  8 05          MLC   F,F15                                                       7  5296  M D20 9Z6          347
806  8 06   *
807  8 07   PAS8E  MLC   F,F19              COMMON TO BOTH PATHS 14 & 15.            7  5303  M D20 ||0          347
808  8 08          MLC                                                               1  5310  M                  347
809  8 09          MLC   F,F9                                                        7  5311  M D20 9Z0          347
810  8 10          MLC   F,F7                                                        7  5318  M D20 9Y8          347
811  8 11   *
812  8 12          SBR   X2,B1&X1                                                    7  5325  H 094 0V5          348
813  8 13          MLC   F,F6&X2                                                     7  5332  M D20 9Q7          348
814  8 14          MLC                                                               1  5339  M                  348
815  8 15          MLC                                                               1  5340  M                  348
816  8 16   *
817  8 17   PAS8F  SBR   X2,B3&X2                                                    7  5341  H 094 1O5          348
818  8 18          MLC   F,F2&X2                                                     7  5348  M D20 9Q3          348
819  8 19   PAS8A  SBR   X1,B1&X1                                                    7  5355  H 089 0V5          348
820  8 20          BCE   PASRT,TCON,9                                                8  5362  B D11 9W5 9        349
821  8 21          BCE   PAS8A,TCON-1,C                                              8  5370  B T5V 9W4 C        349
822  8 22          B     PAS8B                                                       4  5378  B /9X              349
823  8 23   *
824  8 24   PAS8C  SBR   X2,B1&X1           TRY ALTERNATE ROUTE. USE RIGHT           7  5382  H 094 0V5          349
825  8 25          BCE   *&5,TOPCD&X2,N     ANGLE IF ADJACENT SYMBOL IS              8  5389  B U0/ 9O6 N        349
826  8 26          B     PAS8A              A NONE.                                  4  5397  B T5V              349
827  8 27          MLC   F,F13                                                       7  5401  M D20 9Z4          350
828  8 28          MLC                                                               1  5408  M                  350
829  8 29          MLC   F,F10                                                       7  5409  M D20 9Z1          350
830  8 30          MLC                                                               1  5416  M                  350
831  8 31          MLC   F,F7                                                        7  5417  M D20 9Y8          350
832  8 32          MLC   F,F26&X2                                                    7  5424  M D20 |!7          350
833  8 33          MLC   F,F24&X2                                                    7  5431  M D20 |!5          350
834  8 34          MLC   F,F6&X2                                                     7  5438  M D20 9Q7          351
835  8 35          MLC                                                               1  5445  M                  351
836  8 36          MLC   F,F3&X2                                                     7  5446  M D20 9Q4          351
837  8 37          MLC   F,F1&X2                                                     7  5453  M D20 9Q2          351
838  8 38          B     PAS8F                                                       4  5460  B T4/              351
839  8 39   *
840  8 40   * P A S S  9.  USING EXIT2 TRY TO DRAW LINES DOWN AND TO THE RIGHT.
841  8 41   *              AT THIS POINT ALL OFF PAGE CONNECTIONS FROM EXIT2
842  8 42   *              HAVE BEEN FLAGED, THEREFORE IF LINES CANNOT BE DRAWN
843  8 43   *              AN ON PAGE CONNECTION IS FLAGED.
844  8 44   *
845  8 45   PAS9   SBR   PASRT&3                                                     4  5464  H D14              351
846  8 46          SBR   X1,0                                                        7  5468  H 089 000          351
847  8 47   *
848  8 48   PAS9C  BCE   PAS9A,X2L,         EXIT2 LABEL, NO.                         8  5475  B W2S 9X5          352
849  8 49          BCE   PAS9A,F28,1        FLAG 27 OR 28 ON.                        8  5483  B W2S ||9 1        352
850  8 50          BCE                                                               1  5491  B                  352
851  8 51          BCE   PAS9A,F3,1         F3 ALREADY USED.                         8  5492  B W2S 9Y4 1        352
852  8 52          MLC   TCON,SAVC          NO. IS THE CONNECTOR GOING TO            7  5500  M 9W5 J6X          352
853  8 53          A     @11@,SAVC          11 GREATER THAN THIS COORDINATE.         7  5507  A J7V J6X          352
854  8 54          C     SAVC,X2C                                                    7  5514  C J6X 9Y1          353
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SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

855  8 55          BU    PAS9B               NO, GO FLAG ON PAGE CONNECTOR.          5  5521  B W1V /             353
856  8 56   *                                  YES.
857  8 57          BCE   PAS9B,F17,1         FLAGS 5 OR 17 ON.                       8  5526  B W1V 9Z8 1         353
858  8 58          BCE   PAS9B,F5,1                                                  8  5534  B W1V 9Y6 1         353
859  8 59          SBR   X2,B1&X1            NO                                      7  5542  H 094 0V5           353
860  8 60          BCE   PAS9B,F4&X2,1       NEXT ENVIRONMENT BEING USED.            8  5549  B W1V 9Q5 1         354
861  8 61   *                                  NO
862  8 62          MLC   F,F22                                                       7  5557  M D20 ||3           354
863  8 63          MLC   F,F19                                                       7  5564  M D20 ||0           354
864  8 64          MLC                                                               1  5571  M                   354
865  8 65          MLC                                                               1  5572  M                   354
866  8 66          MLC                                                               1  5573  M                   354
867  8 67          MLC   F,F5                                                        7  5574  M D20 9Y6           354
868  8 68          MLC   F,F3                                                        7  5581  M D20 9Y4           355
869  8 69          MLC   F,F6&X2                                                     7  5588  M D20 9Q7           355
870  8 70          MLC                                                               1  5595  M                   355
871  8 71          MLC                                                               1  5596  M                   355
872  8 72          SBR   X2,B3&X2                                                    7  5597  H 094 1O5           355
873  8 73          MLC   F,F2&X2                                                     7  5604  M D20 9Q3           355
874  8 74          B     PAS9A                                                       4  5611  B W2S               355
875  8 75   *
876  8 76   PAS9B  MLC   F,F28                                                       7  5615  M D20 ||9           356
877  8 77   PAS9A  C     TCON,@C9@                                                   7  5622  C 9W5 J6V           356
878  8 78          BE    PASRT                                                       5  5629  B D11 S             356
879  8 79          SBR   X1,B1&X1                                                    7  5634  H 089 0V5           356
880  8 80          BCE   *&5,TCON-1,C                                                8  5641  B W5T 9W4 C         356
881  8 81          B     PAS9C                                                       4  5649  B U7V               356
882  8 82          BCE   PAS9A,X2L,                                                  8  5653  B W2S 9X5           357
883  8 83          BCE   PAS9A,F3,1                                                  8  5661  B W2S 9Y4 1         357
884  8 84          B     PAS9B                                                       4  5669  B W1V               357
885  8 85   *
886  8 86   * P A S S  10. A FINAL PASS IS MADE AGAINST THE TABLE. ON PAGE
887  8 87   *               CONNECTORS FOR EXIT1 ARE FLAGGED.  AN ACCOUNT IS
888  8 88   *               MADE FOR INCOMING CONNECTORS.
889  8 89   *
890  8 90   PAS10  SBR   PASRT&3                                                     4  5673  H D14               357
891  8 91          SBR   X1,0                                                        7  5677  H 089 000           357
892  8 92   PASTO  BCE   PASTZ,X1L,                                                  8  5684  B X6X 9W8           357
893  8 93          BCE   *&5,TOPCD,0                                                 8  5692  B X0U 9W6 0         358
894  8 94          B     *&21                                                        4  5700  B X2U               358
895  8 95          BCE   *&13,F2,1                                                   8  5704  B X2U 9Y3 1         358
896  8 96          BCE   *&5,F1,1                                                    8  5712  B X2U 9Y2 1         358
897  8 97          B     PASTB                                                       4  5720  B Y0X               358
898  8 98          BCE   PASTB,F29,1                                                 8  5724  B Y0X |/0 1         359
899  8 99          BCE   PASTB,F7,1                                                  8  5732  B Y0X 9Y8 1         359
900  9 00          BCE   *&9,TOPCD,3                                                 8  5740  B X5W 9W6 3         359
901  9 01          BCE   PASTB,F3,1                                                  8  5748  B Y0X 9Y4 1         359
902  9 02          MLC   F,F30                                                       7  5756  M D20 |/1           359
903  9 03          B     PASTB                                                       4  5763  B Y0X               360
904  9 04   PASTZ  BCE   PASTB,TOPCD,N                                               8  5767  B Y0X 9W6 N         360
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SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

905  9 05          BCE   PASTB,TOPCD,0                                                  8  5775  B Y0X 9W6 0         360
906  9 06          C     X1P,@    @                                                     7  5783  C 9X2 J7Z           360
907  9 07          BE    PASTB                                                          5  5790  B Y0X S             360
908  9 08          BCE   PASTO&8,TCON,9      ROW 9 ALWAYS UNLESS LINE IS TO R           8  5795  B W9S 9W5 9         361
909  9 09          B     PASTB                                                          4  5803  B Y0X               361
910  9 10   PASTB  C     TCON,@C9@                                                      7  5807  C 9W5 J6V           361
911  9 11          BE    PASTA                                                          5  5814  B Y3| S             361
912  9 12          SBR   X1,B1&X1                                                       7  5819  H 089 0V5           361
913  9 13          B     PASTO                                                          4  5826  B W8U               361
914  9 14   *
915  9 15   PASTA  SBR   X1,0                                                           7  5830  H 089 000           362
916  9 16   PASTR  BCE   PASTX,F32,1                                                    8  5837  B !2/ |/3 1         362
917  9 17          BCE   PASTD,TOPCD,N                                                  8  5845  B !2Y 9W6 N         362
918  9 18          BCE   PASTD,TOPCD,0                                                  8  5853  B !2Y 9W6 0         362
919  9 19   PASTM  NOP   PASTN                                                          4  5861  N J2U               362
920  9 20          SBR   X2,0                                                           7  5865  H 094 000           363
921  9 21   PASTJ  BCE   PASTQ,TOPCD&X2,3                                               8  5872  B Z6S 9O6 3         363
922  9 22          BCE   PASTC,TOPCD&X2,0                                               8  5880  B Z9Y 9O6 0         363
923  9 23          BCE   PASTC,TOPCD&X2,N                                               8  5888  B Z9Y 9O6 N         363
924  9 24   PASTE  C     X1P&X2,TPG                                                     7  5896  C 9P2 9W3           363
925  9 25          BU    PASTC                                                          5  5903  B Z9Y /             364
926  9 26          C     TCON,X1C&X2                                                    7  5908  C 9W5 9P4           364
927  9 27          BU    PASTC                                                          5  5915  B Z9Y /             364
928  9 28          BCE   PASTC,F7&X2,1                                                  8  5920  B Z9Y 9Q8 1         364
929  9 29          BCE   *&9,TOPCD&X2,3                                                 8  5928  B Z4U 9O6 3         364
930  9 30          BCE   PASTC,F3&X2,1                                                  8  5936  B Z9Y 9Q4 1         365
931  9 31   PASTF  MLC   F,F31                                                          7  5944  M D20 |/2           365
932  9 32          MLC   @ @,F1                                                         7  5951  M J5U 9Y2           365
933  9 33          B     PASTD                                                          4  5958  B !2Y               365
934  9 34   PASTQ  C     X2P&X2,TPG                                                     7  5962  C 9P9 9W3           365
935  9 35          BU    PASTE                                                          5  5969  B Y9W /             365
936  9 36          C     TCON,X2C&X2                                                    7  5974  C 9W5 9Q1           366
937  9 37          BU    PASTE                                                          5  5981  B Y9W /             366
938  9 38          BCE   PASTE,F3&X2,1                                                  8  5986  B Y9W 9Q4 1         366
939  9 39          B     PASTF                                                          4  5994  B Z4U               366
940  9 40   PASTC  C     TCON&X2,@C9@                                                   7  5998  C 9O5 J6V           366
941  9 41          BE    PASTD                                                          5  6005  B !2Y S             366
942  9 42          SBR   X2,B1&X2                                                       7  6010  H 094 0N5           367
943  9 43          B     PASTJ                                                          4  6017  B Y7S               367
944  9 44   PASTX  MLC   @ @,F1                                                         7  6021  M J5U 9Y2           367
945  9 45   PASTD  C     TCON,@C9@                                                      7  6028  C 9W5 J6V           367
946  9 46          BE    PASTK                                                          5  6035  B !5/ S             367
947  9 47          SBR   X1,B1&X1                                                       7  6040  H 089 0V5           367
948  9 48          B     PASTR                                                          4  6047  B Y3X               368
949  9 49   PASTK  MLC   TPG,PASTP#4          SEE IF THE LAST EXITS ON THIS             7  6051  M 9W3 J8T           368
950  9 50          A     *-6,PASTP           PAGE ARE GOING TO 1ST                      7  6058  A !5Y J8T           368
951  9 51          C     X1C,@A0@            BLOCK ON NEXT PAGE.                        7  6065  C 9X4 J8V           368
952  9 52          BU    *&13                                                           5  6072  B !8Z /             368
953  9 53          C     X1P,PASTP                                                      7  6077  C 9X2 J8T           368
954  9 54          BE    PASTL                                                          5  6084  B J1T S             369
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

955  9 55          C     X2C,@A0@                                                     7  6089  C 9Y1 J8V          369
956  9 56          BU    PASRT                                                        5  6096  B D11 /            369
957  9 57          C     X2P,PASTP                                                    7  6101  C 9X9 J8T          369
958  9 58          BU    PASRT                                                        5  6108  B D11 /            369
959  9 59   PASTL  MLC   @B@,PASTM           YES. SET B SWITCH.                       7  6113  M J8W Y6/          369
960  9 60          B     PASRT                                                        4  6120  B D11              370
961  9 61   *
962  9 62   PASTN  MLC   @N@,PASTM           RESET SW.                                7  6124  M J8X Y6/          370
963  9 63          C     TCON,@A0@                                                    7  6131  C 9W5 J8V          370
964  9 64          BU    PASTM                                                        5  6138  B Y6/ /            370
965  9 65          MLC   F,F32             FLAG OFF PAGE ENTRANCE.                    7  6143  M D20 |/3          370
966  9 66          B     PASTX                                                        4  6150  B !2/              370
                   DCW   @ @                                                          1  6154             LIT     370
                         @W50@                                                        3  6157             LIT     371
                         @411@                                                        3  6160             LIT     371
                         @120@                                                        3  6163             LIT     371
                         @C9@                                                         2  6165             LIT     371
       517  SAVC         #02                                                          2  6167             AREA    371
                         @9@                                                          1  6168             LIT     371
                         @B9@                                                         2  6170             LIT     371
       628  PASX1        #03                                                          3  6173             AREA    372
                         @11@                                                         2  6175             LIT     372
                         @    @                                                       4  6179             LIT     372
       949  PASTP        #04                                                          4  6183             AREA    372
                         @A0@                                                         2  6185             LIT     372
                         @B@                                                          1  6186             LIT     372
                         @N@                                                          1  6187             LIT     372
967  9 67   * END OF PASSES.
968  9 68          EX    START                                                                 B 956              373
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 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

 969  9 69          JOB   PHASE2,PASS8
 970  9 70          DCW   @$ADD     @                                               9  6196                    376
 971  9 71          DSA   START                                                     3  6199  956               376
 972  9 72          DSA   START                                                     3  6202  956               376
 973  9 73          DSA   HIGHP6                                                    3  6205  ?0|               376
 974  9 74          DCW   @030865@                                                  6  6211                    376
 975  9 75          ORG   START                                                             0956
 976  9 76          B     FAZE8                                                     4  0956  B W73             377
 977  9 77  *
 978  9 78  * I / O  A R E A S.
 979  9 79  *
 980  9 80  *
 981  9 81          DCW   #1                                                        1  0960                    377
 982  9 82  CHARDA DA     3X137,X2,C         CHART DATA INPUT                          0961   1371              388
 983  9 83  SEQNOC        1,5                                                          0965              FIELD  388
 984  9 84  PAGE          6,9                                                          0969              FIELD  389
 985  9 85  COORD         10,11                                                        0971              FIELD  389
 986  9 86  O             12,12                                                        0972              FIELD  390
 987  9 87  INLABC        13,22                                                        0982              FIELD  390
 988  9 88  OPERA         23,27                                                        0987              FIELD  391
 989  9 89  T1            28,40                                                        1000              FIELD  391
 990  9 90  T2            41,53                                                        1013              FIELD  392
 991  9 91  T3            54,66                                                        1026              FIELD  392
 992  9 92  T4            67,79                                                        1039              FIELD  393
 993  9 93  T5            80,92                                                        1052              FIELD  393
 994  9 94  E1LAB         93,102                                                       1062              FIELD  394
 995  9 95  E1PAG         103,106                                                      1066              FIELD  394
 996  9 96  E1CON         107,108                                                      1068              FIELD  395
 997  9 97  E1NOY         109,111                                                      1071              FIELD  395
 998  9 98  E2LAB         112,121                                                      1081              FIELD  396
 999  9 99  E2PAG         122,125                                                      1085              FIELD  396
1000 10 00  E2CON         126,127                                                      1087              FIELD  397
1001 10 01  E2NOY         128,130                                                      1090              FIELD  397
1002 10 02          DCW   #1                                                        1  1372                    398
1003 10 03  *
1004 10 04  *
1005 10 05  LINEDA DA     3X40,X1,C          LINE DATA INPUT                           1373   1492              401
1006 10 06  G1            8,8                                                          1380              FIELD  401
1007 10 07  G2            9,9                                                          1381              FIELD  402
1008 10 08  G3            10,10                                                        1382              FIELD  402
1009 10 09  G4            11,11                                                        1383              FIELD  403
1010 10 10  G5            12,12                                                        1384              FIELD  403
1011 10 11  G6            13,13                                                        1385              FIELD  404
1012 10 12  G7            14,14                                                        1386              FIELD  404
1013 10 13  G8            15,15                                                        1387              FIELD  405
1014 10 14  G9            16,16                                                        1388              FIELD  405
1015 10 15  G10           17,17                                                        1389              FIELD  406
1016 10 16  G11           18,18                                                        1390              FIELD  406
1017 10 17  G12           19,19                                                        1391              FIELD  407
1018 10 18  G13           20,20                                                        1392              FIELD  407
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 SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

1019 10 19   G14          21,21                                                         1393              FIELD  408
1020 10 20   G15          22,22                                                         1394              FIELD  408
1021 10 21   G16          23,23                                                         1395              FIELD  409
1022 10 22   G17          24,24                                                         1396              FIELD  409
1023 10 23   G18          25,25                                                         1397              FIELD  410
1024 10 24   G19          26,26                                                         1398              FIELD  410
1025 10 25   G20          27,27                                                         1399              FIELD  411
1026 10 26   G21          28,28                                                         1400              FIELD  411
1027 10 27   G22          29,29                                                         1401              FIELD  412
1028 10 28   G23          30,30                                                         1402              FIELD  412
1029 10 29   G24          31,31                                                         1403              FIELD  413
1030 10 30   G25          32,32                                                         1404              FIELD  413
1031 10 31   G26          33,33                                                         1405              FIELD  414
1032 10 32   G27          34,34                                                         1406              FIELD  414
1033 10 33   G28          35,35                                                         1407              FIELD  415
1034 10 34   G29          36,36                                                         1408              FIELD  415
1035 10 35   G30          37,37                                                         1409              FIELD  416
1036 10 36   G31          38,38                                                         1410              FIELD  416
1037 10 37   G32          39,39                                                         1411              FIELD  417
1038 10 38   G33          40,40                                                         1412              FIELD  417
1039 10 39          DCW   #1                                                         1  1493                     418
1040 10 40   *
1041 10 41   *
1042 10 42   L      EQU   P&6&X3                                                        0206 X
1043 10 43   *
1044 10 44   *
1045 10 45          DCW   #1                                                         1  1494                     418
1046 10 46   TEXTDA DA    1X125,C             TEX DATA AREA                             1495   1619              421
1047 10 47   TSN          1,5                                                           1499              FIELD  421
1048 10 48   TOPT         6,6                                                           1500              FIELD  421
1049 10 49   TNL          7,8                                                           1502              FIELD  421
1050 10 50   TPN          9,12                                                          1506              FIELD  422
1051 10 51   TLINET       13,125                                                        1619              FIELD  422
1052 10 52          DCW   #1                                                         1  1620                     422
1053 10 53   *
1054 10 54   * CLOSED SUBROUTINES FOR REGULATING INDEX REGISTERS
1055 10 55   *
1056 10 56   CLRXR  SBR   CXR&3                                                      4  1621  H W43              422
1057 10 57          SBR   X1,0                                                       7  1625  H 089 000          422
1058 10 58          SBR   X2                                                         4  1632  H 094              422
1059 10 59          SBR   X3                                                         4  1636  H 099              422
1060 10 60   CXR    B     0                                                          4  1640  B 000              423
1061 10 61   *
1062 10 62   INCXR  SBR   IXR&3                                                      4  1644  H W72              423
1063 10 63          SBR   X1,40&X1                                                   7  1648  H 089 0U0          423
1064 10 64          SBR   X2,137&X2                                                  7  1655  H 094 1L7          423
1065 10 65          SBR   X3,40&X3                                                   7  1662  H 099 0D0          423
1066 10 66   IXR    B     0                                                          4  1669  B 000              423
1067 10 67   *
1068 10 68   *
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 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

1069 10 69   FAZE8  B     HOUSE8              TO CLOSED HOUSEKEEP ROUTINE.        4  1673  B K68              423
1070 10 70          MLC   GPMARK,CHARDA&411&X0                                    7  1677  M 934 T72          424
1071 10 71          MLC   GPMARK,LINEDA&120&X0                                    7  1684  M 934 U93          424
1072 10 72          MLC   GPMARK,TEXTDA&125                                       7  1691  M 934 W20          424
1073 10 73   *
1074 10 74          B     RED812               READ CHART , TEXT REC              4  1698  B !96              424
1075 10 75          BCE   RDLND,CHARDA-1&X0,1     IF CHART READ LINE REC          8  1702  B J50 960 1        424
1076 10 76          MLC   GPMARK,CHARDA&X0&125                                    7  1710  M 934 |86          425
1077 10 77          MCM   CHARDA&X0,TEXTDA                                        7  1717  P 961 U95          425
1078 10 78          MCW   @ @,CHARDA&X0&125                                       7  1724  M K7X |86          425
1079 10 79          MLC   @ @,CHARDA&137&X0                                       7  1731  M K7X |98          425
1080 10 80          B     TEXT                                                    4  1738  B X42              425
1081 10 81   *
1082 10 82   * ENTER HERE TO PRINT COMMENT CARDS FROM MR3.
1083 10 83   *
1084 10 84   TEXT   B     EJECT                                                   4  1742  B 704              425
1085 10 85          B     WRT1                                                    4  1746  B 863              426
1086 10 86          B     WRT1                                                    4  1750  B 863              426
1087 10 87          MLC   @FLOWCHART PAGE@,P&117                                  7  1754  M K9/ 317          426
1088 10 88          MCS   TPN,P&123           YES. MOVE PAGE NO.                  7  1761  Z V06 323          426
1089 10 89          MLC   JOBHD,P&92          MOVE JOB HEADR.                     7  1768  M 862 292          426
1090 10 90          B     WRT1                                                    4  1775  B 863              426
1091 10 91          B     WRT1                                                    4  1779  B 863              426
1092 10 92          B     WRT1                                                    4  1783  B 863              427
1093 10 93          B     WRT1                                                    4  1787  B 863              427
1094 10 94          B     WRT1                PRINT HEADING.                      4  1791  B 863              427
1095 10 95          B     WRT2                SKIP 8 LINES PRIOR                  4  1795  B 863              427
1096 10 96          B     WRT2                TO PRINTING 1ST COMMENT.            4  1799  B 863              427
1097 10 97          B     WRT2                                                    4  1803  B 863              427
1098 10 98          B     WRT2                                                    4  1807  B 863              427
1099 10 99   *
1100 11 00   ISTASP BCE   *&5,TOPT,S           SPACE OPERATION.                   8  1811  B Y23 V00 S        428
1101 11 01          B     COMONL              NO.                                 4  1819  B Y61              428
1102 11 02          MLC   @00@,SPACCT#2       YES, SET UP SPACE LOOP.             7  1823  M K9T K9V          428
1103 11 03   SPLOOP B     WRT2                                                    4  1830  B 863              428
1104 11 04          B     WRT1                                                    4  1834  B 863              428
1105 11 05          A     *-6,SPACCT                                              7  1838  A Y38 K9V          428
1106 11 06          C     SPACCT,TNL                                              7  1845  C K9V V02          429
1107 11 07          BU    SPLOOP                                                  5  1852  B Y30 /            429
1108 11 08          B     SAVTPG                                                  4  1857  B Y76              429
1109 11 09   *
1110 11 10   COMONL B     WRT1                                                    4  1861  B 863              429
1111 11 11          MLC   TLINET,P&123                                            7  1865  M W19 323          429
1112 11 12          B     WRT2                PRINT AFTER SPACE.                  4  1872  B 863              429
1113 11 13   *
1114 11 14   SAVTPG MLC   TPN,LSTTPN#4        SAVE THIS PAGE NO.                  7  1876  M V06 K9Z          429
1115 11 15          B     RED812            READ CHART,TEXT REC                   4  1883  B !96              430
1116 11 16          BCE   RDLND,CHARDA-1&X0,1                                     8  1887  B J50 960 1        430
1117 11 17          MLC   GPMARK,CHARDA&X0&125                                    7  1895  M 934 |86          430
1118 11 18          MCM   CHARDA&X0,TEXTDA                                        7  1902  P 961 U95          430
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                   SFX CT  LOCN  INSTRUCTION TYPE  CARD

1119 11 19          MCW   @ @,CHARDA&X0&125                                                7  1909  M K7X |86           430
1120 11 20          MLC   @ @,CHARDA&X0&137                                                7  1916  M K7X |98           431
1121 11 21   NEWTPG C     TPN,LSTTPN          PAGE NO. CHANGE.                             7  1923  C V06 K9Z           431
1122 11 22          BE    ISTASP              NO.                                          5  1930  B Y11 S             431
1123 11 23          B     TEXT                YES.                                         4  1935  B X42               431
1124 11 24   *
1125 11 25   * ENTER HERE TO START PRINTING CHARTS.
1126 11 26   *
1127 11 27   CHART  B     EJECT                                                            4  1939  B 704               431
1128 11 28          B     WRT1                                                             4  1943  B 863               431
1129 11 29          MLC   @FLOWCHART PAGE@,P&120                                           7  1947  M L1T 320           431
1130 11 30          MLC   JOBHD,P&92          PRINT HEADING AFTER A SPACE.                 7  1954  M 862 292           432
1131 11 31          MCS   PAGE,P&126                                                       7  1961  Z 9O9 326           432
1132 11 32          B     WRT1                SYMBOLS.                                     4  1968  B 863               432
1133 11 33          B     WRT1                                                             4  1972  B 863               432
1134 11 34   *
1135 11 35   * GO TO THE 16 CLOSED ROUTINES WHICH PRINT EACH ENVIRONMENT LINE.
1136 11 36   *
1137 11 37   NXTSYM B     LINE1                                                            4  1976  B M54               432
1138 11 38          B     LINE2                                                            4  1980  B N47               432
1139 11 39          B     LINE3                                                            4  1984  B O80               432
1140 11 40          B     LINE4                                                            4  1988  B R68               433
1141 11 41          B     LINE5                                                            4  1992  B B72               433
1142 11 42          B     LINE6                                                            4  1996  B E85               433
1143 11 43          B     LINE7                                                            4  2000  B 44Y               433
1144 11 44          B     LINE8                                                            4  2004  B 76S               433
1145 11 45          B     LINE9                                                            4  2008  B 79V               433
1146 11 46          B     LINE10                                                           4  2012  B |8|               433
1147 11 47          B     LINE11                                                           4  2016  B /8X               434
1148 11 48          B     LINE12                                                           4  2020  B S9|               434
1149 11 49          B     LINE13                                                           4  2024  B U1V               434
1150 11 50          B     LINE14                                                           4  2028  B V1V               434
1151 11 51          B     LINE15                                                           4  2032  B X7V               434
1152 11 52          B     LINE16                                                           4  2036  B J5|               434
1153 11 53   *
1154 11 54          B     RED812              READ NEXT CHART DATA RECORDS.                4  2040  B !96               434
1155 11 55          BCE   RDLND1,CHARDA-1&X0,1   IF CHART RD LINE REC,B ENOCH              8  2044  B J69 960 1         435
1156 11 56          MLC   GPMARK,CHARDA&X0&125                                             7  2052  M 934 |86           435
1157 11 57          MCM   CHARDA&X0,TEXTDA                                                 7  2059  P 961 U95           435
1158 11 58          MCW   @ @,CHARDA&X0&125                                                7  2066  M K7X |86           435
1159 11 59          MLC   @ @,CHARDA&137&X0                                                7  2073  M K7X |98           435
1160 11 60          B     TEXT                SWITCH TO TEXT MODE.                         4  2080  B X42               436
1161 11 61   *
1162 11 62   ENOCH  BCE   CHART,COORD&X0,0     NEW CHART PAGE. YES.                        8  2084  B Z39 971 0         436
1163 11 63          B     NXTSYM              NO, TO NEXT SYMBOL.                          4  2092  B Z76               436
1164 11 64   *
1165 11 65   * CLOSED ROUTINE TO READ 1 BLOCK EACH FROM MR1 AND MR2.
1166 11 66   *
1167 11 67   RED812 SBR   RD812R&3                                                         4  2096  H J35               436
1168 11 68          MCW   @ @,CHARDA&X0&125                                                7  2100  M K7X |86           436
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 SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

1169 11 69          SBR   X1,0                                                       7  2107  H 089 000           436
1170 11 70          SBR   X2                                                         4  2114  H 094               436
1171 11 71   *
1172 11 72          B     SYSIO                                                      4  2118  B 500               437
1173 11 73          DCW   &IOCON4                                                    3  2124  400                 437
1174 11 74          ORG   *-2                                                                  2123
1175 11 75          DC    &CHARDA-1&X0                                               3  2125  960                 438
1176 11 76          DC    @R@                                                        1  2126                      438
1177 11 77          BEF   CLRCAS                                                     5  2127  B J36 K             438
1178 11 78   RD812R B     0                                                          4  2132  B 000               438
1179 11 79   CLRCAS RWD   MR1                                                        5  2136  U %U2 R             438
1180 11 80          RWD   MR2                                                        5  2141  U %U4 R             438
1181 11 81          B     ENDJOB                                                     4  2146  B K3Z               439
1182 11 82   *
1183 11 83   RDLND  NOP                                                              1  2150  N                   439
1184 11 84          B     SYSIO                                                      4  2151  B 500               439
1185 11 85          DCW   &IOCON2                                                    3  2157  200                 439
1186 11 86          ORG   *-2                                                                  2156
1187 11 87          DC    &LINEDA&X0                                                 3  2158  T73                 440
1188 11 88          DC    @R@                                                        1  2159                      440
1189 11 89          BEF   CLRCAS                                                     5  2160  B J36 K             440
1190 11 90          B     CHART                                                      4  2165  B Z39               440
1191 11 91   RDLND1 NOP                                                              1  2169  N                   440
1192 11 92          B     SYSIO                                                      4  2170  B 500               440
1193 11 93          DCW   &IOCON2                                                    3  2176  200                 441
1194 11 94          ORG   *-2                                                                  2175
1195 11 95          DC    &LINEDA&X0                                                 3  2177  T73                 442
1196 11 96          DC    @R@                                                        1  2178                      442
1197 11 97          BEF   CLRCAS                                                     5  2179  B J36 K             442
1198 11 98          B     ENOCH                                                      4  2184  B !84               442
1199 11 99   *
1200 12 00   *
1201 12 01   * COMMON PIVOT RETURN FOR ALL LINE ROUTINES.
1202 12 02   *
1203 12 03   LINER  B     0                                                          4  2188  B 000               442
1204 12 04   *
1205 12 05   *
1206 12 06   * CLOSED RTN USED BY LINE7 THRU LINE14 ROUTINES TO CHECK FLAGS 14
1207 12 07   * AND 15.
1208 12 08   *
1209 12 09   CHK145 SBR   *&34                                                       4  2192  H K29               442
1210 12 10          BCE   *&8,G15,                                                   8  2196  B K11 TZ4           443
1211 12 11          MLC   DLD,L&39                                                   7  2204  M 936 2D5           443
1212 12 12          BCE   *&8,G14,                                                   8  2211  B K26 TZ3           443
1213 12 13          MLC   DLD,L&36                                                   7  2219  M 936 2D2           443
1214 12 14          B     0                                                          4  2226  B 000               443
1215 12 15   *
1216 12 16   * CLOSED RTN USED BY LINE1 THRU LINE5 RTNS TO CHK FLAGS 8 AND 11.
1217 12 17   *
1218 12 18   CHK811 SBR   *&34                                                       4  2230  H K67               443
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD

1219 12 19          BCE   *&8,G8,                                                          8  2234  B K49 TY7          444
1220 12 20          MLC   DLD,L&36                                                         7  2242  M 936 2D2          444
1221 12 21          BCE   *&8,G11,                                                         8  2249  B K64 TZ0          444
1222 12 22          MLC   DLD,L&39                                                         7  2257  M 936 2D5          444
1223 12 23          B     0                                                                4  2264  B 000              444
1224 12 24   *
1225 12 25   HOUSE8 SBR   HSE8RT&3            HOUSEKEEP, PHASE 8.                          4  2268  H M07              444
1226 12 26          RWD   MR1                 REWIND THE 3 INPUT                           5  2272  U %U2 R            445
1227 12 27          RWD   MR2                 TAPES.                                       5  2277  U %U4 R            445
1228 12 28          MLC   DLA,DLA23           SET UP SERIES OF LINE ACROSS                 7  2282  M 937 M53          445
1229 12 29          MLC   DLA23               CONSTANTS.                                   4  2289  M M53              445
1230 12 30          MLC   DS,DS23             SAME FOR SYMBOL CHAR.                        7  2293  M 935 M30          445
1231 12 31          MLC   DS23                                                             4  2300  M M30              445
1232 12 32          BSP   SYSTP                                                            5  2304  U %U1 B            445
1233 12 33          BSP   SYSTP                                                            5  2309  U %U1 B            446
1234 12 34          BSP   SYSTP                                                            5  2314  U %U1 B            446
1235 12 35          BSP   SYSTP                                                            5  2319  U %U1 B            446
1236 12 36          BSP   SYSTP                                                            5  2324  U %U1 B            446
1237 12 37          BSP   SYSTP                                                            5  2329  U %U1 B            446
1238 12 38          BSP   SYSTP                                                            5  2334  U %U1 B            446
1239 12 39          BSP   SYSTP                                                            5  2339  U %U1 B            446
1240 12 40          BSP   SYSTP                                                            5  2344  U %U1 B            447
1241 12 41          BSP   SYSTP                                                            5  2349  U %U1 B            447
1242 12 42          BSP   SYSTP                                                            5  2354  U %U1 B            447
1243 12 43          BSP   SYSTP                                                            5  2359  U %U1 B            447
1244 12 44          BSP   SYSTP                                                            5  2364  U %U1 B            447
1245 12 45          BSP   SYSTP                                                            5  2369  U %U1 B            447
1246 12 46          BSP   SYSTP                                                            5  2374  U %U1 B            447
1247 12 47          BSP   SYSTP                                                            5  2379  U %U1 B            448
1248 12 48          BSP   SYSTP                                                            5  2384  U %U1 B            448
1249 12 49          BSP   SYSTP                                                            5  2389  U %U1 B            448
1250 12 50          BSP   SYSTP                                                            5  2394  U %U1 B            448
1251 12 51          BSP   SYSTP                                                            5  2399  U %U1 B            448
1252 12 52   HSE8RT B     0                                                                4  2404  B 000              448
1253 12 53   DS1    DCW   0                                                                1  2408                     448
1254 12 54   DS2    DC    0                                                                1  2409                     449
1255 12 55   DS3    DC    0                                                                1  2410                     449
1256 12 56   DS4    DC    0                                                                1  2411                     449
1257 12 57   DS5    DC    0                                                                1  2412                     449
1258 12 58   DS6    DC    0                                                                1  2413                     449
1259 12 59   DS7    DC    0                                                                1  2414                     449
1260 12 60   DS8    DC    0                                                                1  2415                     449
1261 12 61   DS9    DC    0                                                                1  2416                     449
1262 12 62   DS10   DC    0                                                                1  2417                     449
1263 12 63   DS11   DC    0                                                                1  2418                     449
1264 12 64   DS12   DC    0                                                                1  2419                     449
1265 12 65   DS13   DC    0                                                                1  2420                     449
1266 12 66   DS14   DC    0                                                                1  2421                     449
1267 12 67   DS15   DC    0                                                                1  2422                     449
1268 12 68   DS16   DC    0                                                                1  2423                     449
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD

1269 12 69   DS17   DC    0                                                                1  2424                     449
1270 12 70   DS18   DC    0                                                                1  2425                     449
1271 12 71   DS19   DC    0                                                                1  2426                     449
1272 12 72   DS20   DC    0                                                                1  2427                     449
1273 12 73   DS21   DC    0                                                                1  2428                     449
1274 12 74   DS22   DC    0                                                                1  2429                     449
1275 12 75   DS23   DC    0                                                                1  2430                     449
1276 12 76   DLA1   DCW   1                                                                1  2431                     449
1277 12 77   DLA2   DC    0                                                                1  2432                     449
1278 12 78   DLA3   DC    0                                                                1  2433                     449
1279 12 79   DLA4   DC    0                                                                1  2434                     449
1280 12 80   DLA5   DC    0                                                                1  2435                     449
1281 12 81   DLA6   DC    0                                                                1  2436                     449
1282 12 82   DLA7   DC    0                                                                1  2437                     449
1283 12 83   DLA8   DC    0                                                                1  2438                     449
1284 12 84   DLA9   DC    0                                                                1  2439                     449
1285 12 85   DLA10  DC    0                                                                1  2440                     449
1286 12 86   DLA11  DC    0                                                                1  2441                     449
1287 12 87   DLA12  DC    0                                                                1  2442                     449
1288 12 88   DLA13  DC    0                                                                1  2443                     449
1289 12 89   DLA14  DC    0                                                                1  2444                     449
1290 12 90   DLA15  DC    0                                                                1  2445                     449
1291 12 91   DLA16  DC    0                                                                1  2446                     449
1292 12 92   DLA17  DC    0                                                                1  2447                     449
1293 12 93   DLA18  DC    0                                                                1  2448                     450
1294 12 94   DLA19  DC    0                                                                1  2449                     450
1295 12 95   DLA20  DC    0                                                                1  2450                     450
1296 12 96   DLA21  DC    0                                                                1  2451                     450
1297 12 97   DLA22  DC    0                                                                1  2452                     450
1298 12 98   DLA23  DC    0                                                                1  2453                     450
1299 12 99   *
1300 13 00   LINE1  SBR   LINER&3                                                          4  2454  H J91              450
1301 13 01          B     CLRXR                                                            4  2458  B W21              450
1302 13 02   LINE1A B     CHK811                                                           4  2462  B K30              450
1303 13 03          BCE   *&8,G2,                                                          8  2466  B M81 TY1          450
1304 13 04          MLC   DLD,L&17                                                         7  2474  M 936 2B3          451
1305 13 05          BCE   *&5,O,3                                                          8  2481  B M93 9P2 3        451
1306 13 06          B     *&8                                                              4  2489  B N00              451
1307 13 07          MLC   DS,L&17                                                          7  2493  M 935 2B3          451
1308 13 08          BCE   LINE1B,G2,          DRAW ARROW                                   8  2500  B N27 TY1          451
1309 13 09          BCE   *&5,O,3             DOWN, LINE1.                                 8  2508  B N20 9P2 3        452
1310 13 10          B     LINE1B                                                           4  2516  B N27              452
1311 13 11          MLC   DAD,L&17                                                         7  2520  M 938 2B3          452
1312 13 12   LINE1B EQU   *&1                                                                 2527
1313 13 13          B     INCXR                                                            4  2527  B W44              452
1314 13 14          BCE   LINE1A,X3-2,0                                                    8  2531  B M62 097 0        452
1315 13 15          B     WRT1                                                             4  2539  B 863              452
1316 13 16          B     LINER                                                            4  2543  B J88              452
1317 13 17   *
1318 13 18   *
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                     SFX CT  LOCN  INSTRUCTION TYPE  CARD

1319 13 19   *
1320 13 20   LINE2  SBR   LINER&3                                                          4  2547  H J91              453
1321 13 21          B     CLRXR                                                            4  2551  B W21              453
1322 13 22   LINE2A B     CHK811                                                           4  2555  B K30              453
1323 13 23          BCE   LINE2B,O,3                                                       8  2559  B N86 9P2 3        453
1324 13 24          BCE   LINE2C,G2,                                                       8  2567  B O00 TY1          453
1325 13 25          MLC   DLD,L&17                                                         7  2575  M 936 2B3          453
1326 13 26          B     LINE2C                                                           4  2582  B O00              453
1327 13 27   LINE2B MLC   DS,L&19                                                          7  2586  M 935 2B5          454
1328 13 28          MLC   DS,L&15                                                          7  2593  M 935 2B1          454
1329 13 29   LINE2C BCE   *&8,INLABC-9,)                                                   8  2600  B O15 9P3 )        454
1330 13 30          MLC   INLABC,L&10                                                      7  2608  M 9Q2 2A6          454
1331 13 31          BCE   LINE2D,G2,                                                       8  2615  B O60 TY1          454
1332 13 32          BCE   LINE2D,O,N                                                       8  2623  B O60 9P2 N        455
1333 13 33          MLNS  O,*&8                                                            7  2631  D 9P2 O45          455
1334 13 34          BCE   *&8,@1245@,0                                                     8  2638  B O53 L1X 0        455
1335 13 35          BCE                                                                    1  2646  B                  455
1336 13 36          BCE                                                                    1  2647  B                  455
1337 13 37          BCE                                                                    1  2648  B                  455
1338 13 38          B     LINE2D                                                           4  2649  B O60              455
1339 13 39          MLC   DAD,L&17            ARROW DOWN, LINE 2.                          7  2653  M 938 2B3          456
1340 13 40   LINE2D EQU   *&1                                                                 2660
1341 13 41          B     INCXR                                                            4  2660  B W44              456
1342 13 42          BCE   LINE2A,X3-2,0                                                    8  2664  B N55 097 0        456
1343 13 43          B     WRT1                                                             4  2672  B 863              456
1344 13 44          B     LINER                                                            4  2676  B J88              456
1345 13 45   *
1346 13 46   *
1347 13 47   *
1348 13 48   LINE3  SBR   LINER&3                                                          4  2680  H J91              456
1349 13 49          B     CLRXR                                                            4  2684  B W21              456
1350 13 50   LINE3A B     CHK811                                                           4  2688  B K30              457
1351 13 51          BCE   *&9,G30,1                                                        8  2692  B P08 U|9 1        457
1352 13 52          BCE   BYPMV,G29,                                                       8  2700  B Q07 U|8          457
1353 13 53          BCE   BYPMV,E1LAB-9,)                                                  8  2708  B Q07 |N3 )        457
1354 13 54          BCE   BYPMV,O,2          ON IO BOX                                     8  2716  B Q07 9P2 2        457
1355 13 55          BCE   CHR9,E1LAB,        10NTH CHR#BLANK                               8  2724  B P43 |O2          458
1356 13 56          MLC   E1LAB,L&34         NO                                            7  2732  M |O2 2D0          458
1357 13 57          B     BYPMV                                                            4  2739  B Q07              458
1358 13 58   CHR9   BCE   CHR8,E1LAB-1,       9NTH CHR#BLANK                               8  2743  B P62 |O1          458
1359 13 59          MLC   E1LAB-1,L&34        NO                                           7  2751  M |O1 2D0          458
1360 13 60          B     BYPMV                                                            4  2758  B Q07              458
1361 13 61   CHR8   BCE   CHR7,E1LAB-2,       8TH  CHR#BLANK                               8  2762  B P81 |O0          459
1362 13 62          MLC   E1LAB-2,L&34        NO                                           7  2770  M |O0 2D0          459
1363 13 63          B     BYPMV                                                            4  2777  B Q07              459
1364 13 64   CHR7   BCE   CHR6,E1LAB-3,       7TH  CHR#BLANK                               8  2781  B Q00 |N9          459
1365 13 65          MLC   E1LAB-3,L&34        NO                                           7  2789  M |N9 2D0          459
1366 13 66          B     BYPMV                                                            4  2796  B Q07              459
1367 13 67   CHR6   MLC   E1LAB-4,L&34        6 CHAR. OR LESS                              7  2800  M |N8 2D0          460
1368 13 68   *
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                     SFX CT  LOCN  INSTRUCTION TYPE  CARD

1369 13 69   BYPMV  BCE   LINE3B,G23,1                                                      8  2807  B Q35 U|2 1         460
1370 13 70          BCE   LINE3B&7,G2,                                                      8  2815  B Q42 TY1           460
1371 13 71          BCE   LINE3B,O,6                                                        8  2823  B Q35 9P2 6         460
1372 13 72          B     *&8                                                               4  2831  B Q42               460
1373 13 73   LINE3B MLC   DLD,L&17                                                          7  2835  M 936 2B3           461
1374 13 74   *
1375 13 75          BCE   LINE3C,O,N          FINISHED IF NOTE OR NONE.                     8  2842  B R48 9P2 N         461
1376 13 76          BCE   LINE3C,O,0                                                        8  2850  B R48 9P2 0         461
1377 13 77   *
1378 13 78          BCE   *&5,O,2             I/O.                                          8  2858  B Q70 9P2 2         461
1379 13 79          B     *&15                NO.                                           4  2866  B Q84               461
1380 13 80          MLC   DS3,L&27            YES.                                          7  2870  M M10 2C3           462
1381 13 81          MLC   DS3,L&9                                                           7  2877  M M10 2A5           462
1382 13 82   *
1383 13 83          BCE   *&20,G2,                                                          8  2884  B R11 TY1           462
1384 13 84          BCE   *&5,O,6                                                           8  2892  B R04 9P2 6         462
1385 13 85          B     *&8                                                               4  2900  B R11               462
1386 13 86          MLC   DAD,L&17            ARROW DOWN, LINE 3.                           7  2904  M 938 2B3           463
1387 13 87          BCE   LINE3C,O,6                                                        8  2911  B R48 9P2 6         463
1388 13 88          MLC   DS,L&13                                                           7  2919  M 935 2A9           463
1389 13 89          MLC   DS,L&21                                                           7  2926  M 935 2B7           463
1390 13 90          BCE   LINE3C,O,3                                                        8  2933  B R48 9P2 3         463
1391 13 91          MLC   DS15,L&24                                                         7  2941  M M22 2C0           464
1392 13 92   *
1393 13 93   LINE3C B     INCXR                                                             4  2948  B W44               464
1394 13 94          BCE   LINE3A,X3-2,0                                                     8  2952  B O88 097 0         464
1395 13 95          B     WRT1                                                              4  2960  B 863               464
1396 13 96          B     LINER                                                             4  2964  B J88               464
1397 13 97   *
1398 13 98   *
1399 13 99   *
1400 14 00   * LINE 4. USED BY LINE 8 RTN ALSO.
1401 14 01   *
1402 14 02   LINE4  SBR   LINER&3                                                           4  2968  H J91               464
1403 14 03          B     CLRXR                                                             4  2972  B W21               464
1404 14 04          SBR   LINE4A&3,CHK811     RESET FOR LINE 4.                             7  2976  H ?00 K30           465
1405 14 05          SBR   LINE4Z&3,T1                                                       7  2983  H ?91 |!0           465
1406 14 06          MLZS  *-8,LINE4Z&2                                                      7  2990  Y R88 ?90           465
1407 14 07   LINE4A B     CHK811              ENTER HERE FROM LINE 8.                       4  2997  B K30               465
1408 14 08          BCE   *&16,G30,1                                                        8  3001  B ?24 U|9 1         465
1409 14 09          BCE   *&15,G29,                                                         8  3009  B ?31 U|8           466
1410 14 10          MLC   DS,L&29                                                           7  3017  M 935 2C5           466
1411 14 11          MLC   DS3,L&32                                                          7  3024  M M10 2C8           466
1412 14 12          BCE   *&8,G23,                                                          8  3031  B ?46 U|2           466
1413 14 13          MLC   DLD,L&17                                                          7  3039  M 936 2B3           466
1414 14 14          BCE   LINE4C,O,N                                                        8  3046  B B38 9P2 N         467
1415 14 15   *
1416 14 16          BCE   LINE4B,O,4                                                        8  3054  B ?81 9P2 4         467
1417 14 17          BCE   *&5,O,5                                                           8  3062  B ?74 9P2 5         467
1418 14 18          B     *&15                                                              4  3070  B ?88               467
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                     SFX CT  LOCN  INSTRUCTION TYPE  CARD

1419 14 19          MLC   DS,L&9                                                            7  3074  M 935 2A5           467
1420 14 20   LINE4B MLC   DS,L&25                                                           7  3081  M 935 2C1           468
1421 14 21   *
1422 14 22   LINE4Z MLC   T1,L&23                                                           7  3088  M |!0 2B9           468
1423 14 23          BCE   LINE4C,O,0                                                        8  3095  B B38 9P2 0         468
1424 14 24          BCE   LINE4Q,O,3                                                        8  3103  B A76 9P2 3         468
1425 14 25   *
1426 14 26          BCE   *&16,O,2                                                          8  3111  B A34 9P2 2         468
1427 14 27          BCE   *&8,O,5                                                           8  3119  B A34 9P2 5         469
1428 14 28          MLC   DS,L&10                                                           7  3127  M 935 2A6           469
1429 14 29          BCE   *&5,O,1                                                           8  3134  B A46 9P2 1         469
1430 14 30          B     *&8                                                               4  3142  B A53               469
1431 14 31   *
1432 14 32          MLC   DS,L&24                                                           7  3146  M 935 2C0           469
1433 14 33          BCE   *&5,O,6                                                           8  3153  B A65 9P2 6         470
1434 14 34          B     LINE4C                                                            4  3161  B B38               470
1435 14 35          MLC   DS14,L&24                                                         7  3165  M M21 2C0           470
1436 14 36          B     LINE4C                                                            4  3172  B B38               470
1437 14 37   *
1438 14 38   LINE4Q BCE   *&5,L&23,                                                         8  3176  B A88 2B9           470
1439 14 39          B     *&8                                                               4  3184  B A95               470
1440 14 40          MLC   DS,L&23                                                           7  3188  M 935 2B9           471
1441 14 41          BCE   *&5,L&11,                                                         8  3195  B B07 2A7           471
1442 14 42          B     *&8                                                               4  3203  B B14               471
1443 14 43          MLC   DS,L&11                                                           7  3207  M 935 2A7           471
1444 14 44          B     LINE4C                                                            4  3214  B B38               471
1445 14 45   *
1446 14 46   LINE4D B     INCXR                                                             4  3218  B W44               471
1447 14 47          BCE   LINE4A,X3-2,0                                                     8  3222  B R97 097 0         472
1448 14 48          B     WRT1                                                              4  3230  B 863               472
1449 14 49          B     LINER                                                             4  3234  B J88               472
1450 14 50   *
1451 14 51   LINE4C BCE   *&16,G31,1          INCOMING CONNECTOR                            8  3238  B B61 U/0 1         472
1452 14 52          BCE   *&15,G32,                                                         8  3246  B B68 U/1           472
1453 14 53          MLC   DS,L&1              OFF PAGE ONLY                                 7  3254  M 935 2?7           472
1454 14 54          MLC   DS3,L&4             ON AND OFF PAGE.                              7  3261  M M10 2A0           473
1455 14 55          B     LINE4D                                                            4  3268  B B18               473
1456 14 56   *
1457 14 57   LINE5  SBR   LINER&3                                                           4  3272  H J91               473
1458 14 58          B     CLRXR                                                             4  3276  B W21               473
1459 14 59   LINE5A BCE   *&5,G13,1           BY PASS LINE DOWN IF CROSSING                 8  3280  B B92 TZ2 1         473
1460 14 60          B     CHK811              LINES.                                        4  3288  B K30               473
1461 14 61          BCE   *&32,G14,                                                         8  3292  B C31 TZ3           473
1462 14 62          BCE   *&24,G10,                                                         8  3300  B C31 TY9           474
1463 14 63          BCE   *&16,G8,                                                          8  3308  B C31 TY7           474
1464 14 64          BCE   *&8,G7,                                                           8  3316  B C31 TY6           474
1465 14 65          MLC   @ @,L&36           SET UP CORSS OVER.                             7  3324  M K7X 2D2           474
1466 14 66          BCE   *&9,G29,1                                                         8  3331  B C47 U|8 1         474
1467 14 67          BCE   *&15,G30,                                                         8  3339  B C61 U|9           475
1468 14 68          MLC   DS,L&29             CONNECTORS OUT.                               7  3347  M 935 2C5           475
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 SEQ PG LIN  LABEL  OP    OPERANDS                                   SFX CT  LOCN  INSTRUCTION TYPE  CARD

1469 14 69          MLC   DS,L&33                                         7  3354  M 935 2C9           475
1470 14 70          BCE   *&9,G32,1                                       8  3361  B C77 U/1 1         475
1471 14 71          BCE   *&15,G31,                                       8  3369  B C91 U/0           475
1472 14 72          MLC   DS,L&1              CONNECTOR IN.               7  3377  M 935 2?7           476
1473 14 73          MLC   DS,L&5                                          7  3384  M 935 2A1           476
1474 14 74   *
1475 14 75          BCE   *&32,G7,                                        8  3391  B D30 TY6           476
1476 14 76          BCE   *&24,G8,                                        8  3399  B D30 TY7           476
1477 14 77          BCE   *&16,G10,                                       8  3407  B D30 TY9           476
1478 14 78          BCE   *&8,G14,1                                       8  3415  B D30 TZ3 1         477
1479 14 79          MLC   DAD,L&36                                        7  3423  M 938 2D2           477
1480 14 80          BCE   *&8,G23,                                        8  3430  B D45 U|2           477
1481 14 81          MLC   DLD,L&17                                        7  3438  M 936 2B3           477
1482 14 82          BCE   LINE5Z,O,N                                      8  3445  B E65 9P2 N         477
1483 14 83          BCE   *&8,O,6                                         8  3453  B D68 9P2 6         478
1484 14 84          MLC   T2,L&23                                         7  3461  M |J3 2B9           478
1485 14 85          BCE   LINE5Z,O,0                                      8  3468  B E65 9P2 0         478
1486 14 86   *
1487 14 87          BCE   LINE5B,O,1                                      8  3476  B E26 9P2 1         478
1488 14 88          BCE   LINE5C,O,3                                      8  3484  B E44 9P2 3         478
1489 14 89          BCE   LINE5D,O,4                                      8  3492  B E07 9P2 4         479
1490 14 90          MLC   DS,L&8                                          7  3500  M 935 2A4           479
1491 14 91   LINE5D MLC   DS,L&26                                         7  3507  M 935 2C2           479
1492 14 92          BCE   LINE5E,O,4                                      8  3514  B E33 9P2 4         479
1493 14 93          B     LINE5Z                                          4  3522  B E65               479
1494 14 94   LINE5B MLC   DS,L&24                                         7  3526  M 935 2C0           480
1495 14 95   LINE5E MLC   DS,L&10                                         7  3533  M 935 2A6           480
1496 14 96          B     LINE5Z                                          4  3540  B E65               480
1497 14 97   *
1498 14 98   LINE5C MLC   DS,L&9                                          7  3544  M 935 2A5           480
1499 14 99          MLC   DS,L&25                                         7  3551  M 935 2C1           480
1500 15 00          MLC   E1NOY,L&28                                      7  3558  M |P1 2C4           480
1501 15 01   LINE5Z B     INCXR                                           4  3565  B W44               481
1502 15 02          BCE   LINE5A,X3-2,0                                   8  3569  B B80 097 0         481
1503 15 03          B     WRT1                                            4  3577  B 863               481
1504 15 04          B     LINER                                           4  3581  B J88               481
1505 15 05   *
1506 15 06   *
1507 15 07   *
1508 15 08   *
1509 15 09   LINE6  SBR   LINER&3                                         4  3585  H J91               481
1510 15 10          B     CLRXR                                           4  3589  B W21               481
1511 15 11   LINE6A BCE   LINE6B,G13,                                     8  3593  B F27 TZ2           481
1512 15 12          MLC   DLA1,L&40                                       7  3601  M M31 2D6           482
1513 15 13          BCE   *&8,G12,                                        8  3608  B F23 TZ1           482
1514 15 14          MLC   DLA1,L&39                                       7  3616  M M31 2D5           482
1515 15 15          B     *&16                                            4  3623  B F42               482
1516 15 16   LINE6B BCE   *&8,G12,                                        8  3627  B F42 TZ1           482
1517 15 17          MLC   DLD,L&39                                        7  3635  M 936 2D5           483
1518 15 18          BCE   LINE6C,G10,                                     8  3642  B F76 TY9           483
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD

1519 15 19          MLC   DLA2,L&38                                                        7  3650  M M32 2D4           483
1520 15 20          BCE   *&8,G9,                                                          8  3657  B F72 TY8           483
1521 15 21          MLC   DLA1,L&36                                                        7  3665  M M31 2D2           483
1522 15 22          B     *&16                                                             4  3672  B F91               484
1523 15 23   *
1524 15 24   LINE6C BCE   *&8,G9,                                                          8  3676  B F91 TY8           484
1525 15 25          MLC   DLD,L&36                                                         7  3684  M 936 2D2           484
1526 15 26          BCE   *&8,G23,                                                         8  3691  B G06 U|2           484
1527 15 27          MLC   DLD,L&17                                                         7  3699  M 936 2B3           484
1528 15 28          BCE   LINE6D,G7,1                                                      8  3706  B G70 TY6 1         485
1529 15 29          BCE   LINE6E,G29,1                                                     8  3714  B G48 U|8 1         485
1530 15 30          BCE   LINE6N,G30,                                                      8  3722  B H03 U|9           485
1531 15 31          MLC   DS,L&33                                                          7  3730  M 935 2C9           485
1532 15 32   LINE6F MLC   DS,L&29                                                          7  3737  M 935 2C5           485
1533 15 33          B     LINE6H                                                           4  3744  B G59               486
1534 15 34   LINE6E MLC   DS,L&34                                                          7  3748  M 935 2D0           486
1535 15 35          B     LINE6F                                                           4  3755  B G37               486
1536 15 36   *
1537 15 37   LINE6H MLC   E1CON,L&32                                                       7  3759  M |O8 2C8           486
1538 15 38          B     LINE6J                                                           4  3766  B G77               486
1539 15 39   *
1540 15 40   LINE6D MLC   DLA7,L&35                                                        7  3770  M M37 2D1           486
1541 15 41   LINE6J MLC   DLA3,L&28                                                        7  3777  M M33 2C4           487
1542 15 42          BCE   *&5,O,1                                                          8  3784  B G96 9P2 1         487
1543 15 43          B     LINE6N                                                           4  3792  B H03               487
1544 15 44          MLC   DLA1,L&25                                                        7  3796  M M31 2C1           487
1545 15 45   *
1546 15 46   LINE6N BCE   LINE6T,G25,                                                      8  3803  B H33 U|4           487
1547 15 47          MLC   DLA10,L&28                                                       7  3811  M M40 2C4           488
1548 15 48          BCE   LINE6T,G26,1                                                     8  3818  B H33 U|5 1         488
1549 15 49          MLC   DLA2,L&18                                                        7  3826  M M32 2B4           488
1550 15 50   *
1551 15 51   LINE6T BCE   LINE6V,G24,                                                      8  3833  B H63 U|3           488
1552 15 52          MLC   DLA9,L&15                                                        7  3841  M M39 2B1           488
1553 15 53          BCE   *&8,G26,1                                                        8  3848  B H63 U|5 1         489
1554 15 54          MLC   DLA2,L&17                                                        7  3856  M M32 2B3           489
1555 15 55   *
1556 15 56   LINE6V BCE   LINE6X,O,N                                                       8  3863  B 01| 9P2 N         489
1557 15 57          BCE   *&8,O,6                                                          8  3871  B H86 9P2 6         489
1558 15 58          MLC   T3,L&23                                                          7  3879  M |K6 2B9           489
1559 15 59          BCE   LINE6M,O,0                                                       8  3886  B 03U 9P2 0         490
1560 15 60   *
1561 15 61          BCE   LINE6Y,O,3                                                       8  3894  B I22 9P2 3         490
1562 15 62          BCE   LINE6Y&7,O,4                                                     8  3902  B I29 9P2 4         490
1563 15 63          BCE   LINE6Y,O,5                                                       8  3910  B I22 9P2 5         490
1564 15 64          B     *&22                                                             4  3918  B I43               490
1565 15 65   LINE6Y MLC   DS,L&7                                                           7  3922  M 935 2A3           491
1566 15 66          MLC   DS,L&27                                                          7  3929  M 935 2C3           491
1567 15 67          MLC   @ @,L&26                                                         7  3936  M K7X 2C2           491
1568 15 68   *
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 SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

1569 15 69          BCE   *&5,O,6                                                     8  3943  B I55 9P2 6         491
1570 15 70          B     *&22                                                        4  3951  B I76               491
1571 15 71          MLC   DS,L&26                                                     7  3955  M 935 2C2           492
1572 15 72          MLC   DS,L&8                                                      7  3962  M 935 2A4           492
1573 15 73          MLC   OPERA,L&19                                                  7  3969  M 9Q7 2B5           492
1574 15 74   *
1575 15 75          BCE   LINE6I,O,1                                                  8  3976  B I96 9P2 1         492
1576 15 76          BCE   LINE6I&7,O,4                                                8  3984  B 00T 9P2 4         492
1577 15 77          B     *&15                                                        4  3992  B 01|               493
1578 15 78   *
1579 15 79   LINE6I MLC   DS,L&24                                                     7  3996  M 935 2C0           493
1580 15 80          MLC   DS,L&10                                                     7  4003  M 935 2A6           493
1581 15 81   *
1582 15 82   LINE6X BCE   LINE6G,G1,1                                                 8  4010  B 38U TY0 1         493
1583 15 83          BCE   LINE6K,G31,1                                                8  4018  B 35S U/0 1         493
1584 15 84          BCE   LINE6L,G32,1                                                8  4026  B 34/ U/1 1         494
1585 15 85   *
1586 15 86   LINE6M EQU   *&1                                                            4034
1587 15 87          BCE   *&32,G23,                                                   8  4034  B 07T U|2           494
1588 15 88          BCE   *&24,G24,                                                   8  4042  B 07T U|3           494
1589 15 89          BCE   *&16,G26,                                                   8  4050  B 07T U|5           494
1590 15 90          BCE   *&8,G25,1                                                   8  4058  B 07T U|4 1         495
1591 15 91          MLC   DAR,L&16                                                    7  4066  M 939 2B2           495
1592 15 92          BCE   *&32,G7,            * THESE                                 8  4073  B 11S TY6           495
1593 15 93          BCE   *&24,G8,            * INSTRUCTIONS                          8  4081  B 11S TY7           495
1594 15 94          BCE   *&16,G14,           * MAY BE REMOVED                        8  4089  B 11S TZ3           495
1595 15 95          BCE   *&8,G10,1           * TO ELIMINATE                          8  4097  B 11S TY9 1         496
1596 15 96          MLC   DAR,L&35            * ARROWS                                7  4105  M 939 2D1           496
1597 15 97          BCE   *&32,G10,           * ON                                    8  4112  B 15/ TY9           496
1598 15 98          BCE   *&24,G11,           * LINE 6                                8  4120  B 15/ TZ0           496
1599 15 99          BCE   *&16,G15,           * IF NOT                                8  4128  B 15/ TZ4           496
1600 16 00          BCE   *&8,G13,1           * DESIRED.                              8  4136  B 15/ TZ2 1         497
1601 16 01          MLC   DAR,L&38            *                                       7  4144  M 939 2D4           497
1602 16 02          BCE   *&9,G29,1           *                                       8  4151  B 16X U|8 1         497
1603 16 03          BCE   *&8,G30,            *                                       8  4159  B 17U U|9           497
1604 16 04          MLC   DAR,L&28            *                                       7  4167  M 939 2C4           497
1605 16 05          BCE   *&21,G1,1           *                                       8  4174  B 20S TY0 1         498
1606 16 06          BCE   *&13,G31,1          *                                       8  4182  B 20S U/0 1         498
1607 16 07          BCE   *&5,G32,1           *                                       8  4190  B 20S U/1 1         498
1608 16 08          B     LINE6P              *                                       4  4198  B 32/               498
1609 16 09          BCE   *&9,G32,1                                                   8  4202  B 21Y U/1 1         498
1610 16 10          BCE   *&5,O,3                                                     8  4210  B 22S 9P2 3         499
1611 16 11          B     *&8                                                         4  4218  B 22Z               499
1612 16 12          MLC   DAR,L&6                                                     7  4222  M 939 2A2           499
1613 16 13          BCE   *&5,O,6             *                                       8  4229  B 24/ 9P2 6         499
1614 16 14          B     *&8                 *                                       4  4237  B 24Y               499
1615 16 15          MLC   DAR,L&7             *                                       7  4241  M 939 2A3           499
1616 16 16          BCE   *&13,O,1            *                                       8  4248  B 26Y 9P2 1         500
1617 16 17          BCE   *&5,O,4             *                                       8  4256  B 26Y 9P2 4         500
1618 16 18          B     *&8                 *                                       4  4264  B 27V               500
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

1619 16 19          MLC   DAR,L&9                *                                              7  4268  M 939 2A5           500
1620 16 20          BCE   *&5,O,2                                                               8  4275  B 28X 9P2 2         500
1621 16 21          B     *&8                                                                   4  4283  B 29U               500
1622 16 22          MLC   DAR,L&8                                                               7  4287  M 939 2A4           501
1623 16 23          BCE   *&9,G32,1                                                             8  4294  B 31| U/1 1         501
1624 16 24          BCE   *&5,O,5                                                               8  4302  B 31U 9P2 5         501
1625 16 25          B     *&8                                                                   4  4310  B 32/               501
1626 16 26          MLC   DAR,L&7                                                               7  4314  M 939 2A3           501
1627 16 27   LINE6P B     INCXR                                                                 4  4321  B W44               501
1628 16 28          BCE   LINE6A,X3-2,0                                                         8  4325  B E93 097 0         502
1629 16 29          B     WRT1                                                                  4  4333  B 863               502
1630 16 30          B     LINER                                                                 4  4337  B J88               502
1631 16 31   *
1632 16 32   LINE6L MLC   DS,L&6                                                                7  4341  M 935 2A2           502
1633 16 33          B     *&15                                                                  4  4348  B 36W               502
1634 16 34   LINE6K MLC   DLA,L&6                                                               7  4352  M 937 2A2           502
1635 16 35          MLC   DS,L&5                                                                7  4359  M 935 2A1           503
1636 16 36          MLC   COORD,L&4                                                             7  4366  M 9P1 2A0           503
1637 16 37          MLC   DS,L&1                                                                7  4373  M 935 2?7           503
1638 16 38          B     *&8                                                                   4  4380  B 39/               503
1639 16 39   LINE6G MLC   DLA6,L&6                                                              7  4384  M M36 2A2           503
1640 16 40          BCE   *&5,L&7,                                                              8  4391  B 40T 2A3           504
1641 16 41          B     LINE6M                                                                4  4399  B 03U               504
1642 16 42          MLC   DLA,L&7                                                               7  4403  M 937 2A3           504
1643 16 43          BCE   *&5,L&8,                                                              8  4410  B 42S 2A4           504
1644 16 44          B     LINE6M                                                                4  4418  B 03U               504
1645 16 45          BCE   *&8,O,2                                                               8  4422  B 43X 9P2 2         504
1646 16 46          MLC   DLA2,L&9                                                              7  4430  M M32 2A5           505
1647 16 47          MLC   DLA,L&8                                                               7  4437  M 937 2A4           505
1648 16 48          B     LINE6M                                                                4  4444  B 03U               505
1649 16 49   *END OF LINE 6.
1650 16 50   *
1651 16 51   *
1652 16 52   *
1653 16 53   LINE7  SBR   LINER&3                                                               4  4448  H J91               505
1654 16 54          B     CLRXR                                                                 4  4452  B W21               505
1655 16 55   LINE7A BCE   *&5,G13,1                                                             8  4456  B 46Y TZ2 1         505
1656 16 56          B     CHK145                                                                4  4464  B J92               505
1657 16 57          BCE   *&32,G14,                                                             8  4468  B 50X TZ3           506
1658 16 58          BCE   *&24,G10,                                                             8  4476  B 50X TY9           506
1659 16 59          BCE   *&16,G8,                                                              8  4484  B 50X TY7           506
1660 16 60          BCE   *&8,G7,                                                               8  4492  B 50X TY6           506
1661 16 61          MLC   @ @,L&36                SET UP CROSS OVER.                            7  4500  M K7X 2D2           506
1662 16 62          BCE   LINE7X,G30,1                                                          8  4507  B 54S U|9 1         507
1663 16 63          BCE   LINE7Y,G29,                                                           8  4515  B 55W U|8           507
1664 16 64          MCS   E1PAG,L&32                                                            7  4523  Z |O6 2C8           507
1665 16 65          BCE   *&5,L&29,                                                             8  4530  B 54S 2C5           507
1666 16 66          B     *&8                                                                   4  4538  B 54Z               507
1667 16 67   LINE7X MLC   DS,L&29                                                               7  4542  M 935 2C5           508
1668 16 68          MLC   DS,L&33                                                               7  4549  M 935 2C9           508
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD

1669 16 69   LINE7Y BCE   *&9,G32,1                                                        8  4556  B 57S U/1 1         508
1670 16 70          BCE   *&15,G31,                                                        8  4564  B 58W U/0           508
1671 16 71          MLC   DS,L&1                                                           7  4572  M 935 2?7           508
1672 16 72          MLC   DS,L&5                                                           7  4579  M 935 2A1           509
1673 16 73          BCE   *&8,G26,                                                         8  4586  B 60/ U|5           509
1674 16 74          MLC   DLD,L&17                                                         7  4594  M 936 2B3           509
1675 16 75          BCE   LINE7C,O,N          NONE                                         8  4601  B 74S 9P2 N         509
1676 16 76          MLC   T4,L&23             TEXT4 MOVE.                                  7  4609  M |L9 2B9           509
1677 16 77          BCE   LINE7C,O,0          NOTE                                         8  4616  B 74S 9P2 0         510
1678 16 78   *
1679 16 79          BCE   LINE7H,O,3                                                       8  4624  B 67W 9P2 3         510
1680 16 80          BCE   LINE7K,O,1                                                       8  4632  B 69U 9P2 1         510
1681 16 81          BCE   LINE7H,O,2                                                       8  4640  B 67W 9P2 2         510
1682 16 82          BCE   LINE7K,O,4                                                       8  4648  B 69U 9P2 4         511
1683 16 83          BCE   LINE7N,O,5                                                       8  4656  B 71X 9P2 5         511
1684 16 84          BCE   LINE7N,O,6                                                       8  4664  B 71X 9P2 6         511
1685 16 85          B     LINE7C                                                           4  4672  B 74S               511
1686 16 86   LINE7H MLC   DS,L&25                                                          7  4676  M 935 2C1           511
1687 16 87          MLC   DS,L&9                                                           7  4683  M 935 2A5           512
1688 16 88          B     LINE7C                                                           4  4690  B 74S               512
1689 16 89   LINE7K MLC   DS,L&10                                                          7  4694  M 935 2A6           512
1690 16 90          BCE   LINE7M,O,1                                                       8  4701  B 73V 9P2 1         512
1691 16 91          BCE   *&8,O,4                                                          8  4709  B 72U 9P2 4         512
1692 16 92   LINE7N MLC   DS,L&8                                                           7  4717  M 935 2A4           513
1693 16 93          MLC   DS,L&26                                                          7  4724  M 935 2C2           513
1694 16 94          B     LINE7C                                                           4  4731  B 74S               513
1695 16 95   LINE7M MLC   DS,L&24                                                          7  4735  M 935 2C0           513
1696 16 96   LINE7C B     INCXR                                                            4  4742  B W44               513
1697 16 97          BCE   LINE7A,X3-2,0                                                    8  4746  B 45W 097 0         513
1698 16 98          B     WRT1                                                             4  4754  B 863               514
1699 16 99          B     LINER                                                            4  4758  B J88               514
1700 17 00   *
1701 17 01   * LINE8 SAME AS LINE4 EXCEPT FLAGS 14 AND 15 INSTEAD OF 8 AND 11.
1702 17 02   * ALSO T5 INSTEAD OF T1
1703 17 03   LINE8  SBR   LINER&3                                                          4  4762  H J91               514
1704 17 04          B     CLRXR                                                            4  4766  B W21               514
1705 17 05          SBR   LINE4A&3,CHK145                                                  7  4770  H ?00 J92           514
1706 17 06          SBR   LINE4Z&3,T5                                                      7  4777  H ?91 |N2           514
1707 17 07          MLZS  *-8,LINE4Z&2                                                     7  4784  Y 78S ?90           514
1708 17 08          B     LINE4A                                                           4  4791  B R97               515
1709 17 09   *
1710 17 10   LINE9  SBR   LINER&3                                                          4  4795  H J91               515
1711 17 11          B     CLRXR                                                            4  4799  B W21               515
1712 17 12   LINE9A B     CHK145                                                           4  4803  B J92               515
1713 17 13          C     O,@2@              IO BOX                                        7  4807  C 9P2 L1Y           515
1714 17 14          BU    NOIOBX             NO                                            5  4814  B 91Y /             515
1715 17 15          BCE   NOIOBX,E1LAB-9,)   YES                                           8  4819  B 91Y |N3 )         515
1716 17 16          BCE   NOIOBX,G3,1        NO EXIT ARROW                                 8  4827  B 91Y TY2 1         516
1717 17 17          BCE   CHR09,E1LAB,                                                     8  4835  B 85U |O2           516
1718 17 18          MLC   E1LAB,L&34                                                       7  4843  M |O2 2D0           516
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

1719 17 19          B     NOIOBX                                                       4  4850  B 91Y                516
1720 17 20   CHR09  BCE   CHR08,E1LAB-1,                                               8  4854  B 87T |O1            516
1721 17 21          MLC   E1LAB-1,L&34                                                 7  4862  M |O1 2D0            517
1722 17 22          B     NOIOBX                                                       4  4869  B 91Y                517
1723 17 23   CHR08  BCE   CHR07,E1LAB-2,                                               8  4873  B 89S |O0            517
1724 17 24          MLC   E1LAB-2,L&34                                                 7  4881  M |O0 2D0            517
1725 17 25          B     NOIOBX                                                       4  4888  B 91Y                517
1726 17 26   CHR07  BCE   CHR06,E1LAB-3,                                               8  4892  B 91/ |N9            517
1727 17 27          MLC   E1LAB-3,L&34                                                 7  4900  M |N9 2D0            518
1728 17 28          B     NOIOBX                                                       4  4907  B 91Y                518
1729 17 29   CHR06  MLC   E1LAB-4,L&34                                                 7  4911  M |N8 2D0            518
1730 17 30   NOIOBX BCE   LINE9Z,G22,         ROOM TO PRINT E2LBL ELSWR                8  4918  B 95X U|1            518
1731 17 31          BCE   *&9,G27,1                                                    8  4926  B 94S U|6 1          518
1732 17 32          BCE   *&16,G28,                                                    8  4934  B 95X U|7            519
1733 17 33          BCE   *&8,E2LAB-9,)                                                8  4942  B 95X |P2 )          519
1734 17 34          MLC   E2LAB,L&34                                                   7  4950  M |Q1 2D0            519
1735 17 35   LINE9Z EQU   *&1                                                             4957
1736 17 36          BCE   *&5,O,6                                                      8  4957  B 96Z 9P2 6          519
1737 17 37          B     *&16                                                         4  4965  B 98U                519
1738 17 38          BCE   *&8,G3,                                                      8  4969  B 98U TY2            520
1739 17 39          MLC   DLD,L&17                                                     7  4977  M 936 2B3            520
1740 17 40          BCE   *&8,G26,                                                     8  4984  B 99Z U|5            520
1741 17 41          MLC   DLD,L&17                                                     7  4992  M 936 2B3            520
1742 17 42          BCE   LINE9D,O,N                                                   8  4999  B |6| 9P2 N          520
1743 17 43          BCE   LINE9D,O,0                                                   8  5007  B |6| 9P2 0          521
1744 17 44          BCE   *&5,O,3                                                      8  5015  B |2X 9P2 3          521
1745 17 45          B     *&19                                                         4  5023  B |4V                521
1746 17 46          MLC   DS,L&13                                                      7  5027  M 935 2A9            521
1747 17 47          MLC   DS,L&21                                                      7  5034  M 935 2B7            521
1748 17 48          B     LINE9D                                                       4  5041  B |6|                521
1749 17 49          BCE   *&8,O,6                                                      8  5045  B |6| 9P2 6          522
1750 17 50          MLC   DS15,L&24                                                    7  5053  M M22 2C0            522
1751 17 51   LINE9D B     INCXR                                                        4  5060  B W44                522
1752 17 52          BCE   LINE9A,X3-2,0                                                8  5064  B 80T 097 0          522
1753 17 53          B     WRT1                                                         4  5072  B 863                522
1754 17 54          B     LINER                                                        4  5076  B J88                522
1755 17 55   *
1756 17 56   LINE10 SBR   LINER&3                                                      4  5080  H J91                522
1757 17 57          B     CLRXR                                                        4  5084  B W21                523
1758 17 58   LINETA B     CHK145                                                       4  5088  B J92                523
1759 17 59          BCE   *&13,G27,1                                                   8  5092  B /1S U|6 1          523
1760 17 60          BCE   *&12,G28,1                                                   8  5100  B /1Z U|7 1          523
1761 17 61          B     *&15                                                         4  5108  B /2W                523
1762 17 62          MLC   DS,L&29                                                      7  5112  M 935 2C5            523
1763 17 63          MLC   DS3,L&32                                                     7  5119  M M10 2C8            524
1764 17 64          BCE   LINETB,O,3                                                   8  5126  B /5T 9P2 3          524
1765 17 65   *
1766 17 66          BCE   *&8,G3,                                                      8  5134  B /4Z TY2            524
1767 17 67          MLC   DLD,L&17                                                     7  5142  M 936 2B3            524
1768 17 68          B     LINETC                                                       4  5149  B /6X                524
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

1769 17 69   *
1770 17 70   LINETB MLC   DS,L&19                                                        7  5153  M 935 2B5          525
1771 17 71          MLC   DS,L&15                                                        7  5160  M 935 2B1          525
1772 17 72   LINETC B     INCXR                                                          4  5167  B W44              525
1773 17 73          BCE   LINETA,X3-2,0                                                  8  5171  B |8Y 097 0        525
1774 17 74          B     WRT1                                                           4  5179  B 863              525
1775 17 75          B     LINER                                                          4  5183  B J88              525
1776 17 76   *
1777 17 77   LINE11 SBR   LINER&3                                                        4  5187  H J91              525
1778 17 78          B     CLRXR                                                          4  5191  B W21              526
1779 17 79   LINEEA B     CHK145                                                         4  5195  B J92              526
1780 17 80          BCE   *&9,G28,1                                                      8  5199  B S1V U|7 1        526
1781 17 81          BCE   *&15,G27,                                                      8  5207  B S2Z U|6          526
1782 17 82          MLC   DS,L&33                                                        7  5215  M 935 2C9          526
1783 17 83          MLC   DS,L&29                                                        7  5222  M 935 2C5          526
1784 17 84          BCE   LINEEB,O,3                                                     8  5229  B S5W 9P2 3        527
1785 17 85   *
1786 17 86          BCE   LINEEC,G3,                                                     8  5237  B S7|  TY2         527
1787 17 87          MLC   DLD,L&17                                                       7  5245  M 936 2B3          527
1788 17 88          B     LINEEC                                                         4  5252  B S7|              527
1789 17 89   *
1790 17 90   LINEEB MLC   DS,L&17                                                        7  5256  M 935 2B3          527
1791 17 91          MLC   E2NOY,L&21                                                     7  5263  M |R0 2B7          528
1792 17 92   LINEEC B     INCXR                                                          4  5270  B W44              528
1793 17 93          BCE   LINEEA,X3-2,0                                                  8  5274  B /9V 097 0        528
1794 17 94          B     WRT1                                                           4  5282  B 863              528
1795 17 95          B     LINER                                                          4  5286  B J88              528
1796 17 96   *
1797 17 97   LINE12 SBR   LINER&3                                                        4  5290  H J91              528
1798 17 98          B     CLRXR                                                          4  5294  B W21              528
1799 17 99   LINEVA B     CHK145                                                         4  5298  B J92              529
1800 18 00          BCE   *&12,G27,                                                      8  5302  B T2/ U|6          529
1801 18 01          MLC   DS,L&34                                                        7  5310  M 935 2D0          529
1802 18 02          B     LINEVB                                                         4  5317  B T3W              529
1803 18 03          BCE   LINEVD,G28,                                                    8  5321  B T5X U|7          529
1804 18 04          MLC   DS,L&33                                                        7  5329  M 935 2C9          529
1805 18 05   LINEVB MLC   DS,L&29                                                        7  5336  M 935 2C5          530
1806 18 06          MLC   E2CON,L&32                                                     7  5343  M |Q7 2C8          530
1807 18 07          MLC   DLA12,L&28                                                     7  5350  M M42 2C4          530
1808 18 08   LINEVD BCE   *&8,G3,                                                        8  5357  B T7S TY2          530
1809 18 09          MLC   DLD,L&17                                                       7  5365  M 936 2B3          530
1810 18 10          BCE   *&9,G27,1                                                      8  5372  B T8Y U|6 1        531
1811 18 11          BCE   *&8,G28,                                                       8  5380  B T9V U|7          531
1812 18 12          MLC   DAR,L&28             ARROW TO EXIT2 CONEC. LINE 12.            7  5388  M 939 2C4          531
1813 18 13          B     INCXR                                                          4  5395  B W44              531
1814 18 14          BCE   LINEVA,X3-2,0                                                  8  5399  B S9Y 097 0        531
1815 18 15          B     WRT1                                                           4  5407  B 863              531
1816 18 16          B     LINER                                                          4  5411  B J88              532
1817 18 17   *
1818 18 18   LINE13 SBR   LINER&3                                                        4  5415  H J91              532
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD

1819 18 19          B     CLRXR                                                            4  5419  B W21              532
1820 18 20   LINERA B     CHK145                                                           4  5423  B J92              532
1821 18 21          BCE   LINERB,G27,1                                                     8  5427  B U4X U|6 1        532
1822 18 22          BCE   LINERC,G28,1                                                     8  5435  B U5U U|7 1        532
1823 18 23          B     LINERD                                                           4  5443  B U8|              532
1824 18 24   LINERB MCS   E2PAG,L&32                                                       7  5447  Z |Q5 2C8          533
1825 18 25   LINERC MLC   DS,L&33                                                          7  5454  M 935 2C9          533
1826 18 26          BCE   *&5,L&29,                                                        8  5461  B U7T 2C5          533
1827 18 27          B     *&8                                                              4  5469  B U8|              533
1828 18 28          MLC   DS,L&29                                                          7  5473  M 935 2C5          533
1829 18 29   *
1830 18 30   LINERD BCE   *&8,G3,                                                          8  5480  B U9V TY2          534
1831 18 31          MLC   DLD,L&17                                                         7  5488  M 936 2B3          534
1832 18 32          B     INCXR                                                            4  5495  B W44              534
1833 18 33          BCE   LINERA,X3-2,0                                                    8  5499  B U2T 097 0        534
1834 18 34          B     WRT1                                                             4  5507  B 863              534
1835 18 35          B     LINER                                                            4  5511  B J88              534
1836 18 36   *
1837 18 37   LINE14 SBR   LINER&3                                                          4  5515  H J91              534
1838 18 38          B     CLRXR                                                            4  5519  B W21              535
1839 18 39   LINEFA BCE   *&9,G22,                                                         8  5523  B V3Z U|1          535
1840 18 40          BCE   *&5,G19,1                                                        8  5531  B V4T TZ8 1        535
1841 18 41          B     CHK145                                                           4  5539  B J92              535
1842 18 42          BCE   *&16,G17,                                                        8  5543  B V6W TZ6          535
1843 18 43          BCE   *&8,G19,                                                         8  5551  B V6W TZ8          536
1844 18 44          MLC   @ @,L&39                                                         7  5559  M K7X 2D5          536
1845 18 45          BCE   LINEFC,G14,                                                      8  5566  B V9X TZ3          536
1846 18 46          BCE   LINEFC,G17,                                                      8  5574  B V9X TZ6          536
1847 18 47          BCE   LINEFC,G20,                                                      8  5582  B V9X TZ9          536
1848 18 48          MLC   @ @,L&36                                                         7  5590  M K7X 2D2          537
1849 18 49   LINEFC EQU   *&1                                                                 5597
1850 18 50          BCE   *&13,G27,1                                                       8  5597  B W1X U|6 1        537
1851 18 51          BCE   *&12,G28,1                                                       8  5605  B W2U U|7 1        537
1852 18 52          B     *&15                                                             4  5613  B W3/              537
1853 18 53          MLC   DS,L&29                                                          7  5617  M 935 2C5          537
1854 18 54   LINEFB MLC   DS3,L&32                                                         7  5624  M M10 2C8          538
1855 18 55          BCE   *&8,G3,                                                          8  5631  B W4W TY2          538
1856 18 56          MLC   DLD,L&17                                                         7  5639  M 936 2B3          538
1857 18 57          BCE   *&32,G3,                                                         8  5646  B W8V TY2          538
1858 18 58          BCE   *&24,G4,                                                         8  5654  B W8V TY3          538
1859 18 59          BCE   *&16,G22,                                                        8  5662  B W8V U|1          539
1860 18 60          BCE   *&8,G6,1                                                         8  5670  B W8V TY5 1        539
1861 18 61          MLC   DAD,L&17                                                         7  5678  M 938 2B3          539
1862 18 62          BCE   LINEFD,G17,         ARROWS DOWN                                  8  5685  B X5V TZ6          539
1863 18 63          BCE   LINEFH,G14,         LINE 14.                                     8  5693  B X2U TZ3          539
1864 18 64          BCE   LINEFH,G22,                                                      8  5701  B X2U U|1          540
1865 18 65          BCE   LINEFH,G20,1                                                     8  5709  B X2U TZ9 1        540
1866 18 66          MLC   DAD,L&36                                                         7  5717  M 938 2D2          540
1867 18 67   LINEFH BCE   LINEFD,G15,                                                      8  5724  B X5V TZ4          540
1868 18 68          BCE   LINEFD,G19,                                                      8  5732  B X5V TZ8          540
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                   SFX CT  LOCN  INSTRUCTION TYPE  CARD

1869 18 69          BCE   LINEFD,G21,1                                                   8  5740  B X5V U|0 1         541
1870 18 70          MLC   DAD,L&39                                                       7  5748  M 938 2D5           541
1871 18 71   LINEFD EQU   *&1                                                               5755
1872 18 72          B     INCXR                                                          4  5755  B W44               541
1873 18 73          BCE   LINEFA,X3-2,0                                                  8  5759  B V2T 097 0         541
1874 18 74          B     WRT1                                                           4  5767  B 863               541
1875 18 75          B     LINER                                                          4  5771  B J88               541
1876 18 76   *
1877 18 77   LINE15 SBR   LINER&3                                                        4  5775  H J91               541
1878 18 78          B     CLRXR                                                          4  5779  B W21               542
1879 18 79   LINENA BCE   *&5,G19,1                                                      8  5783  B X9V TZ8 1         542
1880 18 80          B     LINENB                                                         4  5791  B Y2/               542
1881 18 81          MLC   DLA,L&40                                                       7  5795  M 937 2D6           542
1882 18 82          BCE   *&8,G18,                                                       8  5802  B Y1X TZ7           542
1883 18 83          MLC   DLA,L&39                                                       7  5810  M 937 2D5           542
1884 18 84          B     LINENC                                                         4  5817  B Y3W               543
1885 18 85   LINENB BCE   LINENC,G18,                                                    8  5821  B Y3W TZ7           543
1886 18 86          MLC   DLD,L&39                                                       7  5829  M 936 2D5           543
1887 18 87   LINENC BCE   LINEND,G17,                                                    8  5836  B Y7| TZ6           543
1888 18 88          MLC   DLA2,L&38                                                      7  5844  M M32 2D4           543
1889 18 89          BCE   LINENE,G16,                                                    8  5851  B Y7Y TZ5           544
1890 18 90          MLC   DLA,L&36                                                       7  5859  M 937 2D2           544
1891 18 91          B     LINENF                                                         4  5866  B Y8V               544
1892 18 92   LINEND BCE   LINENF,G16,                                                    8  5870  B Y8V TZ5           544
1893 18 93   LINENE MLC   DLD,L&36                                                       7  5878  M 936 2D2           544
1894 18 94   LINENF BCE   *&8,G22,                                                       8  5885  B Z0| U|1           545
1895 18 95          MLC   DLA18,L&35                                                     7  5893  M M48 2D1           545
1896 18 96          BCE   LINENZ,G22,1                                                   8  5900  B !1V U|1 1         545
1897 18 97          BCE   *&9,G27,1         PRINT E2 LABEL AT BOTTOM OF                  8  5908  B Z2U U|6 1         545
1898 18 98          BCE   LINENZ,G28,        CONNECTOR IF LINE 22 NOT USED               8  5916  B !1V U|7           545
1899 18 99          BCE   LINENZ,E2LAB-9,)                                               8  5924  B !1V |P2 )         546
1900 19 00          BCE   CH9,E2LAB,                                                     8  5932  B Z5/ |Q1           546
1901 19 01          MLC   E2LAB,L&34                                                     7  5940  M |Q1 2D0           546
1902 19 02          B     LINENZ                                                         4  5947  B !1V               546
1903 19 03   CH9    BCE   CH8,E2LAB-1,                                                   8  5951  B Z7| |Q0           546
1904 19 04          MLC   E2LAB-1,L&34                                                   7  5959  M |Q0 2D0           547
1905 19 05          B     LINENZ                                                         4  5966  B !1V               547
1906 19 06   CH8    BCE   CH7,E2LAB-2,                                                   8  5970  B Z8Z |P9           547
1907 19 07          MLC   E2LAB-2,L&34                                                   7  5978  M |P9 2D0           547
1908 19 08          B     LINENZ                                                         4  5985  B !1V               547
1909 19 09   CH7    BCE   CH6,E2LAB-3,                                                   8  5989  B !0Y |P8           547
1910 19 10          MLC   E2LAB-3,L&34                                                   7  5997  M |P8 2D0           548
1911 19 11          B     LINENZ                                                         4  6004  B !1V               548
1912 19 12   CH6    MLC   E2LAB-4,L&34        6 CHAR OR LESS                             7  6008  M |P7 2D0           548
1913 19 13   LINENZ EQU   *&1                                                               6015
1914 19 14          BCE   *&8,G4,                                                        8  6015  B !3| TY3           548
1915 19 15          MLC   DLA16,L&16                                                     7  6023  M M46 2B2           548
1916 19 16          BCE   *&5,G5,1                                                       8  6030  B !4S TY4 1         549
1917 19 17          B     LINENG                                                         4  6038  B !6Y               549
1918 19 18          BCE   LINENH,G6,1                                                    8  6042  B !6/ TY5 1         549
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 SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

1919 19 19          MLC   DLA,L&17                                                    7  6050  M 937 2B3          549
1920 19 20          B     LINENG                                                      4  6057  B !6Y              549
1921 19 21   LINENH MLC   DLD,L&17                                                    7  6061  M 936 2B3          549
1922 19 22   LINENG EQU   *&1                                                            6068
1923 19 23          BCE   LINENJ,G3,                                                  8  6068  B J3| TY2          550
1924 19 24          BCE   LINENJ,G6,          ARROWS LEFT AND                         8  6076  B J3| TY5          550
1925 19 25          BCE   LINENK,G22,         RIGHT, LINE 15.                         8  6084  B J0X U|1          550
1926 19 26          BCE   LINENK,G4,1                                                 8  6092  B J0X TY3 1        550
1927 19 27          MLC   DAL,L&18                                                    7  6100  M 940 2B4          550
1928 19 28   LINENK BCE   LINENJ,G4,                                                  8  6107  B J3| TY3          551
1929 19 29          BCE   LINENJ,G22,1                                                8  6115  B J3| U|1 1        551
1930 19 30          MLC   DAR,L&16                                                    7  6123  M 939 2B2          551
1931 19 31   LINENJ B     INCXR                                                       4  6130  B W44              551
1932 19 32          BCE   LINENA,X3-2,0                                               8  6134  B X8T 097 0        551
1933 19 33          B     WRT1                                                        4  6142  B 863              551
1934 19 34          B     LINER                                                       4  6146  B J88              552
1935 19 35   *
1936 19 36   LINE16 SBR   LINER&3                                                     4  6150  H J91              552
1937 19 37          B     CLRXR                                                       4  6154  B W21              552
1938 19 38   LINEXA BCE   *&16,G21,           21 OFF                                  8  6158  B J8/ U|0          552
1939 19 39          BCE   *&8,G19,1           19 ON AND 21 ON                         8  6166  B J8/ TZ8 1        552
1940 19 40          MLC   DLD,L&39            19 OFF AND 21 ON                        7  6174  M 936 2D5          552
1941 19 41   *
1942 19 42          BCE   *&16,G20,                                                   8  6181  B K0U TZ9          553
1943 19 43          BCE   *&8,G17,1                                                   8  6189  B K0U TZ6 1        553
1944 19 44          MLC   DLD,L&36                                                    7  6197  M 936 2D2          553
1945 19 45   *
1946 19 46          BCE   *&8,G6,                                                     8  6204  B K1Z TY5          553
1947 19 47          MLC   DLD,L&17                                                    7  6212  M 936 2B3          553
1948 19 48          B     INCXR                                                       4  6219  B W44              554
1949 19 49          BCE   LINEXA,X3-2,0                                               8  6223  B J5Y 097 0        554
1950 19 50          B     WRT1                                                        4  6231  B 863              554
1951 19 51          B     LINER                                                       4  6235  B J88              554
1952 19 52   *
1953 19 53   ENDJOB NOP                                                               1  6239  N                  554
1954 19 54          MLC   @ @,CHARDA&X0                                               7  6240  M K7X 961          554
1955 19 55          MLC   @ @,CHARDA&X0&411                                           7  6247  M K7X T72          554
1956 19 56          MLC   @ @,LINEDA&X0&120                                           7  6254  M K7X U93          555
1957 19 57          MLC   @ @,TEXTDA&125                                              7  6261  M K7X W20          555
1958 19 58          B     SYSLNK                                                      4  6268  B 400              555
1959 19 59          DCW   @4CHTA@                                                     5  6276                     555
                    DCW   @ @                                                         1  6277              LIT    555
       1087               @FLOWCHART PAGE@                                           14  6291              LIT    555
                          @00@                                                        2  6293              LIT    556
       1102  SPACCT       #02                                                         2  6295              AREA   556
       1114  LSTTPN       #04                                                         4  6299              AREA   556
       1129               @FLOWCHART PAGE@                                           14  6313              LIT    556
                          @1245@                                                      4  6317              LIT    556
                          @2@                                                         1  6318              LIT    556
1960 19 60   *
1961 19 61          END   START                                                            / 956 080          557
1952 19 52   *                                                                                                                *****
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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                               1                 5VERA
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?            2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040             3

                          D.A. VERIFY PASS 1 --  OBJECT PROGRAM TO TAPE             5VERA              PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101    01   000    JOB   D.A. VERIFY PASS 1 --  OBJECT PROGRAM TO TAPE
 102    02          CTL   440
 103    03   *              VERSION 2  LEVEL 0   JULY 25,1965
 104    04   X1     EQU   89                                                         0089
 105    05   X2     EQU   94                                                         0094
 106    06   X3     EQU   99                                                         0099
 107    07   IOCON1 EQU   100                                                        0100
 108    08   IOCON2 EQU   200                                                        0200
 109    09   IOCON3 EQU   300                                                        0300
 110    10   IOTP2  EQU   %U2                                                        %U2
 111    11   IOTP1  EQU   %U1                                                        %U1
 112    12   IOTP3  EQU   %U3                                                        %U3
 113    13   SYSLNK EQU   400                                                        0400
 114    14   SYSIO  EQU   500                                                        0500
 115    15   MESSG  EQU   660                                                        0660
 116    16   EJECT  EQU   704                                                        0704
 117    17   PRINT  EQU   747                                                        0747
 118    18   READ   EQU   781                                                        0781
 119    19   COL1   EQU   1                                                          0001
 120    20   COL3   EQU   3                                                          0003
 121    21   COL4   EQU   4                                                          0004
 122    22   COL5   EQU   5                                                          0005
 123    23   COL6   EQU   6                                                          0006
 124    24   COL7   EQU   7                                                          0007
 125    25   COL8   EQU   8                                                          0008
 126    26   COL9   EQU   9                                                          0009
 127    27   COL10  EQU   10                                                         0010
 128    28   COL12  EQU   12                                                         0012
 129    29   COL13  EQU   13                                                         0013
 130    30   COL14  EQU   14                                                         0014
 131    31   COL15  EQU   15                                                         0015
 132    32   COL20  EQU   20                                                         0020
 133    33   COL40  EQU   40                                                         0040
 134    34   COL46  EQU   46                                                         0046
 135    35   COL47  EQU   47                                                         0047
 136    36   COL56  EQU   56                                                         0056
 137    37   COL62  EQU   62                                                         0062
 138    38   COL63  EQU   63                                                         0063
 139    39   COL65  EQU   65                                                         0065
 140    40   COL69  EQU   69                                                         0069
 141    41   COL70  EQU   70                                                         0070
 142    42   COL75  EQU   75                                                         0075
 143    43   COL80  EQU   80                                                         0080
 144    44   MACH   EQU   82                                                         0082
 145    45   LANG   EQU   83                                                         0083
 146    46   HEAD   EQU   108                                                        0108
 147    47   PRNT   EQU   205                                                        0205
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SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD

148    48   EPRNT  EQU   299                                                        0299
149    49   LSORT  EQU   686                                                        0686
150    50   ENDORG EQU   7500              LOC OF ERROR MESSAGES AND END            7500
151    51   *
152    52   *              VERIFY PASS 1 GENERATES ITS OWN $ADD CARD
153    53   *              USED BY THE D.A. SYSTEM CONTROLLER TO LOAD
154    54   *              ON THE SYSTEM TAPE.  THE CLEAR STORAGE AND
155    55   *              BOOTSTRAP CARDS MUST BE REMOVED BEFORE
156    56   *              LOADING THE PROGRAM.
157    57   *
158    58          DC    @$ADD     @       FORMULATION OF $ADD CONTROL CARD      9  0341                        4
159    59          DC    &SYSORG           ADDRESS OF FIRST ORG STATEMENT        3  0344  800                   4
160    60          DC    &VERA             ADDRESS OF FIRST INSTRUCION           3  0347  /61                   4
161    61          DC    &HIGHL            ADDRESS OF LAST LOCATION USED         3  0350  I9Y                   4
162    62          DC    @10 15 65@                                              8  0358                        4
163    63   *
164    64          ORG   SYSORG                                                          0800
165    65   SYSORG EQU   800                                                        0800
166    66   *
167    67   SWLOAD DCW   #1                LOADER OPTION SWITCH - OFF IF WM      1  0800                        5
168    68   SWDISK DCW   #1                DISK OPTION SWITCH - OFF IF WM        1  0801                        5
169    69   SWHOLD DCW   #1                SWITCH USED BY 1401, 705, 7080        1  0802                        5
170    70   SWLAST DCW   #1                1401 SWITCH FOR LAST OF DATA          1  0803                        5
171    71   SWSEQ  DCW   #1                SEQUENCE NO. GENERATION SWITCH        1  0804                        5
172    72   *
173    73   *              TAPE RECORD AREA FOR 1401 AND 1410
174    74   *
175    75   REC1   EQU   MOD1-2                                                     0805
176    76   MOD1   DCW   @OP @                                                   3  0807                        5
177    77   OPC1   EQU   MOD1-2                                                     0805
178    78          DC    #6                                                      6  0813                        5
179    79   CT1    DC    @CT@                                                    2  0815                        5
180    80          DC    #3                                                      3  0818                        5
181    81   LOCAT1 DCW   @    LOCN@                                              8  0826                        5
182    82   OVLAY1 EQU   LOCAT1-6                                                   0820
183    83          DC    #2                                                      2  0828                        6
184    84   INST1  DCW   @INSTRUCTION @                                         12  0840                        6
185    85   OPCOD  EQU   INST1-11                                                   0829
186    86   AADR   EQU   INST1-9                                                    0831
187    87   BADR   EQU   INST1-5                                                    0835
188    88   MODIF  EQU   INST1-1                                                    0839
189    89   CARD1  DC    @    CARD@                                              8  0848                        6
190    90   WDMK1  DCW   #1                                                      1  0849                        6
191    91   *
192    92   *              TAPE RECORD AREA FOR 705
193    93   *
194    94   REC5   EQU   OPC5-2                                                     0850
195    95   OPC5   DCW   @OP @                                                   3  0852                        6
196    96          DC    #11                                                    11  0863                        6
197    97   LOCAT5 DCW   @   LOC  @                                              8  0871                        7
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

198     98  OVLAY5 EQU   LOCAT5-6                                                 0865
199     99  OPRC5  DC    @O@                                                   1  0872                       7
200  1 00   OPR5   DCW   @P@                                                   1  0873                       7
201  1 01          DC    #1                                                    1  0874                       7
202  1 02   SU5    DCW   @SU@                                                  2  0876                       7
203  1 03          DC    #1                                                    1  0877                       7
204  1 04   ADRS5  DCW   @  ADDR@                                              6  0883                       7
205  1 05          DC    @E@                                                   1  0884                       7
206  1 06   CADR5  DCW   @SS  @                                                4  0888                       7
207  1 07          DC    #2                                                    2  0890                       7
208  1 08   CARD5  DCW   @SER@                                                 3  0893                       7
209  1 09   WDMK5  DCW   #1                                                    1  0894                       7
210  1 10   *
211  1 11   *              TAPE RECORD AREA FOR 7080
212  1 12   *
213  1 13   REC6   EQU   OPC6-2                                                   0895
214  1 14   OPC6   DCW   @OP @                                                 3  0897                       8
215  1 15          DC    #11                                                  11  0908                       8
216  1 16   LOCAT6 DCW   @   LOC  @                                            8  0916                       8
217  1 17   OVLAY6 EQU   LOCAT6-6                                                 0910
218  1 18          DC    #1                                                    1  0917                       8
219  1 19   INST6  DCW   @INSTR@                                               5  0922                       8
220  1 20          DC    #1                                                    1  0923                       8
221  1 21   SU6    DCW   @SU@                                                  2  0925                       8
222  1 22          DC    #1                                                    1  0926                       8
223  1 23   ADR6   DCW   @ ADDR @                                              6  0932                       8
224  1 24          DC    #1                                                    1  0933                       8
225  1 25          DC    #2                                                    2  0935                       9
226  1 26   CARD6  DCW   @SER@                                                 3  0938                       9
227  1 27   WDMK6  DCW   #1                                                    1  0939                       9
228  1 28   *
229  1 29   *              TAPE RECORD AREA FPR 7070
230  1 30   *
231  1 31   REC7   EQU   OPC7-2                                                   0940
232  1 32   OPC7   DCW   @OP @                                                 3  0942                       9
233  1 33          DC    #4                                                    4  0946                       9
234  1 34   CARD7  DCW   @CDNO@                                                4  0950                       9
235  1 35          DC    #3                                                    3  0953                      10
236  1 36   LOCAT7 DCW   @    LOC @                                            8  0961                      10
237  1 37   OVLAY7 EQU   LOCAT7-6                                                 0955
238  1 38          DC    #2                                                    2  0963                      10
239  1 39   INST7  DCW   @INSTRUCTION@                                        11  0974                      10
240  1 40          DC    #9                                                    9  0983                      10
241  1 41   WDMK7  DCW   #1                                                    1  0984                      10
242  1 42   *
243  1 43   *              CONSTANT DATA
244  1 44   *
245  1 45   DSIGN  DCW   @$@                                                   1  0985                      10
246  1 46   EXEC1  DCW   @006@                                                 3  0988                      11
247  1 47   CON815 DCW   @,008015@                                             7  0995                      11
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  1 48   BLANKS DCW   #12                                                     12  1007                      11
249  1 49   BLANKX DC    #1                                                       1  1008                      11
250  1 50   DAEND  DCW   @ DAEND@                                                 6  1014                      11
251  1 51   LID1   DCW   @LOADER04@                                               8  1022                      11
252  1 52   LID2   DCW   @LOADER2B@                                               8  1030                      12
253  1 53   OPTN1  DCW   @LOADER,DISK@                                           11  1041                      12
254  1 54   OPTN2  DCW   @DISK,LOADER@                                           11  1052                      12
255  1 55   ZEROS  DCW   @000000@                                                 6  1058                      12
256  1 56   LDN70  DC    @03?8@                                                   4  1062                      13
257  1 57   ZERO10 DCW   @000000000?@                                            10  1072                      13
258  1 58   LSTOV1 DCW   #2                                                       2  1074                      13
259  1 59   GPMK   DC    @}@                                                      1  1075                      13
260  1 60   TGMW   DCW   @:}::@             TGMW CONTAINS  WS, GM, WS, WS         4  1079                      13
261  1 61   GMWM   DCW   @GMWM@                                                   4  1083                      13
262  1 62   *
263  1 63          DCW   @2@                INPUT TAPE UNIT TO SORT               1  1084                      14
264  1 64          DC    @3@                OUTPUT UNIT FROM SORT TO PASS 3       1  1085                      14
265  1 65          DC    @022@              LOW-ORDER CHAR. OF SORT FIELD         3  1088                      14
266  1 66          DC    @08@               LENGTH OF SORT FIELD                  2  1090                      14
267  1 67   KSORT  DC    @5VERT@            VERIFY PASS 3 - CALLED BY SORT        5  1095                      14
268  1 68   *
269  1 69   *              WORKING STORAGE ARRAYS
270  1 70   *
271  1 71   TABLE  DA    7X5                TABLE USED TO STORE LOCATIONS            1096   1130               15
272  1 72   TAB          1,5                IN 1401 SECTION                          1100              FIELD   15
273  1 73   COLNO  DCW   #2                                                       2  1132                      16
274  1 74   COLSUM DCW   #2                                                       2  1134                      16
275  1 75   SU     EQU   COLSUM                                                      1134
276  1 76   CDSAV1 EQU   OPC6                                                        0897
277  1 77   CODE   DCW   #3                                                       3  1137                      16
278  1 78   CODED  DCW   #4                                                       4  1141                      16
279  1 79   TOTAL  DCW   #5                                                       5  1146                      16
280  1 80   ADDRS  DCW   #6                                                       6  1152                      17
281  1 81   WORK1  DCW   #8                                                       8  1160                      17
282  1 82   LOCSV  EQU   ADRS5                                                       0883
283  1 83   SAVE   EQU   ASAVE-8                                                     0863
284  1 84   ASAVE  EQU   LOCAT5                                                      0871
285  1 85   SPSAVE EQU   CADR5                                                       0888
286  1 86   SVRET1 EQU   SU6&1                                                       0926
287  1 87   SVX2   EQU   SU5&1                                                       0877
288  1 88   SVX3   EQU   CARD5                                                       0893
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

289  1 89          JOB   D.A. VERIFY PASS 1 -- MAIN LINE PROGRAM
290  1 90   VERA   CS    EPRNT               CLEAR PRINT AREA                       4  1161  / 299                18
291  1 91          MLC   COL7,HEAD           MOVE $VERIFY TO PRINT HEADING          7  1165  M 007 108            18
292  1 92          B     EJECT                                                      4  1172  B 704                18
293  1 93          MLC   COL80,EPRNT-18                                             7  1176  M 080 281            18
294  1 94          B     PRINT               PRINT $VERIFY CONTROL CARD             4  1183  B 747                18
295  1 95          MLC   DSIGN,DAEND-5                                              7  1187  M 985 |09            18
296  1 96          SBR   X1,0                                                       7  1194  H 089 000            19
297  1 97          RWD   IOTP2                                                      5  1201  U %U2 R              19
298  1 98          MZ    SETAD&1,TGMW-3                                             7  1206  Y W06 |76            19
299  1 99          BCE   TMACH,COL12,        BRANCH IF NO OPTIONS ON CARD           8  1213  B S85 012            19
300  2 00          C     COL20,OPTN1                                                7  1221  C 020 |41            19
301  2 01          BE    SETLD               TEST FOR PRESENCE                      5  1228  B S77 S              19
302  2 02          C     COL20,OPTN2         OF BOTH OPTIONS                        7  1233  C 020 |52            20
303  2 03          BE    SETLD                                                      5  1240  B S77 S              20
304  2 04          C     COL13,OPTN2-7                                              7  1245  C 013 |45            20
305  2 05          BE    SETDK                                                      5  1252  B S81 S              20
306  2 06          C     COL15,OPTN1-5                                              7  1257  C 015 |36            20
307  2 07          BU    ERROR1              ERROR IN $VERIFY CARD                  5  1264  B E6W /              20
308  2 08          CW    SWLOAD              SET LOADER SWITCH                      4  1269  ) 800                21
309  2 09          B     TMACH                                                      4  1273  B S85                21
310  2 10   SETLD  CW    SWLOAD              SET LOADER SWITCH                      4  1277  ) 800                21
311  2 11   SETDK  CW    SWDISK              SET DISK SWITCH                        4  1281  ) 801                21
312  2 12   TMACH  BCE   CREAD,MACH,1                                               8  1285  B T05 082 1          21
313  2 13          BCE   CREAD,MACH,2                                               8  1293  B T05 082 2          21
314  2 14          B     TESTLD                                                     4  1301  B U15                21
315  2 15   CREAD  B     READ                                                       4  1305  B 781                22
316  2 16          C     COL6,DAEND                                                 7  1309  C 006 |14            22
317  2 17          BE    LEAVE                                                      5  1316  B F5W S              22
318  2 18          SBR   X1,3                FOR 1401, TEST FOR CLEAR               7  1321  H 089 003            22
319  2 19          C     COL7,CON815         STORAGE AND BOOTSTRAP CARDS            7  1328  C 007 995            22
320  2 20          BE    RD3CDS                                                     5  1335  B T52 S              22
321  2 21          C     COL80,@C1@          TEST FOR DISK ID                       7  1340  C 080 H7X            23
322  2 22          BU    L1401                                                      5  1347  B T56 /              23
323  2 23   RD3CDS B     READ5                                                      4  1352  B X49                23
324  2 24   L1401  BWZ   TCNTL,SWLOAD,1      1401 LOADER FOR DISK AUTO              8  1356  V V10 800 1          23
325  2 25          BWZ   ERROR1,SWDISK,1     ERROR IF TAPE OR SPS SPECIFIED         8  1364  V E6W 801 1          23
326  2 26          B     READ5                                                      4  1372  B X49                23
327  2 27          C     COL80,LID1                                                 7  1376  C 080 |22            24
328  2 28          BU    TLDR1                                                      5  1383  B T92 /              24
329  2 29          B     READ                                                       4  1388  B 781                24
330  2 30   TLDR1  C     COL80,LID2                                                 7  1392  C 080 |30            24
331  2 31          BU    TCNTL                                                      5  1399  B V10 /              24
332  2 32          MLC   COL3,EXEC1                                                 7  1404  M 003 988            24
333  2 33          B     PROGM                                                      4  1411  B V06                24
334  2 34   TESTLD BWZ   PROGM,SWLOAD,1      TEST FOR LOADER AND                    8  1415  V V06 800 1          25
335  2 35          B     READ5               READ IF PRESENT                        4  1423  B X49                25
336  2 36          BCE   L7070,MACH,7                                               8  1427  B U90 082 7          25
337  2 37          B     READ                                                       4  1435  B 781                25
338  2 38          BCE   L1410,MACH,3                                               8  1439  B U67 082 3          25
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

339  2 39   L705   C     COL4,LID1-4                                                7  1447  C 004 |18           25
340  2 40          BU    TCNTL                                                      5  1454  B V10 /             26
341  2 41          B     READ5                                                      4  1459  B X49               26
342  2 42          B     TCNTL                                                      4  1463  B V10               26
343  2 43   L1410  BCE   TCNTL,COL1,E                                               8  1467  B V10 001 E         26
344  2 44          SBR   X1,3                                                       7  1475  H 089 003           26
345  2 45          B     READ5                                                      4  1482  B X49               26
346  2 46          B     PROGM                                                      4  1486  B V06               26
347  2 47   L7070  C     COL80,LDN70                                                7  1490  C 080 |62           27
348  2 48          BE    PROGM                                                      5  1497  B V06 S             27
349  2 49          B     READ5                                                      4  1502  B X49               27
350  2 50   PROGM  B     READ                                                       4  1506  B 781               27
351  2 51   TCNTL  C     COL6,DAEND                                                 7  1510  C 006 |14           27
352  2 52          BE    LEAVE                                                      5  1517  B F5W S             27
353  2 53          BCE   R1401,MACH,1                                               8  1522  B X85 082 1         28
354  2 54          BCE   R1401,MACH,2                                               8  1530  B X85 082 2         28
355  2 55          BCE   R1410,MACH,3       BRANCH TO SECTION FOR MACHINE             8  1538  B 47| 082 3         28
356  2 56          BCE   R705,MACH,5        SPECIFIED ON CONTROL CARD                 8  1546  B T5V 082 5         28
357  2 57          BCE   R7080,MACH,6                                               8  1554  B J8/ 082 6         29
358  2 58          BCE   R7070,MACH,7                                               8  1562  B B5/ 082 7         29
359  2 59          B     ERROR2                                                     4  1570  B F4V               29
360  2 60   *
361  2 61   TEND   SBR   GOBACK&3                                                   4  1574  H V93               29
362  2 62          C     COL6,DAEND                                                 7  1578  C 006 |14           29
363  2 63          BE    EPASS1                                                     5  1585  B H3W S             29
364  2 64   GOBACK B     000                                                        4  1590  B 000               30
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SEQ PG LIN  LABEL  OP    OPERANDS                                                   SFX CT  LOCN  INSTRUCTION TYPE  CARD

365  2 65          JOB   VERIFY MIDDLEMAN ROUTINES
366  2 66   WRITE  SBR   ENDWRT&3           ROUTINE TO WRITE TAPE RECORDS         4  1594  H X48                31
367  2 67          B     SYSIO              USING D.A. SYSTEM I/O                 4  1598  B 500                31
368  2 68          DCW   &IOCON2                                                  3  1604  200                  31
369  2 69          ORG   *-2                                                                1603
370  2 70   SETAD  DC    &REC1                                                    3  1605  805                  32
371  2 71          DC    @W@                                                      1  1606                       32
372  2 72          BEF   ERROR3             TEST FOR SHORT TAPE                   5  1607  B G5U K              32
373  2 73          BCE   CLR3,MACH,3                                              8  1612  B W66 082 3          32
374  2 74          BCE   CLR5,MACH,5        CLEAR PART OF TAPE RECORD             8  1620  B W77 082 5          32
375  2 75          BCE   CLR6,MACH,6        AREA BEING USED                       8  1628  B X06 082 6          32
376  2 76          BCE   CLR7,MACH,7                                              8  1636  B X31 082 7          33
377  2 77   CLR1   MLC   BLANKS,WORK1                                             7  1644  M |07 /60            33
378  2 78          MLC   BLANKS,CT1                                               7  1651  M |07 815            33
379  2 79          MLC   BLANKS                                                   4  1658  M |07                33
380  2 80          B     ENDWRT                                                   4  1662  B X45                33
381  2 81   CLR3   MLC   BLANKX,INST1&1                                           7  1666  M |08 841            33
382  2 82          B     CLR1&7                                                   4  1673  B W51                34
383  2 83   CLR5   MLC   BLANKS,CADR5&2                                           7  1677  M |07 890            34
384  2 84          MLC   BLANKS                                                   4  1684  M |07                34
385  2 85          MLC   BLANKS,OPC5                                              7  1688  M |07 852            34
386  2 86          MLC   BLANKS,OPR5                                              7  1695  M |07 873            34
387  2 87          B     ENDWRT                                                   4  1702  B X45                34
388  2 88   CLR6   MLC   BLANKS,ADR6                                              7  1706  M |07 932            35
389  2 89          MLC   BLANKS,INST6                                             7  1713  M |07 922            35
390  2 90          MLC   BLANKS,OPC6                                              7  1720  M |07 897            35
391  2 91          B     ENDWRT                                                   4  1727  B X45                35
392  2 92   CLR7   MLC   BLANKS,INST7                                             7  1731  M |07 974            35
393  2 93          MLC   BLANKS,OPC7                                              7  1738  M |07 942            35
394  2 94   ENDWRT B     000                                                      4  1745  B 000                36
395  2 95   *
396  2 96   READ5  SBR   ERD5&3             ROUTINE TO READ 3 OR 5 CARDS          4  1749  H X84                36
397  2 97          B     READ                                                     4  1753  B 781                36
398  2 98          B     READ                                                     4  1757  B 781                36
399  2 99          B     READ                                                     4  1761  B 781                36
400  3 00          BCE   ERD5,X1,3                                                8  1765  B X81 089 3          36
401  3 01          B     READ                                                     4  1773  B 781                36
402  3 02          B     READ                                                     4  1777  B 781                37
403  3 03   ERD5   B     000                                                      4  1781  B 000                37
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SEQ PG LIN  LABEL  OP    OPERANDS                                                 SFX CT  LOCN  INSTRUCTION TYPE  CARD

404  3 04          JOB   1401 SETUP - CONDENSED OBJECT DECK FROM DISK AUTO
405  3 05   R1401  MLC   GPMK,WDMK1                                                    7  1785  M |75 849            38
406  3 06          B     WRITE             WRITE HEADING RECORD FOR 1401               4  1792  B V94                38
407  3 07          MZ    SETAD&1,SCAN1&7   CREATE WORD SEPARATOR                       7  1796  Y W06 !11            38
408  3 08          MZ    SETAD&1,TWDSP1&7                                              7  1803  Y W06 !72            38
409  3 09          MLC   BLANKS,CARD1                                                  7  1810  M |07 848            38
410  3 10          MLC   BLANKS                                                        4  1817  M |07                38
411  3 11          MLC   ZEROS,LOCAT1-5                                                7  1821  M |58 821            39
412  3 12          BCE   TSPS3,LANG,1      BRANCH IF LANGUAGE IS SPS                   8  1828  B G74 083 1          39
413  3 13          BWZ   TEND2,SWDISK,1    BRANCH IF DISK OPTION NOT PRESENT           8  1836  V Q46 801 1          39
414  3 14          MLC   BLANKS,X2                                                     7  1844  M |07 094            39
415  3 15          B     TEND1                                                         4  1851  B Y73                39
416  3 16   DISK   B     READ                                                          4  1855  B 781                39
417  3 17          MLC   COL75,CODED-1                                                 7  1859  M 075 /40            40
418  3 18          MCS   CODED-1,CARD1     MOVE CARD SEQ NO. TO OUTPUT                 7  1866  Z /40 848            40
419  3 19   TEND1  BCE   TEND,COL1,$                                                   8  1873  B V74 001 $          40
420  3 20          MLC   COL3,CODE                                                     7  1881  M 003 /37            40
421  3 21          C     EXEC1,CODE        TEST FOR EXECUTE OR END CARD                7  1888  C 988 /37            40
422  3 22          BE    EXCUT1                                                        5  1895  B K41 S              41
423  3 23   ZROCS1 MLC   ZEROS,COLSUM                                                  7  1900  M |58 /34            41
424  3 24          MLC   COL5,COLNO        COLNO IS NO OF CHARACTERS ON CARD           7  1907  M 005 /32            41
425  3 25          C     EXEC1,CODE        TEST FOR EXECUTE CD                         7  1914  C 988 /37            41
426  3 26          BE    SET1                                                          5  1921  B Z97 S              41
427  3 27          B     DECODE            PICK UP HIGH-ORDER LOCATION IF              4  1926  B 29W                41
428  3 28          MLC   ADDRS,LOCAT1      NO CARRY-OVER FROM PREVIOUS CARD            7  1930  M /52 826            42
429  3 29          C     BLANKS,X2                                                     7  1937  C |07 094            42
430  3 30          BE    SET1                                                          5  1944  B Z97 S              42
431  3 31          MLC   LOCSV,ADDRS                                                   7  1949  M 883 /52            42
432  3 32          A     X2,ADDRS                                                      7  1956  A 094 /52            42
433  3 33          C     LOCAT1,ADDRS                                                  7  1963  C 826 /52            43
434  3 34          MLC   LOCSV,LOCAT1                                                  7  1970  M 883 826            43
435  3 35          BE    SET1                                                          5  1977  B Z97 S              43
436  3 36          MLC   CDSAV1,CARD1                                                  7  1982  M 897 848            43
437  3 37          B     TINST1                                                        4  1989  B K70                43
438  3 38          B     DISK&4                                                        4  1993  B Y59                43
439  3 39   SET1   SBR   X3,5                                                          7  1997  H 099 005            44
440  3 40   SCAN1  BCE   MOVE1,1&X3,:      TEST FOR WORD SEPARATOR                     8  2004  B !57 0?1 :          44
441  3 41          BCE   LAST1,X3-1,7      TEST FOR END OF CARD                        8  2012  B J23 098 7          44
442  3 42          A     @1@,COLSUM                                                    7  2020  A H7Y /34            44
443  3 43          C     COLSUM,COLNO      BRANCH IF NO. OF CHARACTERS                 7  2027  C /34 /32            44
444  3 44          BL    MOVEL             HAS BEEN EXCEEDED                           5  2034  B K25 T              45
445  3 45          SBR   X2,1&X2           X2 IS NO OF CHARACTERS IN WORD              7  2039  H 094 0!1            45
446  3 46   ADD1   SBR   X3,1&X3           X3 IS COLUMN NO ON CARD                     7  2046  H 099 0?1            45
447  3 47          B     SCAN1                                                         4  2053  B !04                45
448  3 48   MOVE1  BCE   ADD1,X2,          BRANCH IF ALL CHARS. PROCESSED              8  2057  B !46 094            45
449  3 49   TWDSP1 BCE   MWDSP1,2&X3,:                                                 8  2065  B !81 0?2 :          45
450  3 50          B     TGM1                                                          4  2073  B P49                46
451  3 51          B     SCAN1                                                         4  2077  B !04                46
452  3 52   MWDSP1 SBR   X3,1&X3                                                       7  2081  H 099 0?1            46
453  3 53          SBR   X2,1&X2                                                       7  2088  H 094 0!1            46
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

454  3 54          B     TWDSP1                                                     4  2095  B !65                46
455  3 55   CHKOP1 C     X2,@07@                                                    7  2099  C 094 H8|            46
456  3 56          BU    NEWCD1                                                     5  2106  B J45 /              46
457  3 57          BCE   ADBLK1,COL63&1,B   CHECK FOR BCE INST AT END OF CARD       8  2111  B J31 064 B          47
458  3 58          B     NEWCD1                                                     4  2119  B J45                47
459  3 59   LAST1  BCE   CHKOP1,1&X3,                                               8  2123  B !99 0?1            47
460  3 60   ADBLK1 SBR   X2,1&X2                                                    7  2131  H 094 0!1            47
461  3 61          SBR   X3,1&X3                                                    7  2138  H 099 0?1            47
462  3 62   NEWCD1 C     COL3,EXEC1         CHECK FOR EXECUTE CARD                  7  2145  C 003 988            48
463  3 63          BE    LPROC1                                                     5  2152  B J69 S              48
464  3 64          C     X2,@08@                                                    7  2157  C 094 H8S            48
465  3 65          BH    HLDOV1             BRANCH TO SVE THE DATA                  5  2164  B J89 U              48
466  3 66   LPROC1 B     TINST1                                                     4  2169  B K70                48
467  3 67   TSTEX1 C     COL3,EXEC1         TEST FOR EXECUTE CD                     7  2173  C 003 988            48
468  3 68          BE    ADDOV1                                                     5  2180  B K59 S              49
469  3 69          B     DISK                                                       4  2185  B Y55                49
470  3 70   HLDOV1 MLC   X2,X1                                                      7  2189  M 094 089            49
471  3 71          MLC   0&X3,SAVE&X1                                               7  2196  M 0?0 8W3            49
472  3 72          MLC   LOCAT1,LOCSV                                               7  2203  M 826 883            49
473  3 73          MLC   CARD1,CDSAV1                                               7  2210  M 848 897            49
474  3 74          CW    SWHOLD             SET HOLDING SWITCH                      4  2217  ) 802                50
475  3 75          B     TSTEX1                                                     4  2221  B J73                50
476  3 76   MOVEL  BCE   TSTEX1,X2,         BRANCH IF ALL CHAR PROCESSED            8  2225  B J73 094            50
477  3 77          B     TGM1                                                       4  2233  B P49                50
478  3 78          B     TSTEX1                                                     4  2237  B J73                50
479  3 79   EXCUT1 MLC   @200006@,LOCAT1    SET LOC WITH EXECUTE FLAG               7  2241  M H8Y 826            50
480  3 80          MLC   @00 @,X2                                                   7  2248  M H9/ 094            50
481  3 81          B     ZROCS1                                                     4  2255  B Z00                51
482  3 82   ADDOV1 A     @1@,OVLAY1         ADD 1 TO OVERLAY COUNTER                7  2259  A H7Y 820            51
483  3 83          B     DISK                                                       4  2266  B Y55                51
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SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

484  3 84          JOB   1401 PROCESSING LOOP SUBROUTINE
485  3 85   TINST1 SBR   LOOP1&3                                                     4  2270  H M54                52
486  3 86          MCS   X2,CT1                                                      7  2274  Z 094 815            52
487  3 87          C     X2,@08@                                                     7  2281  C 094 H8S            52
488  3 88          BL    CONST1                                                      5  2288  B N10 T              52
489  3 89          BCE   CONST1,X2,3                                                 8  2293  B N10 094 3          52
490  3 90          BCE   CONST1,X2,6                                                 8  2301  B N10 094 6          52
491  3 91          MLC   0&X3,WORK1-8&X2    MOVE INST. INTO WORK AREA                7  2309  M 0?0 /N2            53
492  3 92          BWZ   MOP1,SWHOLD,1                                               8  2316  V L35 802 1          53
493  3 93          SW    SWHOLD             CLEAR HOLDING SWITCH                     4  2324  , 802                53
494  3 94          MLC   SAVE&X1,WORK1-8&X1                                          7  2328  M 8W3 /V2            53
495  3 95   MOP1   BCE   BLKGM1,WORK1-7,}   TEST FOR GM                              8  2335  B M55 /53 }          53
496  3 96          MLC   WORK1-7,OPC1                                                7  2343  M /53 805            54
497  3 97          B     MWORK              MOVE WORK AREA INTO OUTPUT AREA          4  2350  B Q06                54
498  3 98          BCE   MMOD1,X2,2         TEST FOR D-MODIFIER                      8  2354  B M00 094 2          54
499  3 99          BCE   MNOPA1,X2,5                                                 8  2362  B L82 094 5          54
500  4 00          BCE   MNOPB1,X2,8                                                 8  2370  B L93 094 8          54
501  4 01          B     W1401                                                       4  2378  B M14                54
502  4 02   MNOPA1 MLC   A1401,OPC1&1       SET  A  FOR 1 OPERAND                    7  2382  M M37 806            55
503  4 03          B     MMOD1                                                       4  2389  B M00                55
504  4 04   MNOPB1 MLC   W1401,OPC1&1       SET  B  FOR 2 OPERANDS                   7  2393  M M14 806            55
505  4 05   MMOD1  MN    WORK1-8&X2,MOD1                                             7  2400  D /N2 807            55
506  4 06          MZ    WORK1-8&X2,MOD1                                             7  2407  Y /N2 807            55
507  4 07   W1401  BCE   *&5,OPC1,|         TEST IF OP CODE IS RECORD MARK           8  2414  B M26 805 |          56
508  4 08          B     *&8                                                         4  2422  B M33                56
509  4 09          MLC   BLANKS,MOD1                                                 7  2426  M |07 807            56
510  4 10          B     WRITE              WRITE TAPE RECORD                        4  2433  B V94                56
511  4 11   A1401  A     X2,LOCAT1                                                   7  2437  A 094 826            56
512  4 12          MLC   BLANKS,X2                                                   7  2444  M |07 094            56
513  4 13   LOOP1  B     000                VARIABLE RETURN                          4  2451  B 000                57
514  4 14   BLKGM1 MLC   @ 1@,CT1                                                    7  2455  M H9T 815            57
515  4 15          MLC   GMWM,SPSAVE                                                 7  2462  M |83 888            57
516  4 16          B     CWSPEC             WRITE GMWM RECORD                        4  2469  B 41Y                57
517  4 17          A     @1@,LOCAT1                                                  7  2473  A H7Y 826            57
518  4 18          C     X2,@001@                                                    7  2480  C 094 H9W            57
519  4 19          BE    SETW1                                                       5  2487  B P09 S              58
520  4 20          S     @001@,X2                                                    7  2492  S H9W 094            58
521  4 21          MZ    @1@,X2                                                      7  2499  Y H7Y 094            58
522  4 22          B     TCON1                                                       4  2506  B N28                58
523  4 23   CONST1 CW    AADR,BADR          FOR CONSTANT DATA, CLEAR WMS             7  2510  ) 831 835            58
524  4 24          CW    MODIF              IN OUTPUT AREA TO WRITE                  4  2517  ) 839                58
525  4 25          MLC   BLANKS,INST1       DATA IN UNEXPANDED FORMAT                7  2521  M |07 840            59
526  4 26   TCON1  MLC   X2,TOTAL                                                    7  2528  M 094 /46            59
527  4 27          MLC   X3,SVX3                                                     7  2535  M 099 893            59
528  4 28          C     X2,@13@                                                     7  2542  C 094 H9Y            59
529  4 29          BH    WCON1                                                       5  2549  B N82 U              59
530  4 30          SBR   X3,12&X3           SET UP DATA TO BE PRINTED                7  2554  H 099 0A2            60
531  4 31          S     X2,X3              12 CHARACTERS PER RECORD                 7  2561  S 094 099            60
532  4 32          MZ    @1@,X3                                                      7  2568  Y H7Y 099            60
533  4 33          SBR   X2,12                                                       7  2575  H 094 012            60
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SEQ PG LIN  LABEL  OP    OPERANDS                                       SFX CT  LOCN  INSTRUCTION TYPE  CARD

534  4 34  WCON1  MLC   0&X3,INST1-12&X2   MOVE DATA TO OUTPUT AREA          7  2582  M 0?0 8K8           60
535  4 35         BWZ   CCON1,SWHOLD,1                                       8  2589  V O08 802 1         61
536  4 36         SW    SWHOLD                                               4  2597  , 802               61
537  4 37         MLC   SAVE&X1,INST1-12&X1                                  7  2601  M 8W3 8S8           61
538  4 38  CCON1  MCS   X2,CT1                                               7  2608  Z 094 815           61
539  4 39         BCE   CONGM1,INST1-11,}  TEST FOR GM                       8  2615  B P31 829 }         61
540  4 40         B     WRITE              WRITE TAPE RECORD                 4  2623  B V94               61
541  4 41         MLC   BLANKS,INST1                                         7  2627  M |07 840           62
542  4 42         A     X2,LOCAT1                                            7  2634  A 094 826           62
543  4 43         C     X2,@12@            TESTS FOR                         7  2641  C 094 I0|           62
544  4 44         BH    SETW1              END                               5  2648  B P09 U             62
545  4 45         C     TOTAL,X2           OF                                7  2653  C /46 094           62
546  4 46         BE    SETW1              CONSTANT DATA                     5  2660  B P09 S             62
547  4 47         S     X2,TOTAL                                             7  2665  S 094 /46           63
548  4 48         MZ    @1@,TOTAL                                            7  2672  Y H7Y /46           63
549  4 49         C     TOTAL,@11@                                           7  2679  C /46 I0S           63
550  4 50         BL    SETCT1             TEST FOR LAST PART OF DATA        5  2686  B O98 T             63
551  4 51         MLC   TOTAL,X2                                             7  2691  M /46 094           63
552  4 52  SETCT1 A     X2,X3                                                7  2698  A 094 099           64
553  4 53         B     WCON1                                                4  2705  B N82               64
554  4 54  SETW1  SW    AADR,BADR          RESTORE WMS IN INSTRUCTION        7  2709  , 831 835           64
555  4 55         SW    MODIF              OUTPUT AREA                       4  2716  , 839               64
556  4 56         MLC   BLANKS,X2                                            7  2720  M |07 094           64
557  4 57         B     LOOP1                                                4  2727  B M51               64
558  4 58  CONGM1 MLC   TOTAL,X2                                             7  2731  M /46 094           65
559  4 59         MLC   SVX3,X3                                              7  2738  M 893 099           65
560  4 60         B     BLKGM1                                               4  2745  B M55               65
561  4 61  *
562  4 62  TGM1   SBR   LOOP1&3                                              4  2749  H M54               65
563  4 63         C     X2,@001@           IS DATA 1 CHARACTER LONG          7  2753  C 094 H9W           65
564  4 64         BU    TINST1&4                                             5  2760  B K74 /             65
565  4 65         C     0&X3,TGMW-2        TEST FOR GMWM                     7  2765  C 0?0 |77           66
566  4 66         BU    TINST1&4                                             5  2772  B K74 /             66
567  4 67         MLC   @ 1@,CT1                                             7  2777  M H9T 815           66
568  4 68         MLC   GMWM,SPSAVE                                          7  2784  M |83 888           66
569  4 69         B     CWSPEC             WRITE GMWM RECORD                 4  2791  B 41Y               66
570  4 70         A     X2,LOCAT1                                            7  2795  A 094 826           66
571  4 71         B     SETW1                                                4  2802  B P09               67
572  4 72  *
573  4 73  MWORK  SBR   EMWORK&3                                             4  2806  H Q41               67
574  4 74         MLC   WORK1,MODIF        MOVE WORK AREA INTO               7  2810  M /60 839           67
575  4 75         MLC   WORK1-4,AADR&2     TAPE RECORD AREA IN               7  2817  M /56 833           67
576  4 76         MLC   WORK1-1,BADR&2     EXPANDED FORMAT FOR 1401          7  2824  M /59 837           67
577  4 77         MLC   WORK1-7,OPCOD                                        7  2831  M /53 829           67
578  4 78  EMWORK B     000                                                  4  2838  B 000               68
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

579  4 79          JOB   1401 SELF-LOADING DECK FROM TAPE AUTOCODER
580  4 80   TAPE   B     READ                                                   4  2842  B 781               69
581  4 81   TEND2  BCE   TEND,COL1,$                                            8  2846  B V74 001 $         69
582  4 82          MLC   COL75,TOTAL-1                                          7  2854  M 075 /45           69
583  4 83          MCS   TOTAL-1,CARD1                                          7  2861  Z /45 848           69
584  4 84          BCE   EXCUT2,COL40,B     TEST FOR EXECUTE CD                 8  2868  B E51 040 B         69
585  4 85          BCE   EXCUT2,COL40,/     TEST FOR END CD                     8  2876  B E51 040 /         70
586  4 86   STND2  SBR   X2,0                                                   7  2884  H 094 000           70
587  4 87          SBR   X3                                                     4  2891  H 099               70
588  4 88          CW    AADR,BADR                                              7  2895  ) 831 835           70
589  4 89          CW    MODIF                                                  4  2902  ) 839               70
590  4 90          BCE   SPLOZ2,COL40,)     A STANDARD CARD HAS EITHER          8  2906  B F96 040 )         70
591  4 91          BCE   SPSW2,COL40,,      A LOAD OR MOVE INST IN COL 40       8  2914  B E06 040 ,         71
592  4 92          MLC   COL40&3,COLNO      COLNO IS NO OF CHARACTERS ON CARD   7  2922  M 043 /32           71
593  4 93   M1     MLC   COL40&6&X3,CODE                                        7  2929  M 0D6 /37           71
594  4 94          B     DECODE                                                 4  2936  B 29W               71
595  4 95          MLC   ADDRS,TAB&X2       STORE LOC OF LOW-ORDER CHARACTER    7  2940  M /52 /!0           71
596  4 96          BCE   SETUP2,COL47&X3,N                                      8  2947  B ?42 0D7 N         72
597  4 97   MID2   C     COL47&3&X3,@040@                                       7  2955  C 0E0 I0V           72
598  4 98          BE    SETUP2                                                 5  2962  B ?42 S             72
599  4 99          BCE   LOZNG2,COL47&X3,)  TEST FOR CWINST                     8  2967  B F33 0D7 )         72
600  5 00          SBR   X2,5&X2                                                7  2975  H 094 0!5           72
601  5 01          MLC   COL47&3&X3,CODE                                        7  2982  M 0E0 /37           73
602  5 02          B     DECODE             CREATE TABLE OF LOCATIONS           4  2989  B 29W               73
603  5 03          MLC   ADDRS,TAB&X2       AT WHICH WMS ARE TO BE SET          7  2993  M /52 /!0           73
604  5 04          C     COL47&6&X3,ZEROS-3                                     7  3000  C 0E3 |55           73
605  5 05          BE    SETUP2                                                 5  3007  B ?42 S             73
606  5 06          C     COL47&6&X3,@040@                                       7  3012  C 0E3 I0V           73
607  5 07          BE    SETUP2                                                 5  3019  B ?42 S             74
608  5 08          SBR   X2,5&X2                                                7  3024  H 094 0!5           74
609  5 09          SBR   X3,7&X3                                                7  3031  H 099 0?7           74
610  5 10          B     M1                                                     4  3038  B R29               74
611  5 11   SETUP2 MLC   BLANKS,INST1                                           7  3042  M |07 840           74
612  5 12          BCE   WTSW2,COL40,,                                          8  3049  B G33 040 ,         74
613  5 13          BCE   WRTSW2,COL40,)                                         8  3057  B G14 040 )         75
614  5 14          SBR   X1,0                                                   7  3065  H 089 000           75
615  5 15          SBR   X3                                                     4  3072  H 099               75
616  5 16          C     ZEROS,X2           IF NO LOCATIONS FOR WMS PRESENT,    7  3076  C |58 094           75
617  5 17          BU    SETX2                                                  5  3083  B A20 /             75
618  5 18          MLC   TAB,ADDRS          COMPUTE HIGH-ORDER LOCATION         7  3088  M /00 /52           75
619  5 19          S     COLNO,ADDRS                                            7  3095  S /32 /52           76
620  5 20          MZ    @1@,ADDRS                                              7  3102  Y H7Y /52           76
621  5 21          A     @1@,ADDRS                                              7  3109  A H7Y /52           76
622  5 22          B     PRELP2             AND BRANCH TO PROCESS DATA          4  3116  B C42               76
623  5 23   SETX2  C     TAB,@00001@                                            7  3120  C /00 I1|           76
624  5 24          BU    MOVE2              BRANCH IF ANY DATA IS ON CARD       5  3127  B A73 /             76
625  5 25   SETW2  SBR   X3,5&X3            OTHERWISE                           7  3132  H 099 0?5           77
626  5 26          MLC   TAB&X3,LOCAT1                                          7  3139  M /?0 826           77
627  5 27          MLC   @SW  @,SPSAVE                                          7  3146  M I1U 888           77
628  5 28          B     WSPEC              WRITE SW RECORD                     4  3153  B 43X               77
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SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

629  5 29          C     X3,X2                                                       7  3157  C 099 094           77
630  5 30          BH    SETW2                                                       5  3164  B A32 U             77
631  5 31          B     ENDLP2                                                      4  3169  B E02               78
632  5 32   MOVE2  MLC   TAB,ADDRS                                                   7  3173  M /00 /52           78
633  5 33          A     @1@,ADDRS                                                   7  3180  A H7Y /52           78
634  5 34          S     COLNO,ADDRS         COMPUTE HIGH-ORDER LOC                  7  3187  S /32 /52           78
635  5 35          MZ    @1@,ADDRS                                                   7  3194  Y H7Y /52           78
636  5 36          MLC   @SW  @,SPSAVE                                               7  3201  M I1U 888           78
637  5 37   COMPR2 C     ADDRS,TAB&5&X1      TEST FOR WMS SET BELOW DATA             7  3208  C /52 /|5           79
638  5 38          BH    TESTW2                                                      5  3215  B C04 U             79
639  5 39          MLC   TAB&5&X1,LOCAT1                                             7  3220  M /|5 826           79
640  5 40          B     WSPEC               WRITE SW RECORD                         4  3227  B 43X               79
641  5 41          SBR   X1,5&X1                                                     7  3231  H 089 0|5           79
642  5 42          C     X1,X2                                                       7  3238  C 089 094           79
643  5 43          BE    PRELP2                                                      5  3245  B C42 S             80
644  5 44          B     COMPR2                                                      4  3250  B B08               80
645  5 45   COMPW2 C     TAB,TAB&5&X1        TEST FOR WMS SET ABOVE DATA             7  3254  C /00 /|5           80
646  5 46          BH    WRTWM2                                                      5  3261  B B70 U             80
647  5 47          B     PRELP2                                                      4  3266  B C42               80
648  5 48   WRTWM2 MLC   TAB&5&X1,LOCAT1                                             7  3270  M /|5 826           80
649  5 49          SBR   X1,5&X1                                                     7  3277  H 089 0|5           80
650  5 50          B     WSPEC                                                       4  3284  B 43X               81
651  5 51          C     X1,X2                                                       7  3288  C 089 094           81
652  5 52          BE    PRELP2                                                      5  3295  B C42 S             81
653  5 53          B     COMPW2                                                      4  3300  B B54               81
654  5 54   TESTW2 C     TAB,TAB&X2          TEST FOR WMS SET ABOVE DATA             7  3304  C /00 /!0           81
655  5 55          BH    WTWM2                                                       5  3311  B C20 U             81
656  5 56          B     COMPW2                                                      4  3316  B B54               81
657  5 57   WTWM2  MLC   TAB&X2,LOCAT1                                               7  3320  M /!0 826           82
658  5 58          A     @I9E@,X2                                                    7  3327  A I1X 094           82
659  5 59          B     WSPEC               WRITE SW RECORD                         4  3334  B 43X               82
660  5 60          B     TESTW2                                                      4  3338  B C04               82
661  5 61   PRELP2 MLC   X2,CODE                                                     7  3342  M 094 /37           82
662  5 62          MLC   ADDRS,LOCAT1        MOVE HIGH ORDER LOC IN                  7  3349  M /52 826           82
663  5 63          SW    AADR,BADR                                                   7  3356  , 831 835           83
664  5 64          SW    MODIF                                                       4  3363  , 839               83
665  5 65          C     X1,X2                                                       7  3367  C 089 094           83
666  5 66          BH    LOOP2                                                       5  3374  B C83 U             83
667  5 67          B     LAST2                                                       4  3379  B D64               83
668  5 68   LOOP2  MLC   TAB&5&X1,ADDRS                                              7  3383  M /|5 /52           83
669  5 69   SLOOP  S     LOCAT1,ADDRS                                                7  3390  S 826 /52           84
670  5 70          MZ    @1@,ADDRS           COMPUTE LENGTH OF INSTRUCTION           7  3397  Y H7Y /52           84
671  5 71          MLC   ADDRS,X2            AND STORE IN X2                         7  3404  M /52 094           84
672  5 72          A     ADDRS,X3                                                    7  3411  A /52 099           84
673  5 73          B     TINST1              BRANCH INTO 1401 LOOP                   4  3418  B K70               84
674  5 74   SET2   BWZ   CONT2,SWLAST,1                                              8  3422  V D38 803 1         85
675  5 75          SW    SWLAST                                                      4  3430  , 803               85
676  5 76          B     ENDLP2                                                      4  3434  B E02               85
677  5 77   CONT2  SBR   X1,5&X1             STD. RETURN - X1 IS TAB POSITION        7  3438  H 089 0|5           85
678  5 78          MLC   TAB&X1,LOCAT1                                               7  3445  M /|0 826           85
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

679  5 79          C     X1,CODE                                                7  3452  C 089 /37            85
680  5 80          BH    LOOP2                                                  5  3459  B C83 U              86
681  5 81   LAST2  C     LOCAT1,TAB                                             7  3464  C 826 /00            86
682  5 82          BL    ENDWT2                                                 5  3471  B D98 T              86
683  5 83          MLC   TAB,ADDRS                                              7  3476  M /00 /52            86
684  5 84          A     @1@,ADDRS                                              7  3483  A H7Y /52            86
685  5 85          CW    SWLAST              SET LOOP FOR LAST DATA             4  3490  ) 803                86
686  5 86          B     SLOOP                                                  4  3494  B C90                86
687  5 87   ENDWT2 B     W1401                                                  4  3498  B M14                87
688  5 88   ENDLP2 B     TAPE                VARIABLE RETURN - USED BY SPS      4  3502  B Q42                87
689  5 89   SPSW2  MLC   COL40&3,CODE                                           7  3506  M 043 /37            87
690  5 90          B     DECODE                                                 4  3513  B 29W                87
691  5 91          MLC   ADDRS,LOCAT1                                           7  3517  M /52 826            87
692  5 92          MLC   @SW  @,SPSAVE                                          7  3524  M I1U 888            87
693  5 93          B     WSPEC               WRITE SW RECORD                    4  3531  B 43X                87
694  5 94          C     COL40&6,@040@                                          7  3535  C 046 I0V            88
695  5 95          BU    M1                                                     5  3542  B R29 /              88
696  5 96          B     ENDLP2                                                 4  3547  B E02                88
697  5 97   EXCUT2 MLC   COL46,WORK1-1                                          7  3551  M 046 /59            88
698  5 98          SW    AADR,BADR           SET INST AREA                      7  3558  , 831 835            88
699  5 99          SW    MODIF                                                  4  3565  , 839                88
700  6 00          B     MWORK               MOVE WORK AREA INTO OUTPUT AREA    4  3569  B Q06                88
701  6 01          MLC   ZEROS,LOCAT1                                           7  3573  M |58 826            89
702  6 02          MN    @2@,LOCAT1-5                                           7  3580  D I1Y 821            89
703  6 03          B     WRITE                                                  4  3587  B V94                89
704  6 04          MN    ZEROS,LOCAT1-5                                         7  3591  D |58 821            89
705  6 05          B     READ                IF CARD IS EXECUTE CARD            4  3598  B 781                89
706  6 06          A     @1@,OVLAY1                                             7  3602  A H7Y 820            89
707  6 07          BCE   TEND,COL1,$         READ BOOTSTRAP CARDS               8  3609  B V74 001 $          90
708  6 08          B     READ                                                   4  3617  B 781                90
709  6 09          BCE   TEND,COL1,$                                            8  3621  B V74 001 $          90
710  6 10          B     TAPE                                                   4  3629  B Q42                90
711  6 11   LOZNG2 MLC   COL47&3&X3,CODE                                        7  3633  M 0E0 /37            90
712  6 12          B     DECODE                                                 4  3640  B 29W                90
713  6 13          MLC   ADDRS,LOCAT1                                           7  3644  M /52 826            91
714  6 14          MLC   @CW  @,SPSAVE                                          7  3651  M I2S 888            91
715  6 15          B     WSPEC               WRITE CW RECORD                    4  3658  B 43X                91
716  6 16          C     COL47&6&X3,CODE                                        7  3662  C 0E3 /37            91
717  6 17          BE    ENDLZ2                                                 5  3669  B F85 S              91
718  6 18          MLC   COL47&6&X3,CODE                                        7  3674  M 0E3 /37            91
719  6 19          B     LOZNG2&7                                               4  3681  B F40                92
720  6 20   ENDLZ2 SBR   X3,7&X3                                                7  3685  H 099 0?7            92
721  6 21          B     MID2                                                   4  3692  B R55                92
722  6 22   SPLOZ2 MLC   @I9C@,X3                                               7  3696  M I2V 099            92
723  6 23          MLC   BLANKS,TAB                                             7  3703  M |07 /00            92
724  6 24          B     LOZNG2                                                 4  3710  B F33                92
725  6 25   WRTSW2 C     BLANKS,TAB                                             7  3714  C |07 /00            93
726  6 26          BE    ENDLP2                                                 5  3721  B E02 S              93
727  6 27          MLC   @SW  @,SPSAVE                                          7  3726  M I1U 888            93
728  6 28   WTSW2  SBR   X1,0                                                   7  3733  H 089 000            93
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SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

729  6 29          MLC   TAB&X1,LOCAT1                                                7  3740  M /|0 826            93
730  6 30          B     WSPEC              WRITE SW RECORD                           4  3747  B 43X                93
731  6 31          C     X1,X2                                                        7  3751  C 089 094            94
732  6 32          BE    ENDLP2                                                       5  3758  B E02 S              94
733  6 33          SBR   X1,5&X1                                                      7  3763  H 089 0|5            94
734  6 34          B     WTSW2&7                                                      4  3770  B G40                94
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SEQ PG LIN  LABEL  OP    OPERANDS                                                 SFX CT  LOCN  INSTRUCTION TYPE  CARD

735  6 35          JOB   1401 SPS OBJECT DECK
736  6 36   TSPS3  C     COL80,@004@        TEST FOR SEQ NO ON CARD                    7  3774  C 080 I2Y            95
737  6 37          BE    TEND3              BRANCH IF PRESENT                          5  3781  B H05 S              95
738  6 38          CW    SWSEQ              SET SEQ NO SWITCH                          4  3786  ) 804                95
739  6 39          MLC   @004@,CDSAV1       GENERATE SEQ NO                            7  3790  M I2Y 897            95
740  6 40          B     TEND3                                                         4  3797  B H05                95
741  6 41   RSPS   B     READ                                                          4  3801  B 781                95
742  6 42   TEND3  BCE   TEND,COL1,$                                                   8  3805  B V74 001 $          95
743  6 43          SBR   X1,63                                                         7  3813  H 089 063            96
744  6 44          SBR   X2,0                                                          7  3820  H 094 000            96
745  6 45          SBR   X3                                                            4  3827  H 099                96
746  6 46          CW    AADR,BADR                                                     7  3831  ) 831 835            96
747  6 47          CW    MODIF                                                         4  3838  ) 839                96
748  6 48          MLC   COL56&3,COLNO      COLNO IS NO OF CHARACTERS ON CARD          7  3842  M 059 /32            96
749  6 49          BWZ   MCDNO3,SWSEQ,1     BRANCH IF SEQ NO ON CARD                   8  3849  V H68 804 1          97
750  6 50          A     @1@,CDSAV1                                                    7  3857  A H7Y 897            97
751  6 51          B     MCDNO3&7                                                      4  3864  B H75                97
752  6 52   MCDNO3 MLC   COL80,CDSAV1                                                  7  3868  M 080 897            97
753  6 53          MCS   CDSAV1,CARD1       MOVE CARD SEQ NO. TO OUTPUT                7  3875  Z 897 848            97
754  6 54          BCE   EXCUT3,COL56,/                                                8  3882  B 04Y 056 /          98
755  6 55          BCE   EXCUT3&7,COL56,B                                              8  3890  B 05V 056 B          98
756  6 56          BCE   ENDEX3,COL56,N                                                8  3898  B 09U 056 N          98
757  6 57          MLC   COL56&6,CODE                                                  7  3906  M 062 /37            98
758  6 58          B     DECODE                                                        4  3913  B 29W                98
759  6 59          MLC   ADDRS,TAB          PICK UP LOW-ORDER LOCATION                 7  3917  M /52 /00            99
760  6 60   LOOP3  BCE   LOZNG3,0&X1,)      BRANCH IF CW INST                          8  3924  B 24Z 0|0 )          99
761  6 61          BCE   STOR3,0&X1,1                                                  8  3932  B 03X 0|0 1          99
762  6 62          BCE   STOR3,0&X1,                                                   8  3940  B 03X 0|0            99
763  6 63          BCE   ENDCD3,0&X1,B      TEST FOR EXECUTE INSTRUCTION               8  3948  B 02W 0|0 B          99
764  6 64          SBR   X2,5&X2                                                       7  3956  H 094 0!5           100
765  6 65          MLC   3&X1,CODE                                                     7  3963  M 0|3 /37           100
766  6 66          B     DECODE                                                        4  3970  B 29W               100
767  6 67          MLC   ADDRS,TAB&X2       CREATE TABLE OF LOCATIONS                  7  3974  M /52 /!0           100
768  6 68          SBR   X3,1&X3            AT WHICH WMS ARE TO BE SET                 7  3981  H 099 0?1           100
769  6 69          SBR   X1,4&X1                                                       7  3988  H 089 0|4           100
770  6 70          BCE   ADMOR,X3,2                                                    8  3995  B 01V 099 2         101
771  6 71          BCE   STOR3,X3,6                                                    8  4003  B 03X 099 6         101
772  6 72          B     LOOP3                                                         4  4011  B I24               101
773  6 73   ADMOR  SBR   X1,39                                                         7  4015  H 089 039           101
774  6 74          B     LOOP3                                                         4  4022  B I24               101
775  6 75   ENDCD3 MLC   &ENDEX3,ENDLP2&3   SET LOOP FOR EXECUTE CD RETURN             7  4026  M I3/ E05           101
776  6 76          B     SETUP2             BRANCH INTO 1401 PROCESSING LOOP           4  4033  B ?42               102
777  6 77   STOR3  MLC   &RSPS,ENDLP2&3     SET LOOP FOR SPS RETURN                    7  4037  M I3U E05           102
778  6 78          B     SETUP2             BRANCH INTO 1401 PROCESSING LOOP           4  4044  B ?42               102
779  6 79   EXCUT3 MLC   COL62,BADR&2       SET EXECUTE INTRUCTION                     7  4048  M 062 837           102
780  6 80          MLC   COL62-3,AADR&2     INTO DATA OUTPUT AREA                      7  4055  M 059 833           102
781  6 81          MLC   COL62-6,OPCOD                                                 7  4062  M 056 829           102
782  6 82          MLC   ZEROS,LOCAT1                                                  7  4069  M |58 826           103
783  6 83          MN    @2@,LOCAT1-5                                                  7  4076  D I1Y 821           103
784  6 84          B     WRITE              WRITE EXECUTE INSTRUCTION                  4  4083  B V94               103
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SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

785  6 85          MN    ZEROS,LOCAT1-5                                                7  4087  D |58 821           103
786  6 86   ENDEX3 B     READ                                                          4  4094  B 781               103
787  6 87          BCE   TEND,COL1,$                                                   8  4098  B V74 001 $         103
788  6 88          C     COL7,CON815         TEST FOR BOOTSTRAP CARD                   7  4106  C 007 995           104
789  6 89          BU    EXPRT3              IF NOT, BRANCH                            5  4113  B 12Z /             104
790  6 90          A     @1@,OVLAY1          ADD 1 TO OVERLAY COUNTER                  7  4118  A H7Y 820           104
791  6 91          B     RSPS                                                          4  4125  B H01               104
792  6 92   EXPRT3 C     OVLAY1,LSTOV1                                                 7  4129  C 820 |74           104
793  6 93          BE    PRTCD3                                                        5  4136  B 18V S             104
794  6 94          MLC   OVLAY1,LSTOV1                                                 7  4141  M 820 |74           105
795  6 95          B     PRINT                                                         4  4148  B 747               105
796  6 96          B     PRINT                                                         4  4152  B 747               105
797  6 97          MLC   EXMES3,PRNT&50                                                7  4156  M 24Y 255           105
798  6 98          MLC   CARD1,CODE                                                    7  4163  M 848 /37           105
799  6 99          MLC   CODE,PRNT&55                                                  7  4170  M /37 260           105
800  7 00          B     PRINT                                                         4  4177  B 747               106
801  7 01          B     PRINT                                                         4  4181  B 747               106
802  7 02   PRTCD3 MLC   COL80,PRNT&80                                                 7  4185  M 080 285           106
803  7 03          B     PRINT                                                         4  4192  B 747               106
804  7 04          B     ENDEX3                                                        4  4196  B 09U               106
805  7 05          DCW   @THE FOLLOWING CARD/S  READ AFTER @                          33  4232                      107
806  7 06   EXMES3 DC    @EXECUTE CARD NO.@                                           16  4248                      108
807  7 07   LOZNG3 MLC   3&X1,CODE                                                     7  4249  M 0|3 /37           108
808  7 08          B     DECODE                                                        4  4256  B 29W               108
809  7 09          MLC   ADDRS,LOCAT1                                                  7  4260  M /52 826           108
810  7 10          MLC   @CW  @,SPSAVE                                                 7  4267  M I2S 888           109
811  7 11          B     WSPEC               WRITE CW RECORD                           4  4274  B 43X               109
812  7 12          SBR   X1,4&X1                                                       7  4278  H 089 0|4           109
813  7 13          SBR   X3,1&X3                                                       7  4285  H 099 0?1           109
814  7 14          B     LOOP3                                                         4  4292  B I24               109
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

815  7 15          JOB   ROUTINE TO DECODE 1401 MEMORY ADDRESSES
816  7 16   DECODE SBR   ENDCD&3                                                  4  4296  H 41X               110
817  7 17          MLC   ZEROS,ADDRS                                              7  4300  M |58 /52           110
818  7 18          MN    CODE,ADDRS                                               7  4307  D /37 /52           110
819  7 19          MN                                                             1  4314  D                   110
820  7 20          MN                                                             1  4315  D                   110
821  7 21          BWZ   SETN4,CODE,S                                             8  4316  V 38S /37 S         110
822  7 22          BWZ   SETN8,CODE,K                                             8  4324  V 37V /37 K         110
823  7 23          BWZ   SET12,CODE,B                                             8  4332  V 36Y /37 B         111
824  7 24   HI     BWZ   ONEHI,CODE-2,S                                           8  4340  V 40X /35 S         111
825  7 25          BWZ   TWOHI,CODE-2,K                                           8  4348  V 40| /35 K         111
826  7 26          BWZ   THREH,CODE-2,B                                           8  4356  V 39T /35 B         111
827  7 27          B     ENDCD                                                    4  4364  B 41U               111
828  7 28   SET12  A     @4@,ADDRS-3                                              7  4368  A I3V /49           112
829  7 29   SETN8  A     @4@,ADDRS-3                                              7  4375  A I3V /49           112
830  7 30   SETN4  A     @4@,ADDRS-3                                              7  4382  A I3V /49           112
831  7 31          B     HI                                                       4  4389  B 34|               112
832  7 32   THREH  A     @1@,ADDRS-3                                              7  4393  A H7Y /49           112
833  7 33   TWOHI  A     @1@,ADDRS-3                                              7  4400  A H7Y /49           112
834  7 34   ONEHI  A     @1@,ADDRS-3                                              7  4407  A H7Y /49           113
835  7 35   ENDCD  B     000                                                      4  4414  B 000               113
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

836  7 36          JOB   1401 SPECIAL TAPE WRITE ROUTINE
837  7 37   CWSPEC SBR   EWSPEC&3                                                   4  4418  H 46Z               114
838  7 38          CW    AADR,BADR                                                  7  4422  ) 831 835           114
839  7 39          CW    MODIF                                                      4  4429  ) 839               114
840  7 40          B     *&5                                                        4  4433  B 44/               114
841  7 41   WSPEC  SBR   EWSPEC&3                                                   4  4437  H 46Z               114
842  7 42          MLC   BLANKS,INST1                                               7  4441  M |07 840           114
843  7 43          MLC   SPSAVE,INST1-8                                             7  4448  M 888 832           114
844  7 44          B     WRITE                                                      4  4455  B V94               115
845  7 45          MLC   BLANKS,INST1-8                                             7  4459  M |07 832           115
846  7 46   EWSPEC B     000                                                        4  4466  B 000               115
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

847  7 47          JOB   1410 AUTOCODER CONDENSED OBJECT DECK
848  7 48   R1410  MLC   @COD@,MOD1&2                                           7  4470  M I3Y 809          116
849  7 49          MLC   ADR6,LOCAT1                                            7  4477  M 932 826          116
850  7 50          MLC   GPMK,WDMK1                                             7  4484  M |75 849          116
851  7 51          B     WRITE              WRITE HEADING RECORD                4  4491  B V94              116
852  7 52          MZ    SETAD&1,SCAN4&7                                        7  4495  Y W06 62Y          116
853  7 53          MZ    SETAD&1,TGMW       CREATE WORD SEPARATORS              7  4502  Y W06 |79          116
854  7 54          MZ    SETAD&1                                                4  4509  Y W06              117
855  7 55          MZ    SETAD&1,TSTW4&7                                        7  4513  Y W06 77S          117
856  7 56          MN    ZEROS,LOCAT1                                           7  4520  D |58 826          117
857  7 57          MLC   ZEROS,LOCAT1-5                                         7  4527  M |58 821          117
858  7 58          MLC   BLANKS-11,CARD1-3                                      7  4534  M 996 845          117
859  7 59          B     TEND4                                                  4  4541  B 54Z              117
860  7 60   RDCD4  B     READ                                                   4  4545  B 781              118
861  7 61   TEND4  BCE   TEND,COL1,$                                            8  4549  B V74 001 $        118
862  7 62          MLC   COL75,CODE                                             7  4557  M 075 /37          118
863  7 63          MCS   CODE,CARD1         MOVE CARD SEQ NO, TO OUTPUT AREA    7  4564  Z /37 848          118
864  7 64          MLC   COL12,TOTAL        TOTAL IS NO OF CHARS. ON CARD       7  4571  M 012 /46          118
865  7 65          BCE   EXCUT4,COL1,E      BRANCH IF EXECUTE OR END CARD       8  4578  B |9U 001 E        119
866  7 66          MLC   COL6,ADDRS-1                                           7  4586  M 006 /51          119
867  7 67          MLC   ADDRS-1,LOCAT1                                         7  4593  M /51 826          119
868  7 68          A     LOCAT1,TOTAL                                           7  4600  A 826 /46          119
869  7 69          SBR   X2,12                                                  7  4607  H 094 012          119
870  7 70   DO4    SBR   X1,0                                                   7  4614  H 089 000          120
871  7 71   SCAN4  BCE   TSTW4,1&X2,:       TEST FOR WORD SEPARATOR             8  4621  B 76V 0!1 :        120
872  7 72          BCE   TSTB4,1&X2,        TEST FOR BLANK                      8  4629  B 69Z 0!1          120
873  7 73          BCE   MOVE4,X2-1,7       TEST FOR END OF CARD                8  4637  B 81X 093 7        120
874  7 74          SBR   X1,1&X1            X1 IS NO OF CHARACTERS ON CARD      7  4645  H 089 0|1          120
875  7 75   ADD4   SBR   X2,1&X2            X2 IS COLUMN NO ON CARD             7  4652  H 094 0!1          121
876  7 76          B     SCAN4                                                  4  4659  B 62/              121
877  7 77   STGPM4 MLC   GMWM-2,INST1-10                                        7  4663  M |81 830          121
878  7 78          B     *&8                                                    4  4670  B 68/              121
879  7 79   STGM4  MLC   GMWM,INST1-8       MOVE  GMWM  TO OUTPUT RECORD AREA   7  4674  M |83 832          121
880  7 80          MLC   @-WS@,INST1-5                                          7  4681  M I4/ 835          121
881  7 81          MCS   X1,CT1                                                 7  4688  Z 089 815          122
882  7 82          B     WR1410             AND BRANCH TO WRITE ON TAPE         4  4695  B 97Y              122
883  7 83   TSTB4  B     LAST4                                                  4  4699  B T1Z              122
884  7 84          BE    MOVE4                                                  5  4703  B 81X S            122
885  7 85          SBR   X1,1&X1                                                7  4708  H 089 0|1          122
886  7 86          SBR   X2,1&X2                                                7  4715  H 094 0!1          122
887  7 87          B     SCAN4                                                  4  4722  B 62/              122
888  7 88   MWDSP4 C     2&X2,TGMW                                              7  4726  C 0!2 |79          123
889  7 89          BE    STGM4                                                  5  4733  B 67U S            123
890  7 90          B     LAST4                                                  4  4738  B T1Z              123
891  7 91          BE    TSTGM4                                                 5  4742  B 78V S            123
892  7 92          SBR   X2,1&X2                                                7  4747  H 094 0!1          123
893  7 93          SBR   X1,1&X1                                                7  4754  H 089 0|1          123
894  7 94          B     MOVE4                                                  4  4761  B 81X              123
895  7 95   TSTW4  BCE   MWDSP4,2&X2,:                                          8  4765  B 72W 0!2 :        124
896  7 96          C     ZEROS,X1                                               7  4773  C |58 089          124
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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

897  7 97          BE    ADD4                                                         5  4780  B 65S S             124
898  7 98   TSTGM4 C     @001@,X1                                                     7  4785  C H9W 089           124
899  7 99          BU    MOVE4                                                        5  4792  B 81X /             124
900  8 00          C     0&X2,TGMW-2                                                  7  4797  C 0!0 |77           124
901  8 01          BE    STGM4                                                        5  4804  B 67U S             125
902  8 02          BCE   STGPM4,0&X2,}                                                8  4809  B 66T 0!0 }         125
903  8 03   MOVE4  MLC   X2,X3                                                        7  4817  M 094 099           125
904  8 04          S     X1,X3                                                        7  4824  S 089 099           125
905  8 05          MZ    @1@,X3                                                       7  4831  Y H7Y 099           125
906  8 06          BCE   SPEC4,1&X3,}                                                 8  4838  B |2T 0?1 }         126
907  8 07          C     X1,@12@                                                      7  4846  C 089 I0|           126
908  8 08          BL    CONST4                                                       5  4853  B /6| T             126
909  8 09          MLC   0&X2,INST1-12&X1   MOVE INSR. INTO OUTPUT AREA               7  4858  M 0!0 8S8           126
910  8 10          MCS   X1,CT1                                                       7  4865  Z 089 815           126
911  8 11          MLC   INST1-11,OPC1                                                7  4872  M 829 805           127
912  8 12          BCE   TMOD4,X1,2                                                   8  4879  B 91/ 089 2         127
913  8 13          BCE   MOVA4,X1,7         TESTS FOR D-MODIFIER                      8  4887  B 93| 089 7         127
914  8 14          BCE   W1410,X1-1,0                                                 8  4895  B 95Z 088 0         127
915  8 15          BCE   W1410,X1,1                                                   8  4903  B 95Z 089 1         127
916  8 16   TMOD4  BCE   MOVMD4,X1-1,0                                                8  4911  B 93X 088 0         128
917  8 17          MLC   W1410,OPC1&1       MOVE IN  B  FOR 2 OPERANDS                7  4919  M 95Z 806           128
918  8 18          B     MOVMD4                                                       4  4926  B 93X               128
919  8 19   MOVA4  MLC   A1410,OPC1&1       MOVE IN  A  FOR 1 OPERAND                 7  4930  M 98Z 806           128
920  8 20   MOVMD4 MN    INST1-12&X1,MOD1                                             7  4937  D 8S8 807           128
921  8 21          MZ    INST1-12&X1,MOD1                                             7  4944  Y 8S8 807           129
922  8 22          BCE   MGPMK4,MOD1,}      TEST FOR GM IS D-MODIFIER                 8  4951  B |1S 807 }         129
923  8 23   W1410  BCE   *&5,OPC1,|                                                   8  4959  B 97/ 805 |         129
924  8 24          B     *&8                                                          4  4967  B 97Y               129
925  8 25          MLC   BLANKS,MOD1                                                  7  4971  M |07 807           129
926  8 26   WR1410 B     WRITE                                                        4  4978  B V94               129
927  8 27          SBR   X2,1&X2                                                      7  4982  H 094 0!1           130
928  8 28   A1410  A     X1,LOCAT1                                                    7  4989  A 089 826           130
929  8 29   TLAST4 C     LOCAT1,TOTAL       TEST FOR END OF JOB                       7  4996  C 826 /46           130
930  8 30          BH    DO4                IF NOT, BRANCH BACK INTO LOOP             5  5003  B 61U U             130
931  8 31          B     RDCD4                                                        4  5008  B 54V               130
932  8 32   MGPMK4 MLC   GMWM-2,OPCOD&X1    MOVE GM INTO END OF INST.                 7  5012  M |81 8S9           130
933  8 33          B     W1410                                                        4  5019  B 95Z               131
934  8 34   SPEC4  MCS   @001@,CT1                                                    7  5023  Z H9W 815           131
935  8 35          C     1&X3,TGMW-2                                                  7  5030  C 0?1 |77           131
936  8 36          BU    SPGM4                                                        5  5037  B |5T /             131
937  8 37          MLC   GMWM,INST1-8                                                 7  5042  M |83 832           131
938  8 38          B     *&8                                                          4  5049  B |6|               131
939  8 39   SPGM4  MLC   GMWM-2,INST1-10                                              7  5053  M |81 830           132
940  8 40          B     WRITE                                                        4  5060  B V94               132
941  8 41          A     @001@,LOCAT1                                                 7  5064  A H9W 826           132
942  8 42          C     LOCAT1,TOTAL                                                 7  5071  C 826 /46           132
943  8 43          BE    RDCD4                                                        5  5078  B 54V S             132
944  8 44          A     @I9I@,X1                                                     7  5083  A I4U 089           132
945  8 45          B     MOVE4                                                        4  5090  B 81X               133
946  8 46   EXCUT4 BCE   DAREA4,COL3,D      TEST FOR DATA DEFINING CARD               8  5094  B /4V 003 D         133
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SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD

947  8 47          MLC   ZEROS,LOCAT1                                              7  5102  M |58 826           133
948  8 48          MN    @2@,LOCAT1-5                                              7  5109  D I1Y 821           133
949  8 49          MLC   COL8,INST1-6                                              7  5116  M 008 834           133
950  8 50          B     WRITE                                                     4  5123  B V94               133
951  8 51          MN    ZEROS,LOCAT1-5                                            7  5127  D |58 821           134
952  8 52          A     @1@,OVLAY1          ADD TO EXECUTE CARD COUNTER           7  5134  A H7Y 820           134
953  8 53          B     RDCD4                                                     4  5141  B 54V               134
954  8 54   DAREA4 MLC   COL13,ADDRS-1       SET UP LOCATION OF DA                 7  5145  M 013 /51           134
955  8 55          B     WRITE                                                     4  5152  B V94               134
956  8 56          B     RDCD4                                                     4  5156  B 54V               134
957  8 57   CONST4 MLC   X1,X3                                                     7  5160  M 089 099           135
958  8 58          C     X1,@13@                                                   7  5167  C 089 H9Y           135
959  8 59          BH    WCON4               SET UP DATA TO BE WRITTEN             5  5174  B S0X U             135
960  8 60          SBR   X2,12&X2                                                  7  5179  H 094 0J2           135
961  8 61          S     X1,X2               12 CHARACTERS PER RECORD              7  5186  S 089 094           135
962  8 62          MZ    @1@,X2                                                    7  5193  Y H7Y 094           136
963  8 63          SBR   X3,12                                                     7  5200  H 099 012           136
964  8 64   WCON4  MLC   0&X2,INST1-12&X3    MOVE DATA TO OUTPUT AREA              7  5207  M 0!0 8B8           136
965  8 65          BCE   CONGM4,INST1-11,}                                         8  5214  B T0Y 829 }         136
966  8 66   CONCT4 MCS   X3,CT1                                                    7  5222  Z 099 815           136
967  8 67          B     WRITE               WRITE TAPE RECORD                     4  5229  B V94               137
968  8 68          A     X3,LOCAT1                                                 7  5233  A 099 826           137
969  8 69          C     X3,@12@             TESTS FOR                             7  5240  C 099 I0|           137
970  8 70          BH    TLAST4              END                                   5  5247  B 99W U             137
971  8 71          C     X1,X3               OF                                    7  5252  C 089 099           137
972  8 72          BE    TLAST4              CONSTANT DATA                         5  5259  B 99W S             137
973  8 73          S     X3,X1                                                     7  5264  S 099 089           138
974  8 74          MZ    @1@,X1                                                    7  5271  Y H7Y 089           138
975  8 75          C     X1,@11@             TEST FOR LAST PART OF DATA            7  5278  C 089 I0S           138
976  8 76          BL    SETCT4                                                    5  5285  B S9X T             138
977  8 77          MLC   X1,X3                                                     7  5290  M 089 099           138
978  8 78   SETCT4 A     X3,X2                                                     7  5297  A 099 094           139
979  8 79          B     WCON4                                                     4  5304  B S0X               139
980  8 80   CONGM4 MLC   BLANKS,INST1-11                                           7  5308  M |07 829           139
981  8 81          B     CONCT4                                                    4  5315  B S2S               139
982  8 82   *
983  8 83   LAST4  SBR   ELAST4&3                                                  4  5319  H T5U               139
984  8 84          MLC   BLANKS,ADDRS                                              7  5323  M |07 /52           139
985  8 85          MLC   X1,ADDRS                                                  7  5330  M 089 /52           140
986  8 86          A     LOCAT1,ADDRS                                              7  5337  A 826 /52           140
987  8 87          C     ADDRS,TOTAL         TEST FOR END OF DATA ON CARD          7  5344  C /52 /46           140
988  8 88   ELAST4 B     000                                                       4  5351  B 000               140
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 SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

 989  8 89          JOB   705 CONDENSED OBJECT DECK
 990  8 90   R705   MLC   GPMK,WDMK5                                                 7  5355  M |75 894            141
 991  8 91          MLC   &REC5,SETAD                                                7  5362  M I4X W05            141
 992  8 92          B     WRITE              WRITE HEADING RECORD                    4  5369  B V94                141
 993  8 93          MLC   BLANKS,OPR5-1                                              7  5373  M |07 872            141
 994  8 94          MLC   ZEROS,OVLAY5                                               7  5380  M |58 865            141
 995  8 95          B     TEND5                                                      4  5387  B T9V                141
 996  8 96   RDCD5  B     READ                                                       4  5391  B 781                142
 997  8 97   TEND5  BCE   TEND,COL1,$                                                8  5395  B V74 001 $          142
 998  8 98          CW    SWHOLD             CLEAR TCC SWITCH                        4  5403  ) 802                142
 999  8 99          MLC   COL9,CARD5         MOVE CARD SEQ NO. TO OUTPUT             7  5407  M 009 893            142
1000  9 00          C     COL15,ZEROS-4      TEST FOR TRANSFER CONTROL CARD          7  5414  C 015 |54            142
1001  9 01          BE    TCC5                                                       5  5421  B X9T S              142
1002  9 02          BCE   XPAND5,COL8,       BRANCH IF CARD IN EXPANDED FORMAT       8  5426  B Y5Y 008            143
1003  9 03          MLC   &DOIN5,DOLP5&3                                             7  5434  M I5| W9X            143
1004  9 04          MLC   COL13,CODED                                                7  5441  M 013 /41            143
1005  9 05          B     EXPAND                                                     4  5448  B R9S                143
1006  9 06          MLC   ADDRS,LOCAT5                                               7  5452  M /52 871            143
1007  9 07          MLC   COL15,X2-1         X2-1 IS NO OF CHARS. ON CARD            7  5459  M 015 093            144
1008  9 08   TSTAD5 SBR   X1,0                                                       7  5466  H 089 000            144
1009  9 09          BCE   STNO5,LOCAT5,0     BRANCH TO STD. PROCESSING IF            8  5473  B V7T 871 0          144
1010  9 10          BCE   STNO5,LOCAT5,5     ADDRESS ENDS IN 0 OR 5                  8  5481  B V7T 871 5          144
1011  9 11          SBR   X3,0                                                       7  5489  H 099 000            144
1012  9 12   ODDN5  A     @1@,ADDRS                                                  7  5496  A H7Y /52            145
1013  9 13          SBR   X3,1&X3            DETERMINE AMOUNT TO ADJUST ADDR.        7  5503  H 099 0?1            145
1014  9 14          SBR   X1,1&X1                                                    7  5510  H 089 0|1            145
1015  9 15          BCE   CONST5,ADDRS,0     AND BRANCH TO PROCESS THAT AMOUNT       8  5517  B X4| /52 0          145
1016  9 16          BCE   CONST5,ADDRS,5                                             8  5525  B X4| /52 5          145
1017  9 17          C     X3,X2-1                                                    7  5533  C 099 093            146
1018  9 18          BE    CONST5                                                     5  5540  B X4| S              146
1019  9 19          B     ODDN5                                                      4  5545  B U9W                146
1020  9 20   DOIN5  C     X1,X2-1            TEST FOR END OF DATA ON CARD            7  5549  C 089 093            146
1021  9 21          BU    STNO5                                                      5  5556  B V7T /              146
1022  9 22          BWZ   ETCC5,SWHOLD,1                                             8  5561  V Y2S 802 1          146
1023  9 23          B     RDCD5                                                      4  5569  B T9/                147
1024  9 24   STNO5  SBR   X3,5               X3 IS LENGTH OF INSTRUCTION             7  5573  H 099 005            147
1025  9 25          SBR   X1,5&X1            X1 IS NO OF CHARS. PROCESSED            7  5580  H 089 0|5            147
1026  9 26          C     X1,X2-1                                                    7  5587  C 089 093            147
1027  9 27          BL    LAST5                                                      5  5594  B W9Y T              147
1028  9 28          C     COL15-4&X1,WDMK5                                           7  5599  C 0/1 894            147
1029  9 29          BE    STGM5&7                                                    5  5606  B Y4X S              148
1030  9 30          BCE   CONST5,COL15&X1,                                           8  5611  B X4| 0/5            148
1031  9 31          BCE                        IF ANY PART OF INSTRUCTION            1  5619  B                    148
1032  9 32          BCE                        IS BLANK, BRANCH TO PROCESS           1  5620  B                    148
1033  9 33          BCE                        AS CONSTANT DATA                      1  5621  B                    148
1034  9 34          BCE                                                              1  5622  B                    148
1035  9 35          MLC   COL15&X1,INST6                                             7  5623  M 0/5 922            148
1036  9 36          MLC   INST6,CODED                                                7  5630  M 922 /41            149
1037  9 37          MLC   CODED,CADR5                                                7  5637  M /41 888            149
1038  9 38          B     EXPAND                                                     4  5644  B R9S                149
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 SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

1039  9 39          MLC   ADDRS,ADRS5                                               7  5648  M /52 883           149
1040  9 40          MLC   SU,SU5              SET UP INSTRUCTION                    7  5655  M /34 876           149
1041  9 41          MLC   SU,OPC5             IN TAPE OUTPUT AREA                   7  5662  M /34 852           149
1042  9 42          MLC   INST6-4,OPC5-2                                            7  5669  M 918 850           150
1043  9 43          MLC   OPC5-2,OPR5                                               7  5676  M 850 873           150
1044  9 44   W705   B     WRITE               WRITE TAPE RECORD                     4  5683  B V94               150
1045  9 45          A     X3,LOCAT5                                                 7  5687  A 099 871           150
1046  9 46   DOLP5  B     DOIN5                                                     4  5694  B V4Z               150
1047  9 47   LAST5  A     @I9E@,X1                                                  7  5698  A I1X 089           150
1048  9 48          MLC   X2-1,SU             SAVE NO OF CHAR. ON CARD              7  5705  M 093 /34           151
1049  9 49          S     X1,X2-1                                                   7  5712  S 089 093           151
1050  9 50          MN    X2-1,X3             X3 IS NO OF CHAR. LEFT TO PROCESS     7  5719  D 093 099           151
1051  9 51          MLC   SU,X1               RESTORE NO OF CHAR. TO X1             7  5726  M /34 089           151
1052  9 52          MLC   &RDCD5,DOLP5&3      SET LOOP FOR END OF DATA              7  5733  M I5T W9X           151
1053  9 53   CONST5 BWZ   ETCC5,SWHOLD,1      IF CARD IS TCC, BRANCH                8  5740  V Y2S 802 1         152
1054  9 54          MLC   COL15&X1,CADR5-4&X3    OTHERWISE, PROCESS DATA            7  5748  M 0/5 8H4           152
1055  9 55          C     CADR5-3,WDMK5                                             7  5755  C 885 894           152
1056  9 56          BE    STGM5                                                     5  5762  B Y4| S             152
1057  9 57   CONT5  MCS   X3,SU5                                                    7  5767  Z 099 876           152
1058  9 58          B     WRITE               WRITE TAPE RECORD                     4  5774  B V94               152
1059  9 59          SW    SU5-1                                                     4  5778  , 875               153
1060  9 60          MLC   BLANKS,SU5                                                7  5782  M |07 876           153
1061  9 61          B     W705&4                                                    4  5789  B W8X               153
1062  9 62   TCC5   MLC   ZEROS,LOCAT5                                              7  5793  M |58 871           153
1063  9 63          MN    @2@,LOCAT5-5                                              7  5800  D I1Y 866           153
1064  9 64          SW    SWHOLD              SET TCC SWITCH                        4  5807  , 802               153
1065  9 65          SBR   X2,600                                                    7  5811  H 094 600           154
1066  9 66          B     TSTAD5                                                    4  5818  B U6W               154
1067  9 67   ETCC5  A     @1@,OVLAY5                                                7  5822  A H7Y 865           154
1068  9 68          MN    ZEROS,LOCAT5-5                                            7  5829  D |58 866           154
1069  9 69          B     RDCD5                                                     4  5836  B T9/               154
1070  9 70   STGM5  MLC   BLANKS,CADR5                                              7  5840  M |07 888           154
1071  9 71          MLC   GMWM-2,CADR5-2                                            7  5847  M |81 886           155
1072  9 72          B     CONT5                                                     4  5854  B X6X               155
1073  9 73   XPAND5 MLC   COL7,CARD5          MOVE INFO. FROM EXPANDED CARD         7  5858  M 007 893           155
1074  9 74          MLC   COL13,ADDRS                                               7  5865  M 013 /52           155
1075  9 75          MLC   ADDRS,LOCAT5                                              7  5872  M /52 871           155
1076  9 76          MLC   COL15,X2-1                                                7  5879  M 015 093           155
1077  9 77          BCE   XMOVE5,COL15,       TEST FOR INSTRUCTIONS ON CARD         8  5886  B !7W 015           156
1078  9 78          BCE   ZROBL5,COL14,                                             8  5894  B Z8Z 014           156
1079  9 79   XCON5  SBR   X3,5                                                      7  5902  H 099 005           156
1080  9 80          SBR   X1                  PROCESS DATA 5 CHARS. PER RECORD      4  5909  H 089               156
1081  9 81          C     X2-1,@04@           IF LESS THAN 5 CHARS. ON CARD         7  5913  C 093 I5V           156
1082  9 82          BL    MCON5                                                     5  5920  B Z3Z T             156
1083  9 83          MLC   X2-1,X1             PROCESS ALL DATA ON CARD              7  5925  M 093 089           157
1084  9 84          MLC   X1,X3                                                     7  5932  M 089 099           157
1085  9 85   MCON5  MLC   COL15&X1,CADR5-4&X3                                       7  5939  M 0/5 8H4           157
1086  9 86          C     CADR5-3,WDMK5                                             7  5946  C 885 894           157
1087  9 87          BE    MSTGM5                                                    5  5953  B J6T S             157
1088  9 88   MCONT5 MCS   X3,SU5                                                    7  5958  Z 099 876           158
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 SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

1089  9 89          B     WRITE              WRITE TAPE RECORD                 4  5965  B V94              158
1090  9 90          C     X1,X2-1            TEST FOR END OF DATA ON CARD      7  5969  C 089 093          158
1091  9 91          BH    XCONT5                                               5  5976  B !0|  U           158
1092  9 92          SW    SU5                                                  4  5981  , 876              158
1093  9 93          B     RDCD5                                                4  5985  B T9/              158
1094  9 94   ZROBL5 MLC   ZEROS-5,COL14                                        7  5989  M |53 014          158
1095  9 95          B     XCON5                                                4  5996  B Z0S              159
1096  9 96   XCONT5 A     X3,LOCAT5                                            7  6000  A 099 871          159
1097  9 97          A     X3,X1                                                7  6007  A 099 089          159
1098  9 98          C     X1,X2-1            TEST FOR LESS THAN 5 CHARS. LEFT  7  6014  C 089 093          159
1099  9 99          BL    LCON5                                                5  6021  B !3|  T           159
1100 10 00          B     MCON5                                                4  6026  B Z3Z              159
1101 10 01   LCON5  A     @I9E@,X1           DETERMINE NO OF CHARS. LEFT       7  6030  A I1X 089          160
1102 10 02          MLC   X2-1,SU            ON CARD AND PROCESS THEM          7  6037  M 093 /34          160
1103 10 03          S     X1,X2-1                                              7  6044  S 089 093          160
1104 10 04          MN    X2-1,X3                                              7  6051  D 093 099          160
1105 10 05          MN    X2-2,X3-1                                            7  6058  D 092 098          160
1106 10 06          MLC   SU,X1                                                7  6065  M /34 089          161
1107 10 07          B     MCON5                                                4  6072  B Z3Z              161
1108 10 08   XMOVE5 SBR   X1,15                                                7  6076  H 089 015          161
1109 10 09   DO5    BCE   RDCD5,1&X1,        TEST FOR END OF DATA ON CARD      8  6083  B T9/ 0|1          161
1110 10 10          MLC   COL1&X1,OPC5-2                                       7  6091  M 0|1 850          161
1111 10 11          MLC   OPC5-2,OPR5        PROCESS INSTRUCTIONS ON CARD      7  6098  M 850 873          162
1112 10 12          MLC   COL3&X1,SU5        IN SAME FORMAT AS STD. CARD       7  6105  M 0|3 876          162
1113 10 13          MLC   SU5,OPC5                                             7  6112  M 876 852          162
1114 10 14          MLC   COL9&X1,ADRS5                                        7  6119  M 0|9 883          162
1115 10 15          MLC   COL4&X1,ADRS5-5                                      7  6126  M 0|4 878          162
1116 10 16          B     WRITE              WRITE TAPE RECORD                 4  6133  B V94              162
1117 10 17          BCE   RDCD5,COL10&X1,                                      8  6137  B T9/ 0/0          163
1118 10 18          A     @5@,LOCAT5                                           7  6145  A I5W 871          163
1119 10 19          A     @09@,X1                                              7  6152  A I5Y 089          163
1120 10 20          B     DO5                                                  4  6159  B !8T              163
1121 10 21   MSTGM5 MLC   BLANKS,CADR5                                         7  6163  M |07 888          163
1122 10 22          MLC   GMWM-2,CADR5-2                                       7  6170  M |81 886          164
1123 10 23          B     MCONT5                                               4  6177  B Z5Y              164
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 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

1124 10 24          JOB   7080 CONDENSED OBJECT DECK
1125 10 25   R7080  MLC   GPMK,WDMK6                                             7  6181  M |75 939           165
1126 10 26          MLC   &REC6,SETAD                                            7  6188  M I6/ W05           165
1127 10 27          B     WRITE              WRITE HEADING RECORD                4  6195  B V94               165
1128 10 28          MLC   ZEROS,OVLAY6                                           7  6199  M |58 910           165
1129 10 29          B     TEND6                                                  4  6206  B K1U               165
1130 10 30   RDCD6  B     READ                                                   4  6210  B 781               165
1131 10 31   TEND6  BCE   TEND,COL1,$                                            8  6214  B V74 001 $         166
1132 10 32          CW    SWHOLD             CLEAR TCC SWITCH                    4  6222  ) 802               166
1133 10 33          MLC   COL9,CARD6         MOVE CARD SEQ NO. TO OUTPUT         7  6226  M 009 938           166
1134 10 34          C     COL15,ZEROS-4      TEST FOR TRANSFER CONTROL CARD      7  6233  C 015 |54           166
1135 10 35          BE    TCC6                                                   5  6240  B N9| S             166
1136 10 36          BCE   XPAND6,COL7,       BRANCH IF CARD IN EXPANDED FORMAT   8  6245  B O5V 007           166
1137 10 37          MLC   COL13,CODED                                            7  6253  M 013 /41           167
1138 10 38          B     EXPAND                                                 4  6260  B R9S               167
1139 10 39          MLC   ADDRS,LOCAT6                                           7  6264  M /52 916           167
1140 10 40          MLC   &DOIN6,DOLP6&3                                         7  6271  M I6U N0S           167
1141 10 41          MLC   COL15,X2-1         X2-1 IS NO OF CHARS. ON CARD        7  6278  M 015 093           167
1142 10 42   TSTAD6 SBR   X1,0                                                   7  6285  H 089 000           167
1143 10 43          BCE   STNO6,LOCAT6,0     BRANCH TO STD. PROCESSING IF        8  6292  B L9S 916 0         168
1144 10 44          BCE   STNO6,LOCAT6,5     ADDRESS ENDS IN 0 OR 5              8  6300  B L9S 916 5         168
1145 10 45          SBR   X3,0                                                   7  6308  H 099 000           168
1146 10 46   ODDN6  A     @1@,ADDRS                                              7  6315  A H7Y /52           168
1147 10 47          SBR   X3,1&X3                                                7  6322  H 099 0?1           168
1148 10 48          SBR   X1,1&X1                                                7  6329  H 089 0|1           169
1149 10 49          BCE   CONST6,ADDRS,0     AND BRANCH TO PROCESS THAT AMOUNT   8  6336  B N4V /52 0         169
1150 10 50          BCE   CONST6,ADDRS,5                                         8  6344  B N4V /52 5         169
1151 10 51          C     X3,X2-1                                                7  6352  C 099 093           169
1152 10 52          BE    CONST6                                                 5  6359  B N4V S             169
1153 10 53          B     ODDN6                                                  4  6364  B L1V               169
1154 10 54   DOIN6  C     X1,X2-1            TEST FOR END OF DATA ON CARD        7  6368  C 089 093           170
1155 10 55          BU    STNO6                                                  5  6375  B L9S /             170
1156 10 56          BWZ   ETCC6,SWHOLD,1                                         8  6380  V O1Z 802 1         170
1157 10 57          B     RDCD6                                                  4  6388  B K1|               170
1158 10 58   STNO6  SBR   X3,5               X3 IS LENGTH OF INSTRUCTION         7  6392  H 099 005           170
1159 10 59          SBR   X1,5&X1            X1 IS NO OF CHARS. PROCESSED        7  6399  H 089 0|5           170
1160 10 60          C     X1,X2-1                                                7  6406  C 089 093           171
1161 10 61          BL    LAST6                                                  5  6413  B N0T T             171
1162 10 62          C     COL15-4&X1,WDMK6                                       7  6418  C 0/1 939           171
1163 10 63          BE    STGM6&7                                                5  6425  B O4U S             171
1164 10 64          BCE   CONST6,COL15&X1,                                       8  6430  B N4V 0/5           171
1165 10 65          BCE                        IF ANY PART OF INSTRUCTION        1  6438  B                   171
1166 10 66          BCE                        IS BLANK, BRANCH TO PROCESS       1  6439  B                   171
1167 10 67          BCE                        AS CONSTANT DATA                  1  6440  B                   172
1168 10 68          BCE                                                          1  6441  B                   172
1169 10 69          MLC   COL15&X1,INST6                                         7  6442  M 0/5 922           172
1170 10 70          MLC   INST6,CODED                                            7  6449  M 922 /41           172
1171 10 71          B     EXPAND                                                 4  6456  B R9S               172
1172 10 72          MLC   ADDRS,ADR6                                             7  6460  M /52 932           172
1173 10 73          MLC   SU,SU6             SET UP INSTRUCTION                  7  6467  M /34 925           172
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD

1174 10 74          MLC   SU,OPC6             IN TAPE OUTPUT AREA                         7  6474  M /34 897           173
1175 10 75          MLC   INST6-4,OPC6-2                                                  7  6481  M 918 895           173
1176 10 76   W7080  B     WRITE               WRITE TAPE RECORD                           4  6488  B V94               173
1177 10 77          A     X3,LOCAT6                                                       7  6492  A 099 916           173
1178 10 78   DOLP6  B     DOIN6                                                           4  6499  B L6Y               173
1179 10 79   LAST6  A     @I9E@,X1                                                        7  6503  A I1X 089           173
1180 10 80          MLC   X2-1,SU             SAVE NO OF CHAR. ON CARD                    7  6510  M 093 /34           174
1181 10 81          S     X1,X2-1                                                         7  6517  S 089 093           174
1182 10 82          MN    X2-1,X3             X3 IS NO OF CHAR. LEFT TO PROCESS           7  6524  D 093 099           174
1183 10 83          MLC   SU,X1               RESTORE NO OF CHAR. TO X1                   7  6531  M /34 089           174
1184 10 84          MLC   &RDCD6,DOLP6&3      SET LOOP FOR END OF DATA                    7  6538  M I6X N0S           174
1185 10 85   CONST6 BWZ   ETCC6,SWHOLD,1      IF CARD IS TCC, BRANCH                      8  6545  V O1Z 802 1         175
1186 10 86          MLC   COL15&X1,ADR6-6&X3      OTHERWISE,PROCESS DATA                  7  6553  M 0/5 9B6           175
1187 10 87          C     ADR6-5,WDMK6                                                    7  6560  C 927 939           175
1188 10 88          BE    STGM6                                                           5  6567  B O3X S             175
1189 10 89   CONT6  MCS   X3,INST6-1          AS CONSTANT DATA                            7  6572  Z 099 921           175
1190 10 90          MLC   BLANKS,SU6                                                      7  6579  M |07 925           176
1191 10 91          B     W7080                                                           4  6586  B M8Y               176
1192 10 92   TCC6   MLC   ZEROS,LOCAT6                                                    7  6590  M |58 916           176
1193 10 93          MN    @2@,LOCAT6-5                                                    7  6597  D I1Y 911           176
1194 10 94          SBR   X2,600                                                          7  6604  H 094 600           176
1195 10 95          SW    SWHOLD              SET TCC SWITCH                              4  6611  , 802               176
1196 10 96          B     TSTAD6                                                          4  6615  B K8V               177
1197 10 97   ETCC6  A     @1@,OVLAY6                                                      7  6619  A H7Y 910           177
1198 10 98          MN    ZEROS,LOCAT6-5                                                  7  6626  D |58 911           177
1199 10 99          B     RDCD6                                                           4  6633  B K1|               177
1200 11 00   STGM6  MLC   BLANKS,ADR6                                                     7  6637  M |07 932           177
1201 11 01          MLC   GMWM-2,ADR6-4                                                   7  6644  M |81 928           177
1202 11 02          B     CONT6                                                           4  6651  B N7S               178
1203 11 03   XPAND6 MLC   COL6,COLSUM         MOVE INFO. FROM EXPANDED CARD               7  6655  M 006 /34           178
1204 11 04          MLC   ZEROS-3,CARD6                                                   7  6662  M |55 938           178
1205 11 05          MLC   COLSUM,CARD6                                                    7  6669  M /34 938           178
1206 11 06          MLC   COL13,ADDRS                                                     7  6676  M 013 /52           178
1207 11 07          MLC   ADDRS,LOCAT6                                                    7  6683  M /52 916           178
1208 11 08          BCE   XMOVE6,COL15,       TEST FOR INSTRUCTIONS ON CARD               8  6690  B P2Y 015           179
1209 11 09          BCE   ZROBL6,COL14,                                                   8  6698  B P1X 014           179
1210 11 10   SETNO6 MLC   COL15,X2-1                                                      7  6706  M 015 093           179
1211 11 11          B     XCON6                                                           4  6713  B Q0Y               179
1212 11 12   ZROBL6 MLC   ZEROS-5,COL14                                                   7  6717  M |53 014           179
1213 11 13          B     SETNO6                                                          4  6724  B P0W               179
1214 11 14   XMOVE6 SBR   X1,15                                                           7  6728  H 089 015           180
1215 11 15   DO6    BCE   RDCD6,1&X1,         TEST FOR END OF DATA ON CARD                8  6735  B K1| 0|1           180
1216 11 16          MLC   COL1&X1,OPC6-2                                                  7  6743  M 0|1 895           180
1217 11 17          MLC   COL3&X1,SU6         PROCESS INSTRUCTIONS ON CARD                7  6750  M 0|3 925           180
1218 11 18          MLC   SU6,OPC6                                                        7  6757  M 925 897           180
1219 11 19          MLC   COL9&X1,ADR6        IN SAME FORMAT AS STD. CARD                 7  6764  M 0|9 932           181
1220 11 20          MLC   OPC6-2,INST6-4                                                  7  6771  M 895 918           181
1221 11 21          B     WRITE               WRITE TAPE RECORD                           4  6778  B V94               181
1222 11 22          BCE   RDCD6,COL10&X1,                                                 8  6782  B K1| 0/0           181
1223 11 23          A     @5@,LOCAT6                                                      7  6790  A I5W 916           181
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 SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

1224 11 24          A     @9@,X1                                                      7  6797  A I6Y 089           182
1225 11 25          B     DO6                                                         4  6804  B P3V               182
1226 11 26   XCON6  SBR   X1,5                                                        7  6808  H 089 005           182
1227 11 27          SBR   X3,5                 PROCESS DATA 5 CHARS. PER RECORD       7  6815  H 099 005           182
1228 11 28          C     X2-1,@04@            IF LESS THAN 5 CHARS. ON CARD          7  6822  C 093 I5V           182
1229 11 29          BL    MCON6                                                       5  6829  B Q4Y T             182
1230 11 30          MLC   X2-1,X1              PROCESS ALL DATA ON CARD               7  6834  M 093 089           183
1231 11 31          MLC   X1,X3                                                       7  6841  M 089 099           183
1232 11 32   MCON6  MLC   COL15&X1,ADR6-6&X3                                          7  6848  M 0/5 9B6           183
1233 11 33          C     ADR6-5,WDMK6                                                7  6855  C 927 939           183
1234 11 34          BE    MSTGM6                                                      5  6862  B R7U S             183
1235 11 35   MCONT6 MCS   X3,INST6-1                                                  7  6867  Z 099 921           184
1236 11 36          B     WRITE                WRITE TAPE RECORD                      4  6874  B V94               184
1237 11 37          C     X1,X2-1              TEST FOR END OF DATA ON CARD           7  6878  C 089 093           184
1238 11 38          BH    XCONT6                                                      5  6885  B Q9Y U             184
1239 11 39          SW    ADR6-5                                                      4  6890  , 927               184
1240 11 40          B     RDCD6                                                       4  6894  B K1|               184
1241 11 41   XCONT6 A     X3,LOCAT6                                                   7  6898  A 099 916           184
1242 11 42          A     X3,X1                                                       7  6905  A 099 089           185
1243 11 43          C     X1,X2-1              TEST FOR LESS THAN 5 CHARS. LEFT       7  6912  C 089 093           185
1244 11 44          BL    LCON6                                                       5  6919  B R2Y T             185
1245 11 45          B     MCON6                                                       4  6924  B Q4Y               185
1246 11 46   LCON6  A     @I9E@,X1             DETERMINE NO OF CHARS. LEFT            7  6928  A I1X 089           185
1247 11 47          MLC   X2-1,SU              ON CARD AND PROCESS THEM               7  6935  M 093 /34           185
1248 11 48          S     X1,X2-1                                                     7  6942  S 089 093           186
1249 11 49          MN    X2-1,X3                                                     7  6949  D 093 099           186
1250 11 50          MN    X2-2,X3-1                                                   7  6956  D 092 098           186
1251 11 51          MLC   SU,X1                                                       7  6963  M /34 089           186
1252 11 52          B     MCON6                                                       4  6970  B Q4Y               186
1253 11 53   MSTGM6 MLC   BLANKS,ADR6                                                 7  6974  M |07 932           186
1254 11 54          MLC   GMWM-2,ADR6-4                                               7  6981  M |81 928           187
1255 11 55          B     MCONT6                                                      4  6988  B Q6X               187
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 SEQ PG LIN  LABEL  OP    OPERANDS                                      SFX CT  LOCN  INSTRUCTION TYPE  CARD

1256 11 56          JOB   ROUTINE TO EXPAND 705/7080 CODED MEMORY ADDRESSES
1257 11 57   EXPAND SBR   ENDEX&3                                             4  6992  H B5|               188
1258 11 58          MLC   ZEROS,ADDRS                                         7  6996  M |58 /52           188
1259 11 59          MN    CODED,ADDRS                                         7  7003  D /41 /52           188
1260 11 60          MN                                                        1  7010  D                   188
1261 11 61          MN                                                        1  7011  D                   188
1262 11 62          MN                                                        1  7012  D                   188
1263 11 63          BWZ   HIGH,CODED,2                                        8  7013  V ?6W /41 2         188
1264 11 64          BCE   INDR,MACH,5                                         8  7021  B ?9U 082 5         189
1265 11 65          MLC   @4@,ADDRS-4                                         7  7029  M I3V /48           189
1266 11 66          BWZ   HIGH,CODED,K                                        8  7036  V ?6W /41 K         189
1267 11 67          BWZ   SET8,CODED,S                                        8  7044  V ?5Z /41 S         189
1268 11 68          A     @4@,ADDRS-4                                         7  7052  A I3V /48           189
1269 11 69   SET8   A     @4@,ADDRS-4                                         7  7059  A I3V /48           190
1270 11 70   HIGH   BWZ   ONEH,CODED-3,S                                      8  7066  V A3V /38 S         190
1271 11 71          BWZ   TWOH,CODED-3,K                                      8  7074  V A2Y /38 K         190
1272 11 72          BWZ   THRH,CODED-3,B                                      8  7082  V A2/ /38 B         190
1273 11 73          B     CALSU                                               4  7090  B A4S               190
1274 11 74   INDR   BWZ   SET8,CODED,K                                        8  7094  V ?5Z /41 K         191
1275 11 75          MLC   @I@,ADDRS-5                                         7  7102  M I6Z /47           191
1276 11 76          BWZ   SET8,CODED,B                                        8  7109  V ?5Z /41 B         191
1277 11 77          B     HIGH                                                4  7117  B ?6W               191
1278 11 78   THRH   A     @1@,ADDRS-4                                         7  7121  A H7Y /48           191
1279 11 79   TWOH   A     @1@,ADDRS-4                                         7  7128  A H7Y /48           192
1280 11 80   ONEH   A     @1@,ADDRS-4                                         7  7135  A H7Y /48           192
1281 11 81   CALSU  MLC   ZEROS,SU                                            7  7142  M |58 /34           192
1282 11 82          BWZ   AD12,CODED-2,B                                      8  7149  V B0/ /39 B         192
1283 11 83          BWZ   AD8,CODED-2,K                                       8  7157  V B0Y /39 K         192
1284 11 84          BWZ   AD4,CODED-2,S                                       8  7165  V B1V /39 S         193
1285 11 85   HIH    BWZ   AD3,CODED-1,B                                       8  7173  V B2W /40 B         193
1286 11 86          BWZ   AD2,CODED-1,K                                       8  7181  V B3T /40 K         193
1287 11 87          BWZ   AD1,CODED-1,S                                       8  7189  V B4| /40 S         193
1288 11 88          B     ENDEX                                               4  7197  B B4X               193
1289 11 89   AD12   A     @4@,SU                                              7  7201  A I3V /34           194
1290 11 90   AD8    A     @4@,SU                                              7  7208  A I3V /34           194
1291 11 91   AD4    A     @4@,SU                                              7  7215  A I3V /34           194
1292 11 92          B     HIH                                                 4  7222  B A7T               194
1293 11 93   AD3    A     @1@,SU                                              7  7226  A H7Y /34           194
1294 11 94   AD2    A     @1@,SU                                              7  7233  A H7Y /34           194
1295 11 95   AD1    A     @1@,SU                                              7  7240  A H7Y /34           195
1296 11 96   ENDEX  B     000                                                 4  7247  B 000               195
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 SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD

1297 11 97          JOB   7070 AUTOCODER CONDENSED OBJECT DECK
1298 11 98   R7070  MLC   GPMK,WDMK7                                                7  7251  M |75 984           196
1299 11 99          MLC   &REC7,SETAD                                               7  7258  M I7S W05           196
1300 12 00          B     WRITE              WRITE HEADING RECORD                   4  7265  B V94               196
1301 12 01          MLC   ZEROS,LOCAT7-4                                            7  7269  M |58 957           196
1302 12 02          B     TEND7                                                     4  7276  B B8U               196
1303 12 03   RDCD7  B     READ                                                      4  7280  B 781               196
1304 12 04   TEND7  BCE   TEND,COL1,$                                               8  7284  B V74 001 $         197
1305 12 05          MZ    @1@,COL65                                                 7  7292  Y H7Y 065           197
1306 12 06          BCE   EXCUT7,COL65,0     BRANCH IF EXECUTE OR END CARD          8  7299  B D8Y 065 0         197
1307 12 07          MLC   COL75,CARD7        MOVE CARD SEQ NO. TO OUTPUT            7  7307  M 075 950           197
1308 12 08          MLC   COL69,CODED                                               7  7314  M 069 /41           197
1309 12 09          MLC   CODED,LOCAT7-1     MOVE LOC OF FIRST INST. TO OUTPUT      7  7321  M /41 960           198
1310 12 10          MN    COL70,LOCAT7                                              7  7328  D 070 961           198
1311 12 11          MN    COL65,TNUM&7                                              7  7335  D 065 D5U           198
1312 12 12          SBR   X1,10                                                     7  7342  H 089 010           198
1313 12 13   DO7    MLC   0&X1,INST7                                                7  7349  M 0|0 974           198
1314 12 14          BCE   TEXCD7,COL65,0                                            8  7356  B C6Y 065 0         199
1315 12 15          B     TALPH7                                                    4  7364  B C8|               199
1316 12 16   TEXCD7 C     INST7,ZERO10                                              7  7368  C 974 |72           199
1317 12 17          BE    ENDEX7                                                    5  7375  B E4/ S             199
1318 12 18   TALPH7 BWZ   MBLK7,COL70,B      BRANCH IF NOT ALPHANUMERIC DATA        8  7380  V C9Z 070 B         199
1319 12 19          MLC   AD1,INST7-10       MOVE AN A IN FRONT OF DATA             7  7388  M B4| 964           199
1320 12 20          B     TSTCN&7                                                   4  7395  B D2Z               200
1321 12 21   MBLK7  MLC   BLANKS,INST7-10                                           7  7399  M |07 964           200
1322 12 22          BWZ   PLUS,INST7,B       TEST ZONE FOR SIGN OF INST.            8  7406  V D7X 974 B         200
1323 12 23          BWZ   MINUS,INST7,K                                             8  7414  V D6W 974 K         200
1324 12 24   TSTCN  MLC   INST7-8,OPC7                                              7  7422  M 966 942           200
1325 12 25          MZ    @1@,INST7          CLEAR ZONE                             7  7429  Y H7Y 974           201
1326 12 26   W7070  B     WRITE              WRITE TAPE OUTPUT RECORD               4  7436  B V94               201
1327 12 27          A     @1@,LOCAT7                                                7  7440  A H7Y 961           201
1328 12 28   TNUM   BCE   RDCD7,X1-1,                                               8  7447  B B8| 088           201
1329 12 29          A     @1@,X1-1                                                  7  7455  A H7Y 088           201
1330 12 30          B     DO7                                                       4  7462  B C4Z               201
1331 12 31   MINUS  MZ    DO7,INST7-10       MOVE MINUS SIGN TO DATA                7  7466  Y C4Z 964           202
1332 12 32          B     TSTCN                                                     4  7473  B D2S               202
1333 12 33   PLUS   MZ    W7070,INST7-10     MOVE PLUS SIGN T/ DATA                 7  7477  Y D3W 964           202
1334 12 34          B     TSTCN                                                     4  7484  B D2S               202
1335 12 35   EXCUT7 MLC   &ENDEX7,TNUM&3                                            7  7488  M I7V D5|           202
1336 12 36          MLC   @0001@,CARD7                                              7  7495  M I7Z 950           202
1337 12 37          A     OVLAY7,CARD7                                              7  7502  A 955 950           203
1338 12 38          MLC   @EX @,CARD7-1                                             7  7509  M I8S 949           203
1339 12 39          MLC   @8@,TNUM&7         SET LOOP TO PROCESS ANY INST.          7  7516  M I8T D5U           203
1340 12 40          MLC   ZEROS,LOCAT7       ON EXECUTE OR END CARD                 7  7523  M |58 961           203
1341 12 41          MN    @2@,LOCAT7-5                                              7  7530  D I1Y 956           203
1342 12 42          B     DO7-7                                                     4  7537  B C4S               203
1343 12 43   ENDEX7 A     @1@,OVLAY7                                                7  7541  A H7Y 955           204
1344 12 44          MN    ZEROS,LOCAT7-5                                            7  7548  D |58 956           204
1345 12 45          MLC   *&4,TNUM&3                                                7  7555  M E6V D5|           204
1346 12 46          B     RDCD7                                                     4  7562  B B8|               204
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SEQ PG LIN LABEL OP OPERANDS SFX CT LOCN INSTRUCTION TYPE CARD

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 SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

1347 12 47          JOB   END OF VERIFY PASS 1 - BRANCH TO SORT ROUTINE
1348 12 48   *
1349 12 49   *              SPACE IS PROVIDED FOR PATCHING BETWEEN THE PROGRAM
1350 12 50   *              AND THE ERROR MESSAGES WHICH ARE ORG 7500
1351 12 51   *
1352 12 52   *              ERROR MESSAGES FOR VERIFY PASS 1
1353 12 53   *
1354 12 54   ERROR1 MLC   ERRN1,EPRNT-35                                            7  7566  M F4U 264          205
1355 12 55          B     PRINT                                                     4  7573  B 747              205
1356 12 56          B     LEAVE                                                     4  7577  B F5W              205
1357 12 57          DCW   @ERROR.  $VERIFY CARD OPTION PUNCHED INCORRECTLY@        47  7627                     207
1358 12 58   ERRN1  DC    @. JOB TERMINATED.@                                      17  7644                     207
1359 12 59   ERROR2 MLC   ERRN2,EPRNT-15                                            7  7645  M G5T 284          207
1360 12 60          B     PRINT                                                     4  7652  B 747              207
1361 12 61   LEAVE  RWD   IOTP1              REWIND D.A. SYSTEM TAPE                5  7656  U %U1 R            208
1362 12 62          B     SYSLNK                                                    4  7661  B 400              208
1363 12 63          DCW   @1CONA@                                                   5  7669                     208
1364 12 64          DCW   @ERROR.  MACHINE SPECIFIED ON $DAJOB CARD@               40  7709                     210
1365 12 65   ERRN2  DC    @ IS NOT PROCESSED BY VERIFY. JOB TERMINATED.@           44  7753                     212
1366 12 66   ERROR3 MLC   ERRN3,EPRNT-48                                            7  7754  M H3V 251          212
1367 12 67          B     MESSG              PRINT ERROR MESSAGE                    4  7761  B 660              212
1368 12 68          RWD   IOTP1              REWIND D.A. SYSTEM TAPE                5  7765  U %U1 R            212
1369 12 69          RWD   IOTP2                                                     5  7770  U %U2 R            212
1370 12 70   HERR3  H     6,6                                                       7  7775  . 006 006          213
1371 12 71          B     HERR3                                                     4  7782  B G7V              213
1372 12 72          DCW   @ERROR.  TAPE 2 TOO SHORT.  @                            27  7812                     213
1373 12 73   ERRN3  DC    @REPLACE IT AND RESTART.@                                23  7835                     214
1374 12 74   *
1375 12 75   *              END OF PASS 1 - BRANCH TO SORT3
1376 12 76   *
1377 12 77   EPASS1 WTM   IOTP2              WRITE TAPE MARK                        5  7836  U %U2 M            214
1378 12 78          RWD   IOTP2              REWIND TAPE                            5  7841  U %U2 R            214
1379 12 79          CW    WDMK1,WDMK5        CLEAR GMWM,S                           7  7846  ) 849 894          215
1380 12 80          CW    WDMK6,WDMK7                                               7  7853  ) 939 984          215
1381 12 81          MLCWA KSORT,LSORT        SET SORT KEYS                          7  7860  L |95 686          215
1382 12 82          B     SYSLNK             AND BRANCH TO SORT                     4  7867  B 400              215
1383 12 83          DCW   @5VERB@                                                   5  7875                     215
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 SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

1384 12 84          JOB   LITERALS USED BY VERIFY PASS 1
1385 12 85          LTORG *                                                                    7876
                    DCW   @C1@                                                       2  7877              LIT    216
                          @1@                                                        1  7878              LIT    216
                          @07@                                                       2  7880              LIT    216
                          @08@                                                       2  7882              LIT    216
        479               @200006@                                                   6  7888              LIT    216
                          @00 @                                                      3  7891              LIT    216
                          @ 1@                                                       2  7893              LIT    216
                          @001@                                                      3  7896              LIT    217
                          @13@                                                       2  7898              LIT    217
                          @12@                                                       2  7900              LIT    217
                          @11@                                                       2  7902              LIT    217
                          @040@                                                      3  7905              LIT    217
        623               @00001@                                                    5  7910              LIT    217
                          @SW  @                                                     4  7914              LIT    217
                          @I9E@                                                      3  7917              LIT    218
                          @2@                                                        1  7918              LIT    218
                          @CW  @                                                     4  7922              LIT    218
                          @I9C@                                                      3  7925              LIT    218
                          @004@                                                      3  7928              LIT    218
        775               &ENDEX3                                                    3  7931  09U         ADCON  218
        777               &RSPS                                                      3  7934  H01         ADCON  218
                          @4@                                                        1  7935              LIT    219
                          @COD@                                                      3  7938              LIT    219
                          @-WS@                                                      3  7941              LIT    219
                          @I9I@                                                      3  7944              LIT    219
        991               &REC5                                                      3  7947  850         ADCON  219
       1003               &DOIN5                                                     3  7950  V4Z         ADCON  219
       1052               &RDCD5                                                     3  7953  T9/         ADCON  219
                          @04@                                                       2  7955              LIT    220
                          @5@                                                        1  7956              LIT    220
                          @09@                                                       2  7958              LIT    220
       1126               &REC6                                                      3  7961  895         ADCON  220
       1140               &DOIN6                                                     3  7964  L6Y         ADCON  220
       1184               &RDCD6                                                     3  7967  K1|         ADCON  220
                          @9@                                                        1  7968              LIT    220
                          @I@                                                        1  7969              LIT    221
       1299               &REC7                                                      3  7972  940         ADCON  221
       1335               &ENDEX7                                                    3  7975  E4/         ADCON  221
                          @0001@                                                     4  7979              LIT    221
                          @EX @                                                      3  7982              LIT    221
                          @8@                                                        1  7983              LIT    221
1386 12 86   HIGHL  EQU   7998                                                          7998
1387 12 87          END   VERA                                                                / /61 080          222
        991               &REC5                                                      3  7947  850         ADCON  219              *****
       1003               &DOIN5                                                     3  7950  V4Z         ADCON  219
       1052               &RDCD5                                                     3  7953  T9/         ADCON  219
                          @04@                                                       2  7955              LIT    220
                          @5@                                                        1  7956              LIT    220
                          @09@                                                       2  7958              LIT    220
       1126               &REC6                                                      3  7961  895         ADCON  220
       1140               &DOIN6                                                     3  7964  L6Y         ADCON  220
       1184               &RDCD6                                                     3  7967  K1|         ADCON  220
                          @9@                                                        1  7968              LIT    220
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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                          1             5VERT
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?      2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040       3

                          D.A. VERIFY PASS 3 - TABLE-LOOK-UP                         5VERT              PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101  1 01   000    JOB   D.A. VERIFY PASS 3 - TABLE-LOOK-UP
 102  1 02          CTL   440
 103  1 03          DC    @$ADD     @                                                 9  0341                       4
 104  1 04          DC    &SYSORG                                                     3  0344  800                  4
 105  1 05          DC    &BEGIN                                                      3  0347  800                  4
 106  1 06          DC    &HIGH                                                       3  0350  E7S                  4
 107  1 07          DC    @ 4  1 65@                                                  8  0358                       4
 108  1 08          ORG   SYSORG                                                            0800
 109  1 09   SYSORG EQU   800                                                            0800
 110  1 10   *
 111  1 11   BEGIN  MN    TAPENO,IOCON       MOVE SORTED TAPE UNIT NO TO READ         7  0800  D 675 926            5
 112  1 12          BCE   GET01,MACH,1      IF 1401                                   8  0807  B 843 082 1          5
 113  1 13          BCE   GET01,MACH,2      IF 1440                                   8  0815  B 843 082 2          5
 114  1 14          BCE   GET10,MACH,3      IF 1410                                   8  0823  B 861 082 3          5
 115  1 15          BCE   GET70,MACH,7      IF 7070                                   8  0831  B 870 082 7          5
 116  1 16          B     GET05             IF 705 OR 7080                            4  0839  B 852                6
 117  1 17   *
 118  1 18   *  THE FOLLOWING WILL SET THE CALLING SEQUENCE
 119  1 19   *            TO CALL A PARTICULAR DICTIONARY
 120  1 20   GET01  B     SYSLNK                                                      4  0843  B 400                6
 121  1 21          DCW   @5VERU@                                                     5  0851                       6
 122  1 22   GET05  B     SYSLNK                                                      4  0852  B 400                6
 123  1 23          DCW   @5VERV@                                                     5  0860                       6
 124  1 24   GET10  B     SYSLNK                                                      4  0861  B 400                6
 125  1 25          DCW   @5VERW@                                                     5  0869                       6
 126  1 26   GET70  B     SYSLNK                                                      4  0870  B 400                7
 127  1 27          DCW   @5VERX@                                                     5  0878                       7
 128  1 28   *
 129  1 29   *            SPACE IS PROVIDED FOR PATCHING BETWEEN THE PROGRAM
 130  1 30   *            AND THE DICTIONARY TABLE, WHICH IS ORG 3000
 131  1 31   *
 132  1 32          ORG   SYSORG&100         RETURN FROM DICTIONARY                         0900
 133  1 33          MLC   LNGTH,AEND#3       LNGTH IS HIGH POS OF TABLE & 1           7  0900  M 799 E0T            8
 134  1 34          MA    KSTART,AEND        SUBTRACT START POS OF TABLE              7  0907  # !63 E0T            8
 135  1 35          BCE   TESTWS,MACH,3     BRANCH IF MACH IS 1410                    8  0914  B 988 082 3          8
 136  1 36   READ1  B     SYSIO              READ A RECORD                            4  0922  B 500                8
 137  1 37   IOCON  DCW   #1                 FROM SORTED OBJECT PROGRAM TAPE          1  0926                       8
 138  1 38          DC    &INPUT             INTO INPUT AREA                          3  0929  !82                  8
 139  1 39          DC    @R@                                                         1  0930                       8
 140  1 40          BEF   ENDALL             BRANCH IF END OF DATA ON TAPE            5  0931  B !10 K              8
 141  1 41          BWZ   FIRST,SW1#1,1      BRANCH IF FIRST TIME THROUGH             8  0936  V |44 E0U 1          9
 142  1 42          C     OPCD,NBLANK-3      COMPARE OP CODE TO BLANKS                7  0944  C !84 !72            9
 143  1 43          BU    TMACH4             IF NOT, PROCESS OPCODE                   5  0951  B 964 /              9
 144  1 44          B     PRINT1             IF EQUAL, PRINT AZS IS                   4  0956  B X74                9
 145  1 45          B     READ1                                                       4  0960  B 922                9
 146  1 46   TMACH4 C     MACH,@4@           BRANCH IF MACHINE IS 1400 SERIES         7  0964  C 082 E0V            9
 147  1 47          BH    X1401              TO PRELIMINARY TESTING                   5  0971  B S28 U             10
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

148  1 48   LOOK   B     SEARCH              BRANCH TO PERFORM LOOKUP ON OP        4  0976  B U24                10
149  1 49   VERT   B     PRINT1              BRANCH TO PRINT                       4  0980  B X74                10
150  1 50          B     READ1                                                     4  0984  B 922                10
151  1 51   TESTWS SBR   X1,0              X1 IS LOC IN TABLE                      7  0988  H 089 000            10
152  1 52   TESTA  BCE   MVZONE,TABELA&6&X1,*  BRANCH IF WS NEEDED IN D MOD        8  0995  B |26 ?|8 *          10
153  1 53   INCRMT SBR   X1,9&X1                                                   7  1003  H 089 0|9            10
154  1 54          C     X1,AEND           HAS ALL TABLE BEEN TESTED               7  1010  C 089 E0T            11
155  1 55          BU    TESTA             IF NOT, BRANCH TO TEST                  5  1017  B 995 /              11
156  1 56          B     READ1                                                     4  1022  B 922                11
157  1 57   MVZONE MZ    RMARK,TABELA&X1     MOVE ZERO ZONE TO D-MOD               7  1026  Y J28 ?|2            11
158  1 58          MLC   NBLANK-5,TABELA&6&X1  BLANK FLAG                          7  1033  M !70 ?|8            11
159  1 59          B     INCRMT                                                    4  1040  B |03                11
160  1 60   *
161  1 61   FIRST  MLC   ENDIN,ENDHDR        MOVE FIRST RECORD -HEADING-           7  1044  M J26 J73            12
162  1 62          B     EJECT               EJECT PAGE                            4  1051  B 704                12
163  1 63          B     PRTHDR              PRINT HEADING                         4  1055  B Z42                12
164  1 64          CW    SW1                 CLEAR SWITCH FOR FIRST TIME           4  1059  ) E0U                12
165  1 65          B     BLDPTS              BUILD BINARY POINTS FOR TABLE         4  1063  B |71                12
166  1 66   EXIT2  B     READ1                                                     4  1067  B 922                12
167  1 67   BLDPTS SBR   EXIT&3                                                    4  1071  H S27                12
168  1 68          MN    ELSIZ,CHK&7         MOVE SIZE OF ELEMENT IN TABLE         7  1075  D J76 /77            13
169  1 69   REDUCE MA    KSIZE,AEND          SUB LOW-ORDER LOC TO GET TAB SIZ      7  1082  # !66 E0T            13
170  1 70          A     @1@,SIZ#3                                                 7  1089  A E0W E0Z            13
171  1 71          C     AEND,@000@                                                7  1096  C E0T E1S            13
172  1 72          BU    REDUCE                                                    5  1103  B |82 /              13
173  1 73   CLRBLD CW    X2-2                                                      4  1108  ) 092                13
174  1 74          SBR   X1,0                                                      7  1112  H 089 000            14
175  1 75          SBR   X2                                                        4  1119  H 094                14
176  1 76          SBR   X3,3                                                      7  1123  H 099 003            14
177  1 77   MULT   S     X2&1                                                      4  1130  S 095                14
178  1 78          A     SIZ,X1&1                                                  7  1134  A E0Z 090            14
179  1 79          A     X1&1                                                      4  1141  A 090                14
180  1 80          A     X1&1                                                      4  1145  A 090                14
181  1 81          A     SIZ,X1&1                                                  7  1149  A E0Z 090            15
182  1 82   AGAIN  MA    X1,TABELC&X3                                              7  1156  # 089 JG6            15
183  1 83          SBR   X2,1&X2                                                   7  1163  H 094 0!1            15
184  1 84   CHK    BCE   *&5,X2,0                                                  8  1170  B /82 094 0          15
185  1 85          B     AGAIN                                                     4  1178  B /56                15
186  1 86          BCE   DONE,X3,0                                                 8  1182  B S20 099 0          16
187  1 87          SBR   X3,3&X3                                                   7  1190  H 099 0?3            16
188  1 88          C     @001@,X1                                                  7  1197  C E1V 089            16
189  1 89          BE    MULT                                                      5  1204  B /30 S              16
190  1 90          MLC   X1,SIZ                                                    7  1209  M 089 E0Z            16
191  1 91          B     MULT                                                      4  1216  B /30                16
192  1 92   DONE   SW    X2-2                                                      4  1220  , 092                17
193  1 93   EXIT   B     000                                                       4  1224  B 000                17
194  1 94   *
195  1 95   X1401  C     OPCD-1,@BB@         IS OP CODE A BCE                      7  1228  C !83 E1X            17
196  1 96          BU    X1401A              IF NOT, BRANCH                        5  1235  B S51 /              17
197  1 97          MLC   @BCE@,OPCD          MOVE MNEMONIC TO DATA AREA            7  1240  M E2| !84            17
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SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD

198  1 98          B     VERT                                                      4  1247  B 980               17
199  1 99   X1401A C     OPCD-1,@WB@         IS OP CODE A BBE                      7  1251  C !83 E2S           17
200  2 00          BU    X1401B              IF NOT, BRANCH                        5  1258  B S74 /             18
201  2 01          MLC   @BBE@,OPCD          MOVE MNEMONIC TO DATA AREA            7  1263  M E2V !84           18
202  2 02          B     VERT                                                      4  1270  B 980               18
203  2 03   X1401B BCE   X1410,MACH,3        BRANCH IF MACHINE IS 1410-7010        8  1274  B T48 082 3         18
204  2 04          C     OPCD-2,@U@          IS OP CODE AN I/O OF U TYPE           7  1282  C !82 E2W           18
205  2 05          BE    X1401C              IF SO, BRANCH                         5  1289  B T06 S             18
206  2 06          C     OPCD-2,@K@          IS OP CODE AN I/O OF K TYPE           7  1294  C !82 E2X           19
207  2 07          BU    T1440                                                     5  1301  B T17 /             19
208  2 08   X1401C MLC   @*I/O*@,OUTKEY      MOVE GENERAL MNEMONIC TO DATA AR      7  1306  M E3S !87           19
209  2 09          B     VERT                                                      4  1313  B 980               19
210  2 091  T1440  BCE   LOOK,MACH,1                                               8  1317  B 976 082 1         19
211  2 092         C     OPCD-2,@0@                                                7  1325  C !82 E3T           19
212  2 093         BH    LOOK                                                      5  1332  B 976 U             20
213  2 094         MLC   BLANKS-9,OPCD                                             7  1337  M !72 !84           20
214  2 095         B     VERT                                                      4  1344  B 980               20
215  2 10   X1410  C     OPCD-2,@F@          IS OP CODE A CC1 INSTRUCTION          7  1348  C !82 E3U           20
216  2 11          BU    X1410A              IF NOT, BRANCH                        5  1355  B T75 /             20
217  2 12          B     MDMOD               MOVE D-MOD TO END OF MNEMONIC         4  1360  B U02               20
218  2 13          MLC   @CC1  @,OUTKEY-1    MOVE MNEMONIC TO DATA AREA            7  1364  M E3Z !86           20
219  2 14          B     VERT                                                      4  1371  B 980               21
220  2 15   X1410A C     OPCD-2,@2@          IS OP CODE A CC2 INSTRUCTION          7  1375  C !82 E4|           21
221  2 16          BU    LOOK                IF NOT, BRANCH TO LOOKUP              5  1382  B 976 /             21
222  2 17          B     MDMOD               MOVE D-MOD TO END OF MNEMONIC         4  1387  B U02               21
223  2 18          MLC   @CC2  @,OUTKEY-1    MOVE MNEMONIC TO DATA AREA            7  1391  M E4V !86           21
224  2 19          B     VERT                                                      4  1398  B 980               21
225  2 20   MDMOD  SBR   EXIT4&3                                                   4  1402  H U23               21
226  2 21          MN    OPCD,OUTKEY         MOVE D-MODIFIER TO END                7  1406  D !84 !87           22
227  2 22          MZ    OPCD,OUTKEY         OF MNEMONIC DATA AREA                 7  1413  Y !84 !87           22
228  2 23   EXIT4  B     000                                                       4  1420  B 000               22
229  2 24   *
230  2 25   *              TABLE LOOK-UP
231  2 26   SEARCH SBR   EXIT5&3             ESTABLISH RETURN LINKAGE              4  1424  H V06               22
232  2 27          SBR   X1,0                ZERO X1                               7  1428  H 089 000           22
233  2 28          SBR   X3                  ZERO X3                               4  1435  H 099               22
234  2 29   SETLO  MLC   X3,X2               LOW CELL # X2  SET IT WITH X3         7  1439  M 099 094           23
235  2 30   STEPUP SBR   X1,3&X1             UP X1 BY 3 FOR BINARY POINTS          7  1446  H 089 0|3           23
236  2 31          MA    TABELC&X1,X3        INCREMENT X3 BY BINARY POINT          7  1453  # JX6 099           23
237  2 32          C     TABELA&X3,ARGMNT    MATCH ARGUMENT TO TABEL               7  1460  C ??2 !84           23
238  2 33          BE    FOUND               IF EQUAL GO TO EXTRACT                5  1467  B U96 S             23
239  2 34          BCE   NOFIND,X1,0         IF X1 # 30,ELEMENT NOT IN TABEL       8  1472  B V07 089 0         24
240  2 35          BH    SETLO               IF HIGH GO SET NEW LOW PARAM          5  1480  B U39 U             24
241  2 36          MLC   X2,X3               IF LO SET NEW HIGH PARAM              7  1485  M 094 099           24
242  2 37          B     STEPUP              GO TO GET NEXT BINARY POINT           4  1492  B U46               24
243  2 38   FOUND  MLC   TABKEY&X3,OUTKEY    MOVE MNEMONIC TO DATA AREA            7  1496  M ??8 !87           24
244  2 39   EXIT5  B     0                                                         4  1503  B 000               24
245  2 40   NOFIND BCE   SRCH80,MACH,5       BRANCH TO EXTRA LOOKUP IF             8  1507  B W36 082 5         25
246  2 41          BCE   SRCH80,MACH,6       MACHINE IS 705 OR 7080                8  1515  B W36 082 6         25
247  2 42          BCE   Y1410,MACH,3        BRANCH TO EXTRA TEST IF 1410/7010     8  1523  B X20 082 3         25
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SEQ PG LIN  LABEL  OP    OPERANDS                                                 SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  2 43   NOTFND MLC   NBLANK,OUTKEY      BLANK MNEMONIC DATA AREA                   7  1531  M !75 !87           25
249  2 44          BCE   SQUEEZ,MACH,1      BRANCH TO SQUEEZE DATA IF                  8  1538  B V58 082 1         25
250  2 45          BCE   SQUEEZ,MACH,2      IS MACHINE 1401/1440/1460                  8  1546  B V58 082 2         26
251  2 46          B     EXIT5                                                         4  1554  B V03               26
252  2 47   SQUEEZ BCE   SHALT,INST,.      TEST FOR SPECIAL HALT                       8  1558  B W25 J06 .         26
253  2 48          SW    WORK,WORK-3                                                   7  1566  , !60 !57           26
254  2 49          SW    WORK-6                                                        4  1573  , !54               26
255  2 50          MLC   INST&10,WORK       MOVE EXPANDED DATA INTO COMPACT            7  1577  M J16 !60           26
256  2 51          MLC   INST&8             WORK AREA TO ELIMINATE BLANKS              4  1584  M J14               27
257  2 52          MLC   INST&4                                                        4  1588  M J10               27
258  2 53          MLC   INST                                                          4  1592  M J06               27
259  2 54          MLC   BLANKS,INST&10     BLANK DATA AREA                            7  1596  M !81 J16           27
260  2 55          CW    WORK,WORK-3                                                   7  1603  ) !60 !57           27
261  2 56          CW    WORK-6                                                        4  1610  ) !54               27
262  2 57          MLC   WORK,INST&7        MOVE COMPACTED DATA INTO DATA ARE          7  1614  M !60 J13           27
263  2 58          B     EXIT5                                                         4  1621  B V03               28
264  2 59   SHALT  MLC   @H@,OPCD-2         MOVE MNEMONIC TO DATA AREA                 7  1625  M E4W !82           28
265  2 60          B     EXIT5                                                         4  1632  B V03               28
266  2 61   SRCH80 SBR   X1,0                                                          7  1636  H 089 000           28
267  2 62          SBR   X3                                                            4  1643  H 099               28
268  2 63   STLO80 MLC   X3,X2                                                         7  1647  M 099 094           28
269  2 64   STEP80 SBR   X1,3&X1                                                       7  1654  H 089 0|3           29
270  2 65          MA    TABELC&X1,X3       SECOND LOOKUP FOR 705/7080                 7  1661  # JX6 099           29
271  2 66          C     TAB&X3,INPUT       OPERATIONS WHICH CAN HAVE ANY ASU          7  1668  C ??0 !82           29
272  2 67          BE    TFND80                                                        5  1675  B X04 S             29
273  2 68   SEND80 BCE   NOTFND,X1,0                                                   8  1680  B V31 089 0         29
274  2 69          BH    STLO80                                                        5  1688  B W47 U             29
275  2 70          MLC   X2,X3                                                         7  1693  M 094 099           30
276  2 71          B     STEP80                                                        4  1700  B W54               30
277  2 72   TFND80 C     TABELA&X3,@00@                                                7  1704  C ??2 E4Y           30
278  2 73          BU    SEND80                                                        5  1711  B W80 /             30
279  2 74          B     FOUND                                                         4  1716  B U96               30
280  2 75   Y1410  C     OPCD-1,@RA@        IS OP CODE A BEX1 INSTRUCTION              7  1720  C !83 E5|           30
281  2 76          BU    Y1410A                                                        5  1727  B X47 /             30
282  2 77          B     MDMOD                                                         4  1732  B U02               31
283  2 78          MLC   @BEX1 @,OUTKEY-1                                              7  1736  M E5V !86           31
284  2 79          B     EXIT5                                                         4  1743  B V03               31
285  2 80   Y1410A C     OPCD-1,@XA@        IS OP CODE A BEX2                          7  1747  C !83 E5X           31
286  2 81          BU    NOTFND                                                        5  1754  B V31 /             31
287  2 82          B     MDMOD                                                         4  1759  B U02               31
288  2 83          MLC   @BEX2 @,OUTKEY-1                                              7  1763  M E6S !86           31
289  2 84          B     EXIT5                                                         4  1770  B V03               32
290  2 85   *
291  2 86   *              SET UP PRINTOUT AREA AND PRINT
292  2 87   PRINT1 SBR   EXIT3&3                                                       4  1774  H Z22               32
293  2 88          C     OVLAY,LSTOVY      TEST FOR NEW OVERLAY IN DATA                7  1778  C !97 !52           32
294  2 89          BU    NEWPG              BRANCH IF PRESENT                          5  1785  B Z23 /             32
295  2 90   BLKOVY MLC   NBLANK-4,OVLAY     BLANK OVERLAY                              7  1790  M !71 !97           32
296  2 91          BCE   *&8,OVLAY&1,1      BRANCH IF HIGH-ORDER IS NOT ZERO           8  1797  B Y12 !98 1         32
297  2 92          MLC   NBLANK-5,OVLAY&1   BLANK K                                    7  1805  M !70 !98           33
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SEQ PG LIN  LABEL  OP     OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

298  2 93          C      MACH,@3@                                            7  1812  C 082 E6T            33
299  2 94          BL     *&9                                                 5  1819  B Y32 T              33
300  2 95          BCE    MOVER,COUNT,                                        8  1824  B Y55 !92            33
301  2 96          C      LOCAT,LSTLOC       TEST FOR PATCH                   7  1832  C J03 E7|            33
302  2 97          BH     SETFL              BRANCH IF PRESENT TO SET FLAG    5  1839  B Y48 U              33
303  2 98          B      MOVER              BRANCH AROUND FLAG               4  1844  B Y55                34
304  2 99   SETFL  MLC    @**@,FLAG          SET FLAG IN DATA AREA            7  1848  M E6V !97            34
305  3 00   MOVER  MLC    LOCAT,LSTLOC       MOVE LOC INTO TEST AREA          7  1855  M J03 E7|            34
306  3 01          MCS    LSTLOC,LOCAT       BLANK LEAD ZEROS IN LOCATION     7  1862  Z E7| J03            34
307  3 02   WRITE  BWZ    PRTHDR,PAGESW,1    BRANCH IF NEW PAGE               8  1869  V Z42 084 1          34
308  3 03          MLC    ENDIN,PREND        MOVE DATA AREA TO PRINT AREA     7  1877  M J26 260            35
309  3 04          B      PRINT              BRANCH TO PRINT A LINE           4  1884  B 747                35
310  3 05          BCE    TST5,MACH,5        BRANCH IF MACHINE IS 705         8  1888  B Z65 082 5          35
311  3 06          BCE    TST5,MACH,6        BRANCH IF MACHINE IS 7080        8  1896  B Z65 082 6          35
312  3 07          BCE    ADD1,MACH,7        BRANCH IF MACHINE IS 7070        8  1904  B Z99 082 7          35
313  3 08          A      COUNT,LSTLOC#5                                      7  1912  A !92 E7|            36
314  3 09   EXIT3  B      000                                                 4  1919  B 000                36
315  3 10   NEWPG  MLC    OVLAY,LSTOVY       MOVE OVERLAY TO TEST AREA        7  1923  M !97 !52            36
316  3 11          B      EJECT              EJECT PAGE                       4  1930  B 704                36
317  3 12          B      PRTHDR             PRINT HEADING                    4  1934  B Z42                36
318  3 13          B      BLKOVY                                              4  1938  B X90                36
319  3 14   PRTHDR SBR    EXIT6&3                                             4  1942  H Z64                36
320  3 15          MLC    ENDHDR,PREND       MOVE HEADING TO PRINT AREA       7  1946  M J73 260            37
321  3 16          B      PRINT              PRINT HEADING                    4  1953  B 747                37
322  3 17          B      PRINT              SPACE                            4  1957  B 747                37
323  3 18   EXIT6  B      0                                                   4  1961  B 000                37
324  3 19   TST5   BCE    *&5,CT705-3,       BRANCH IF NOT STD INST DATA      8  1965  B Z77 J05            37
325  3 20          B      ADD5                                                4  1973  B Z88                37
326  3 21          A      CT705,LSTLOC       ADD LENGTH OF DATA TO LOC TEST AR   7  1977  A J08 E7|            37
327  3 22          B      EXIT3                                               4  1984  B Z19                38
328  3 23   ADD5   A      @5@,LSTLOC         ADD 5 TO LOC TEST AREA           7  1988  A E7/ E7|            38
329  3 24          B      EXIT3                                               4  1995  B Z19                38
330  3 25   ADD1   A      @1@,LSTLOC         ADD 1 TO LOC TEST AREA           7  1999  A E0W E7|            38
331  3 26          B      EXIT3                                               4  2006  B Z19                38
332  3 27   ENDALL B      EJECT              EJECT PAGE                       4  2010  B 704                38
333  3 28          MLC    DACARD,PREND&21                                     7  2014  M 080 281            38
334  3 29          B      PRINT              PRINT $DAEND CARD                4  2021  B 747                39
335  3 30          B      PRINT              SPACE                            4  2025  B 747                39
336  3 31          B      PRINT              SPACE                            4  2029  B 747                39
337  3 32          CW     ENDIN&1            CLEAR GMWM                       4  2033  ) J27                39
338  3 33          RWD    IOTP1            REWIND D.A. SYSTEM TAPE            5  2037  U %U1 R              39
339  3 34          B      SYSLNK           RETURN TO MONITOR CONTROL          4  2042  B 400                39
340  3 35          DCW    @1CONA@                                             5  2050                       39
341  3 36   *
342  3 37   X1     EQU    89                                                     0089
343  3 38   X2     EQU    94                                                     0094
344  3 39   X3     EQU    99                                                     0099
345  3 40   SYSLNK EQU    400                                                    0400
346  3 41   SYSIO  EQU    500                                                    0500
347  3 42   TAPENO EQU    675                                                    0675
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SEQ PG LIN  LABEL  OP     OPERANDS      SFX CT  LOCN  INSTRUCTION TYPE   CARD

348  3 43  EJECT  EQU   704                   0704
349  3 44  PRINT  EQU   747                   0747
350  3 45  READ   EQU   781                   0781
351  3 46  LNGTH  EQU   799                   0799
352  3 47  DACARD EQU   80                    0080
353  3 48  MACH   EQU   82                    0082
354  3 49  PAGESW EQU   84                    0084
355  3 50  *
356  3 51  PREND  EQU   260                   0260
357  3 52  IOTP1  EQU   %U1                   %U1
358  3 53  NBLANK EQU   BLANKS-6              2075
359  3 54  LSTOVY DCW   @00@               2  2052                       40
360  3 55         DCW   #1                 1  2053                       40
361  3 56         DCW   #3                 3  2056                       40
362  3 57         DCW   #3                 3  2059                       40
363  3 58  WORK   DCW   #1                 1  2060                       40
364  3 59  KSTART DCW   @99I@              3  2063                       40
365  3 60  KSIZE  DCW   @I9A@              3  2066                       40
366  3 61  LSTEND DCW   @   @              3  2069                       41
367  3 62  BLANKS DCW   #12               12  2081                       41
368  3 63  INPUT  DA    1X46,|                2082  2128                 41
                  DC    @|@                1  2128              RMARK    42
369  3 64  OPCD   EQU   INPUT&2               2084
370  3 65  COUNT  EQU   INPUT&10              2092
371  3 66  FLAG   EQU   OVLAY                 2097
372  3 67  OVLAY  EQU   INPUT&15              2097
373  3 68  LOCAT  EQU   INPUT&21              2103
374  3 69  INST   EQU   INPUT&24              2106
375  3 70  CT705  EQU   INPUT&26              2108
376  3 71  ENDIN  EQU   INPUT&44              2126
377  3 72  RMARK  EQU   INPUT&46              2128
378  3 73  ARGMNT EQU   OPCD                  2084
379  3 74  OUTKEY EQU   OPCD&3                2087
380  3 75  HDR    DA    1X45                  2129  2173                 42
381  3 76  ENDHDR EQU   HDR&44                2173
382  3 77  TABELC DCW   @009@              3  2176                       43
383  3 78         DCW   #33               33  2209                       43
384  3 79  ELSIZ  EQU   TABELC                2176
385  3 80         ORG   3000                        3000
386  3 81  TAB    DA    1X4500                3000  7499                 43
387  3 82  TABELA       1,3                   3002              FIELD    43
388  3 83  TABKEY       9                     3008              SBFLD
389  3 84         LTORG *&1                         7501
         133  AEND   DCW   #03                3  7503              AREA     44
         141  SW1          #01                1  7504              AREA     44
                           @4@                1  7505              LIT      44
                           @1@                1  7506              LIT      44
         170  SIZ          #03                3  7509              AREA     44
                           @000@              3  7512              LIT      44
                           @001@              3  7515              LIT      44
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SEQ PG LIN  LABEL   OP     OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

                           @BB@                                                        2  7517              LIT     45
                           @BCE@                                                       3  7520              LIT     45
                           @WB@                                                        2  7522              LIT     45
                           @BBE@                                                       3  7525              LIT     45
                           @U@                                                         1  7526              LIT     45
                           @K@                                                         1  7527              LIT     45
       208                 @*I/O*@                                                     5  7532              LIT     45
                           @0@                                                         1  7533              LIT     46
                           @F@                                                         1  7534              LIT     46
       218                 @CC1  @                                                     5  7539              LIT     46
                           @2@                                                         1  7540              LIT     46
       223                 @CC2  @                                                     5  7545              LIT     46
                           @H@                                                         1  7546              LIT     46
                           @00@                                                        2  7548              LIT     46
                           @RA@                                                        2  7550              LIT     47
       283                 @BEX1 @                                                     5  7555              LIT     47
                           @XA@                                                        2  7557              LIT     47
       288                 @BEX2 @                                                     5  7562              LIT     47
                           @3@                                                         1  7563              LIT     47
                           @**@                                                        2  7565              LIT     47
       313  LSTLOC         #05                                                         5  7570              AREA    47
                           @5@                                                         1  7571              LIT     48
390  3 85   HIGH    EQU    *&1                                                            7572
391  3 86           END    BEGIN                                                                / 800 080           49
       208                 @*I/O*@                                                     5  7532              LIT     45             *****
                           @0@                                                         1  7533              LIT     46
                           @F@                                                         1  7534              LIT     46
       218                 @CC1  @                                                     5  7539              LIT     46
                           @2@                                                         1  7540              LIT     46
       223                 @CC2  @                                                     5  7545              LIT     46
                           @H@                                                         1  7546              LIT     46
                           @00@                                                        2  7548              LIT     46
                           @RA@                                                        2  7550              LIT     47
       283                 @BEX1 @                                                     5  7555              LIT     47
                           @XA@                                                        2  7557              LIT     47
       288                 @BEX2 @                                                     5  7562              LIT     47
                           @3@                                                         1  7563              LIT     47
                           @**@                                                        2  7565              LIT     47
       313  LSTLOC         #05                                                         5  7570              AREA    47
```

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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                     1             5VERU
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?  2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040   3

                          1401/40/60 TABLE FOR VERIFY                          5VERU             PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101  1 01   000    JOB   1401/40/60 TABLE FOR VERIFY
 102  1 02          CTL   440
 103  1 03          DCW   @$ADD     @                                              9  0341                     4
 104  1 04          DC    &TABORG                                                  3  0344  ?00                4
 105  1 05          DC    &RETURN                                                  3  0347  900                4
 106  1 06          DC    &HIGH                                                    3  0350  30W                4
 107  1 07          DC    @ 4  1 65@                                               8  0358                     4
 108  1 08          ORG   TABORG                                                         3000
 109  1 09          DCW   @.  H     @                                              9  3008                     5
 110  1 10          DCW   @)  CW    @                                              9  3017                     5
 111  1 13          DCW   @/  CS    @                                              9  3026                     5
 112  1 14          DCW   @,  SW    @                                              9  3035                     5
 113  1 15          DCW   @%  D     @                                              9  3044                     6
 114  1 16          DCW   @#  MA    @                                              9  3053                     6
 115  1 17          DCW   @@  M     @                                              9  3062                     6
 116  1 175         DCW   @?  ZA    @                                              9  3071                     6
 117  1 18          DCW   @A  A     @                                              9  3080                     7
 118  1 19          DCW   @B  B     @                                              9  3089                     7
 119  1 195         DCW   @BA B     @                                              9  3098                     7
 120  1 20          DCW   @BA*BIN * @                                              9  3107                     7
 121  1 21          DCW   @BA/BU    @                                              9  3116                     8
 122  1 22          DCW   @BA%BIN % @                                              9  3125                     8
 123  1 23          DCW   @BA@BCV   @                                              9  3134                     8
 124  1 24          DCW   @BA?BIN ? @                                              9  3143                     8
 125  1 25          DCW   @BAABLC   @                                              9  3152                     9
 126  1 26          DCW   @BABBSS B @                                              9  3161                     9
 127  1 27          DCW   @BACBSS C @                                              9  3170                     9
 128  1 28          DCW   @BADBSS D @                                              9  3179                     9
 129  1 29          DCW   @BAEBSS E @                                              9  3188                    10
 130  1 30          DCW   @BAFBSS F @                                              9  3197                    10
 131  1 31          DCW   @BAGBSS G @                                              9  3206                    10
 132  1 32          DCW   @BA!BIN ! @                                              9  3215                    10
 133  1 33          DCW   @BAKBEF   @                                              9  3224                    11
 134  1 34          DCW   @BALBER   @                                              9  3233                    11
 135  1 35          DCW   @BANBIN N @                                              9  3242                    11
 136  1 36          DCW   @BAPBPB   @                                              9  3251                    11
 137  1 37          DCW   @BAQBIN Q @                                              9  3260                    12
 138  1 38          DCW   @BARBPCB  @                                              9  3269                    12
 139  1 39          DCW   @BASBE    @                                              9  3278                    12
 140  1 40          DCW   @BATBL    @                                              9  3287                    12
 141  1 41          DCW   @BAUBH    @                                              9  3296                    13
 142  1 42          DCW   @BAVBIN V @                                              9  3305                    13
 143  1 43          DCW   @BAWBIN W @                                              9  3314                    13
 144  1 44          DCW   @BAXBIN X @                                              9  3323                    13
 145  1 45          DCW   @BAYBIN Y @                                              9  3332                    14
 146  1 46          DCW   @BAZBAV   @                                              9  3341                    14
 147  1 47          DCW   @BA9BC9   @                                              9  3350                    14
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SEQ PG LIN  LABEL  OP    OPERANDS                                                 SFX CT  LOCN  INSTRUCTION TYPE  CARD

148  1 48          DCW   @C  C     @                                                   9  3359                      14
149  1 49          DCW   @D  MN    @                                                   9  3368                      15
150  1 50          DCW   @E  MCE   @                                                   9  3377                      15
151  1 51          DCW   @F .CC  . @                                                   9  3386                      15
152  1 52          DCW   @F )CC  ) @                                                   9  3395                      15
153  1 53          DCW   @F /CC  / @                                                   9  3404                      16
154  1 54          DCW   @F ?CC  ? @                                                   9  3413                      16
155  1 55          DCW   @F ACC  A @                                                   9  3422                      16
156  1 56          DCW   @F BCC  B @                                                   9  3431                      16
157  1 57          DCW   @F CCC  C @                                                   9  3440                      17
158  1 58          DCW   @F DCC  D @                                                   9  3449                      17
159  1 59          DCW   @F ECC  E @                                                   9  3458                      17
160  1 60          DCW   @F FCC  F @                                                   9  3467                      17
161  1 61          DCW   @F GCC G  @                                                   9  3476                      18
162  1 62          DCW   @F HCC  H @                                                   9  3485                      18
163  1 63          DCW   @F ICC  I @                                                   9  3494                      18
164  1 64          DCW   @F JCC  J @                                                   9  3503                      18
165  1 65          DCW   @F KCC  K @                                                   9  3512                      19
166  1 66          DCW   @F LCC  L @                                                   9  3521                      19
167  1 67          DCW   @F SCC  S @                                                   9  3530                      19
168  1 68          DCW   @F TCC  T @                                                   9  3539                      19
169  1 69          DCW   @F 0CC  0 @                                                   9  3548                      20
170  1 70          DCW   @F 1CC  1 @                                                   9  3557                      20
171  1 71          DCW   @F 2CC  2 @                                                   9  3566                      20
172  1 72          DCW   @F 3CC  3 @                                                   9  3575                      20
173  1 73          DCW   @F 4CC  4 @                                                   9  3584                      21
174  1 74          DCW   @F 5CC  5 @                                                   9  3593                      21
175  1 75          DCW   @F 6CC  6 @                                                   9  3602                      21
176  1 76          DCW   @F 7CC  7 @                                                   9  3611                      21
177  1 77          DCW   @F 8CC  8 @                                                   9  3620                      22
178  1 78          DCW   @F 9CC  9 @                                                   9  3629                      22
179  1 79          DCW   @FA.CCB . @                                                   9  3638                      22
180  1 80          DCW   @FA)CCB ) @                                                   9  3647                      22
181  1 81          DCW   @FA/CCB / @                                                   9  3656                      23
182  1 82          DCW   @FA?CCB ? @                                                   9  3665                      23
183  1 83          DCW   @FAACCB A @                                                   9  3674                      23
184  1 84          DCW   @FABCCB B @                                                   9  3683                      23
185  1 85          DCW   @FACCCB C @                                                   9  3692                      24
186  1 86          DCW   @FADCCB D @                                                   9  3701                      24
187  1 87          DCW   @FAECCB E @                                                   9  3710                      24
188  1 88          DCW   @FAFCCB F @                                                   9  3719                      24
189  1 89          DCW   @FAGCCB G @                                                   9  3728                      25
190  1 90          DCW   @FAHCCB H @                                                   9  3737                      25
191  1 91          DCW   @FAICCB I @                                                   9  3746                      25
192  1 92          DCW   @FAJCCB J @                                                   9  3755                      25
193  1 93          DCW   @FAKCCB K @                                                   9  3764                      26
194  1 94          DCW   @FALCCB L @                                                   9  3773                      26
195  1 95          DCW   @FASCCB S @                                                   9  3782                      26
196  1 96          DCW   @FATCCB T @                                                   9  3791                      26
197  1 97          DCW   @FA0CCB 0 @                                                   9  3800                      27
```

```
SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

198  1 98          DCW   @FA1CCB 1 @                                               9  3809                      27
199  1 99          DCW   @FA2CCB 2 @                                               9  3818                      27
200  2 00          DCW   @FA3CCB 3 @                                               9  3827                      27
201  2 01          DCW   @FA4CCB 4 @                                               9  3836                      28
202  2 02          DCW   @FA5CCB 5 @                                               9  3845                      28
203  2 03          DCW   @FA6CCB 6 @                                               9  3854                      28
204  2 04          DCW   @FA7CCB 7 @                                               9  3863                      28
205  2 05          DCW   @FA8CCB 8 @                                               9  3872                      29
206  2 06          DCW   @FA9CCB 9 @                                               9  3881                      29
207  2 07          DCW   @H  SBR   @                                               9  3890                      29
208  2 075         DCW   @!  ZS    @                                               9  3899                      29
209  2 08          DCW   @L  LCA   @                                               9  3908                      30
210  2 09          DCW   @LBRR*I/O @                                               9  3917                      30
211  2 10          DCW   @LBWW*I/O @                                               9  3926                      30
212  2 11          DCW   @M  MLC   @                                               9  3935                      30
213  2 12          DCW   @MBAMBD   @                                               9  3944                      31
214  2 13          DCW   @MBBMBC   @                                               9  3953                      31
215  2 14          DCW   @MBRR*I/O @                                               9  3962                      31
216  2 15          DCW   @MBWW*I/O @                                               9  3971                      31
217  2 16          DCW   @N  NOP   @                                               9  3980                      32
218  2 164         DCW   @NA NOP   @                                               9  3989                      32
219  2 166         DCW   @NB NOP   @                                               9  3998                      32
220  2 17          DCW   @P  MCM   @                                               9  4007                      32
221  2 18          DCW   @Q  SHR   @                                               9  4016                      33
222  2 19          DCW   @S  S     @                                               9  4025                      33
223  2 20          DCW   @VBBBWZ B @                                               9  4034                      33
224  2 21          DCW   @VBCBWZ C @                                               9  4043                      33
225  2 22          DCW   @VBKBWZ K @                                               9  4052                      34
226  2 23          DCW   @VBSBWZ S @                                               9  4061                      34
227  2 24          DCW   @VBTBWZ T @                                               9  4070                      34
228  2 25          DCW   @VB1BWZ 1 @                                               9  4079                      34
229  2 26          DCW   @VB2BWZ 2 @                                               9  4088                      35
230  2 27          DCW   @VB3BWZ 3 @                                               9  4097                      35
231  2 28          DCW   @X  MIZ   @                                               9  4106                      35
232  2 29          DCW   @Y  MZ    @                                               9  4115                      35
233  2 30          DCW   @Z  MCS   @                                               9  4124                      36
234  2 31          DCW   @1  R     @                                               9  4133                      36
235  2 32          DCW   @1 CRCB   @                                               9  4142                      36
236  2 33          DCW   @1ACRCB   @                                               9  4151                      36
237  2 34          DCW   @2  W     @                                               9  4160                      37
238  2 35          DCW   @2 )WM    @                                               9  4169                      37
239  2 36          DCW   @2A)WM    @                                               9  4178                      37
240  2 37          DCW   @3  WR    @                                               9  4187                      37
241  2 38          DCW   @4  P     @                                               9  4196                      38
242  2 39          DCW   @4 CPCB   @                                               9  4205                      38
243  2 40          DCW   @4ACPCB   @                                               9  4214                      38
244  2 41          DCW   @4 RRF    @                                               9  4223                      38
245  2 42          DCW   @5  RP    @                                               9  4232                      39
246  2 43          DCW   @5 RWRF   @                                               9  4241                      39
247  2 44          DCW   @6  WP    @                                               9  4250                      39
```

```
SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  2 45          DCW   @6 RWRF   @                                              9  4259                     39
249  2 46          DCW   @6ARWRF   @                                              9  4268                     40
250  2 47          DCW   @7  WRP   @                                              9  4277                     40
251  2 48          DCW   @8  SRF   @                                              9  4286                     40
252  2 49          DCW   @9  SPF   @                                              9  4295                     40
253  2 50          DCW   @999999999@                                              9  4304                     41
254  2 51          LTORG *&1                                                                4306
255  2 52  HIGH    EQU   *&1                                                         4306
256  2 53  TABORG EQU   3000                                                        3000
257  2 54  RETURN EQU   900                                                         0900
258  2 55          END   RETURN                                                            / 900 080          42
244  2 41          DCW   @4 RRF    @                                              9  4223                     38              *****
245  2 42          DCW   @5  RP    @                                              9  4232                     39
246  2 43          DCW   @5 RWRF   @                                              9  4241                     39
247  2 44          DCW   @6  WP    @                                              9  4250                     39
```

SEQ PG LIN LABEL OP OPERANDS SFX CT LOCN INSTRUCTION TYPE CARD

```
CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                  1           5VERV
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?  2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039          ,0010011040   3

                          705/80 TABLE FOR VERIFY                          5VERV          PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101  1 01   000    JOB   705/80 TABLE FOR VERIFY
 102  1 02          CTL   440
 103  1 03          DCW   @$ADD     @                                      9  0341                       4
 104  1 04          DC    &TABORG                                          3  0344  ?00                  4
 105  1 05          DC    &RETURN                                          3  0347  900                  4
 106  1 06          DC    &HIGH                                            3  0350  12W                  4
 107  1 07          DC    @ 4  1 65@                                       8  0358                       4
 108  1 08          ORG   TABORG                                                     3000
 109  1 09          DCW   @.00TZB   @                                      9  3008                       5
 110  1 10          DCW   @.01TZB 1 @                                      9  3017                       5
 111  1 11          DCW   @.02TZB 2 @                                      9  3026                       5
 112  1 12          DCW   @.03TZB 4 @                                      9  3035                       5
 113  1 13          DCW   @.04TZB 8 @                                      9  3044                       6
 114  1 14          DCW   @.05TZB A @                                      9  3053                       6
 115  1 15          DCW   @.06TZB B @                                      9  3062                       6
 116  1 16          DCW   @.07TZB C @                                      9  3071                       6
 117  1 17          DCW   @$00BLM   @                                      9  3080                       7
 118  1 18          DCW   @$01BLMS  @                                      9  3089                       7
 119  1 19          DCW   @*00ULA   @                                      9  3098                       7
 120  1 20          DCW   @/00SND   @                                      9  3107                       7
 121  1 21          DCW   @,00SPC   @                                      9  3116                       8
 122  1 22          DCW   @,02LFC   @                                      9  3125                       8
 123  1 23          DCW   @,03UFC   @                                      9  3134                       8
 124  1 24          DCW   @,04LSB   @                                      9  3143                       8
 125  1 25          DCW   @,05USB   @                                      9  3152                       9
 126  1 26          DCW   @,06EIM   @                                      9  3161                       9
 127  1 27          DCW   @,07LIM   @                                      9  3170                       9
 128  1 28          DCW   @,08TCT   @                                      9  3179                       9
 129  1 29          DCW   @,10EIA   @                                      9  3188                      10
 130  1 30          DCW   @,11CNO   @                                      9  3197                      10
 131  1 31          DCW   @,14TIP   @                                      9  3206                      10
 132  1 32          DCW   @,15LIP   @                                      9  3215                      10
 133  1 33          DCW   @%01SBZ1  @                                      9  3224                      11
 134  1 34          DCW   @%02SBZ2  @                                      9  3233                      11
 135  1 35          DCW   @%03SBZ3  @                                      9  3242                      11
 136  1 36          DCW   @%04SBZ4  @                                      9  3251                      11
 137  1 37          DCW   @%05SBZ5  @                                      9  3260                      12
 138  1 38          DCW   @%06SBZ6  @                                      9  3269                      12
 139  1 39          DCW   @%07SBA   @                                      9  3278                      12
 140  1 40          DCW   @%08SBR   @                                      9  3287                      12
 141  1 41          DCW   @%09SBN1  @                                      9  3296                      13
 142  1 42          DCW   @%10SBN2  @                                      9  3305                      13
 143  1 43          DCW   @%11SBN3  @                                      9  3314                      13
 144  1 44          DCW   @%12SBN4  @                                      9  3323                      13
 145  1 45          DCW   @%13SBN5  @                                      9  3332                      14
 146  1 46          DCW   @%14SBN6  @                                      9  3341                      14
 147  1 47          DCW   @#00LDA   @                                      9  3350                      14
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SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX CT	LOCN	INSTRUCTION TYPE	CARD
148	1	48		DCW	@@00AAM @	9	3359		14
149	1	49		DCW	@?00SUB @	9	3368		15
150	1	50		DCW	@A00NOP @	9	3377		15
151	1	51		DCW	@B00SET @	9	3386		15
152	1	52		DCW	@C00SHR @	9	3395		15
153	1	53		DCW	@D00LNG @	9	3404		16
154	1	54		DCW	@E00RND @	9	3413		16
155	1	55		DCW	@F00ST @	9	3422		16
156	1	56		DCW	@G00ADD @	9	3431		16
157	1	57		DCW	@H00RAD @	9	3440		17
158	1	58		DCW	@I00TRA @	9	3449		17
159	1	59		DCW	@I01TAA @	9	3458		17
160	1	60		DCW	@I02TAB @	9	3467		17
161	1	61		DCW	@I03TAC @	9	3476		18
162	1	62		DCW	@I04TAD @	9	3485		18
163	1	63		DCW	@I05TAE @	9	3494		18
164	1	64		DCW	@I06TAF @	9	3503		18
165	1	65		DCW	@I07TNS @	9	3512		19
166	1	66		DCW	@J00HLT @	9	3521		19
167	1	67		DCW	@K00TRH @	9	3530		19
168	1	68		DCW	@L00TRE @	9	3539		19
169	1	69		DCW	@M00TRP @	9	3548		20
170	1	70		DCW	@N00NTR @	9	3557		20
171	1	71		DCW	@O00TRS @	9	3566		20
172	1	72		DCW	@O01TRR @	9	3575		20
173	1	73		DCW	@O02TTC @	9	3584		21
174	1	74		DCW	@O03TSA @	9	3593		21
175	1	75		DCW	@O09TAR @	9	3602		21
176	1	76		DCW	@O10TIC @	9	3611		21
177	1	77		DCW	@O11TMC @	9	3620		22
178	1	78		DCW	@O12TRC @	9	3629		22
179	1	79		DCW	@O13TEC @	9	3638		22
180	1	80		DCW	@O14TOC @	9	3647		22
181	1	81		DCW	@O15TSC @	9	3656		23
182	1	82		DCW	@P00SUB @	9	3665		23
183	1	83		DCW	@Q00RSU @	9	3674		23
184	1	84		DCW	@R00WR @	9	3683		23
185	1	85		DCW	@R01DMP @	9	3692		24
186	1	86		DCW	@R02SRC @	9	3701		24
187	1	87		DCW	@R03SCC @	9	3710		24
188	1	88		DCW	@R04CWR @	9	3719		24
189	1	89		DCW	@R05WMC @	9	3728		25
190	1	90		DCW	@S00RWW @	9	3737		25
191	1	91		DCW	@T00SGN @	9	3746		25
192	1	92		DCW	@U00RCV @	9	3755		25
193	1	93		DCW	@V00MPY @	9	3764		26
194	1	94		DCW	@W00DIV @	9	3773		26
195	1	95		DCW	@X00NTR @	9	3782		26
196	1	96		DCW	@Y00RD @	9	3791		26
197	1	97		DCW	@Y01FSP @	9	3800		27

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SEQ PG LIN  LABEL  OP    OPERANDS                                                SFX CT  LOCN  INSTRUCTION TYPE  CARD

198  1 98          DCW   @Y02RMA   @                                                  9  3809                      27
199  1 99          DCW   @Y03SST   @                                                  9  3818                      27
200  2 00          DCW   @Y04CRD   @                                                  9  3827                      27
201  2 01          DCW   @Y05RMB   @                                                  9  3836                      28
202  2 02          DCW   @Z00WRE   @                                                  9  3845                      28
203  2 03          DCW   @Z01WRE   @                                                  9  3854                      28
204  2 04          DCW   @100TR    @                                                  9  3863                      28
205  2 05          DCW   @101TSL   @                                                  9  3872                      29
206  2 06          DCW   @200SEL   @                                                  9  3881                      29
207  2 07          DCW   @300*I/O* @                                                  9  3890                      29
208  2 08          DCW   @301*I/O* @                                                  9  3899                      29
209  2 09          DCW   @312ECB   @                                                  9  3908                      30
210  2 10          DCW   @313CHR   @                                                  9  3917                      30
211  2 11          DCW   @314EEM   @                                                  9  3926                      30
212  2 12          DCW   @315LEM   @                                                  9  3935                      30
213  2 13          DCW   @400CMP   @                                                  9  3944                      31
214  2 14          DCW   @500SPR   @                                                  9  3953                      31
215  2 15          DCW   @600ADM   @                                                  9  3962                      31
216  2 16          DCW   @700UNL   @                                                  9  3971                      31
217  2 17          DCW   @800LOD   @                                                  9  3980                      32
218  2 18          DCW   @900TMT   @                                                  9  3989                      32
219  2 19          DCW   @901TMTS 1@                                                  9  3998                      32
220  2 20          DCW   @902TMTS 2@                                                  9  4007                      32
221  2 21          DCW   @903TMTS 3@                                                  9  4016                      33
222  2 22          DCW   @904TMTS 4@                                                  9  4025                      33
223  2 23          DCW   @905TMTS 5@                                                  9  4034                      33
224  2 24          DCW   @906TMTS 6@                                                  9  4043                      33
225  2 25          DCW   @907TMTS 7@                                                  9  4052                      34
226  2 26          DCW   @908TMTS 8@                                                  9  4061                      34
227  2 27          DCW   @909TMTS 9@                                                  9  4070                      34
228  2 28          DCW   @910TMTS10@                                                  9  4079                      34
229  2 29          DCW   @911TMTS11@                                                  9  4088                      35
230  2 30          DCW   @912TMTS12@                                                  9  4097                      35
231  2 31          DCW   @913TMTS13@                                                  9  4106                      35
232  2 32          DCW   @914TMTS14@                                                  9  4115                      35
233  2 33          DCW   @915TMTS15@                                                  9  4124                      36
234  2 34          LTORG *&1                                                                    4126
235  2 35   HIGH   EQU   *&1                                                             4126
236  2 36   TABORG EQU   3000                                                            3000
237  2 37   RETURN EQU   900                                                             0900
238  2 38          END   RETURN                                                              / 900 080             37
221  2 21          DCW   @903TMTS 3@                                                  9  4016                      33           *****
222  2 22          DCW   @904TMTS 4@                                                  9  4025                      33
223  2 23          DCW   @905TMTS 5@                                                  9  4034                      33
224  2 24          DCW   @906TMTS 6@                                                  9  4043                      33
225  2 25          DCW   @907TMTS 7@                                                  9  4052                      34
226  2 26          DCW   @908TMTS 8@                                                  9  4061                      34
227  2 27          DCW   @909TMTS 9@                                                  9  4070                      34
228  2 28          DCW   @910TMTS10@                                                  9  4079                      34
229  2 29          DCW   @911TMTS11@                                                  9  4088                      35
230  2 30          DCW   @912TMTS12@                                                  9  4097                      35
231  2 31          DCW   @913TMTS13@                                                  9  4106                      35
232  2 32          DCW   @914TMTS14@                                                  9  4115                      35
```

```
CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                    1              5VERW
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?  2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040  3

                          1410 TABLE FOR VERIFY                                     5VERW            PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101  1 01   000    JOB   1410 TABLE FOR VERIFY
 102  1 02          CTL   4401 1
 103  1 03          DCW   @$ADD     @                                             9  0341                     4
 104  1 04          DCW   &TABORG                                               3  0344  ?00                4
 105  1 05          DCW   &RETURN                                               3  0347  900                4
 106  1 06          DCW   &HIGH                                                 3  0350  79S                4
 107  1 07          DC    @ 4  1 65@                                            8  0358                     4
 108  1 08          ORG   TABORG                                                        3000
 109  1 09          DCW   @.  H     @                                           9  3008                     5
 110  1 10          DCW   @)  CW    @                                           9  3017                     5
 111  1 11          DCW   @/  CS    @                                           9  3026                     5
 112  1 12          DCW   @,  SW    @                                           9  3035                     5
 113  1 13          DCW   @%  D     @                                           9  3044                     6
 114  1 14          DCW   @#AAFA    @                                           9  3053                     6
 115  1 15          DCW   @#ADFD    @                                           9  3062                     6
 116  1 16          DCW   @#ALFST   @                                           9  3071                     6
 117  1 17          DCW   @#AMFM    @                                           9  3080                     7
 118  1 18          DCW   @#ARFRA   @                                           9  3089                     7
 119  1 19          DCW   @#ASFS    @                                           9  3098                     7
 120  1 20          DCW   @@  M     @                                           9  3107                     7
 121  1 21          DCW   @?  ZA    @                                           9  3116                     8
 122  1 22          DCW   @A  A     @                                           9  3125                     8
 123  1 23          DCW   @C  C     @                                           9  3134                     8
 124  1 24          DCW   @D  *M*   @                                           9  3143                     8
 125  1 25          DCW   @DB SCNLS @                                           9  3152                     9
 126  1 26          DCW   @DB.MRCM  @                                           9  3161                     9
 127  1 27          DCW   @DB)MRWM  @                                           9  3170                     9
 128  1 28          DCW   @DB[MRNWM @                                           9  3179                     9
 129  1 29          DCW   @DB<MRZWM @                                           9  3188                    10
 130  1 30          DCW   @DB}MRCWM @                                           9  3197                    10
 131  1 31          DCW   @DB&SCNL  @                                           9  3206                    10
 132  1 32          DCW   @DB$MRCS  @                                           9  3215                    10
 133  1 33          DCW   @DB*MRWG  @                                           9  3224                    11
 134  1 34          DCW   @DB]MRNWG @                                           9  3233                    11
 135  1 35          DCW   @DB;MRZWG @                                           9  3242                    11
 136  1 36          DCW   @DB_MRCWG @                                           9  3251                    11
 137  1 37          DCW   @DB-SCNLB @                                           9  3260                    12
 138  1 38          DCW   @DB/MLNA  @                                           9  3269                    12
 139  1 39          DCW   @DB,MRCR  @                                           9  3278                    12
 140  1 40          DCW   @DB%MRWR  @                                           9  3287                    12
 141  1 41          DCW   @DB:MRNWR*@                                           9  3296                    13
 142  1 42          DCW   @DB\MRZWR @                                           9  3305                    13
 143  1 43          DCW   @DB"MRCWR @                                           9  3314                    13
 144  1 44          DCW   @DB SCNLA @                                           9  3323                    13
 145  1 45          DCW   @DB#MRC   @                                           9  3332                    14
 146  1 46          DCW   @DB@MRW   @                                           9  3341                    14
 147  1 47          DCW   @DB:MRNZ  @                                           9  3350                    14
```

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SEQ PG LIN  LABEL  OP    OPERANDS                SFX CT  LOCN  INSTRUCTION TYPE  CARD

148  1 48          DCW   @DB>MRZW  @                  9  3359                      14
149  1 49          DCW   @DB{MRCW  @                  9  3368                      15
150  1 50          DCW   @DB?MRZM  @                  9  3377                      15
151  1 51          DCW   @DBAMLN   @                  9  3386                      15
152  1 52          DCW   @DBBMLZ   @                  9  3395                      15
153  1 53          DCW   @DBCMLC   @                  9  3404                      16
154  1 54          DCW   @DBDMLW   @                  9  3413                      16
155  1 55          DCW   @DBEMLNW  @                  9  3422                      16
156  1 56          DCW   @DBFMLZW  @                  9  3431                      16
157  1 57          DCW   @DBGMLCW  @                  9  3440                      17
158  1 58          DCW   @DBHSCNRM @                  9  3449                      17
159  1 59          DCW   @DBIMRNM  @                  9  3458                      17
160  1 60          DCW   @DB!MRZG  @                  9  3467                      17
161  1 61          DCW   @DBJMLNB  @                  9  3476                      18
162  1 62          DCW   @DBKMLZB  @                  9  3485                      18
163  1 63          DCW   @DBLMLCB  @                  9  3494                      18
164  1 64          DCW   @DBMMLWB  @                  9  3503                      18
165  1 65          DCW   @DBNMLNWB @                  9  3512                      19
166  1 66          DCW   @DBOMLZWB @                  9  3521                      19
167  1 67          DCW   @DBPMLCWB @                  9  3530                      19
168  1 68          DCW   @DBQSCNRG @                  9  3539                      19
169  1 69          DCW   @DBRMRNG  @                  9  3548                      20
170  1 70          DCW   @DB|MRZR  @                  9  3557                      20
171  1 71          DCW   @DBSMLZA  @                  9  3566                      20
172  1 72          DCW   @DBTMLCA  @                  9  3575                      20
173  1 73          DCW   @DBUMLWA  @                  9  3584                      21
174  1 74          DCW   @DBVMLNWA @                  9  3593                      21
175  1 75          DCW   @DBWMLZWA @                  9  3602                      21
176  1 76          DCW   @DBXMLCWA @                  9  3611                      21
177  1 77          DCW   @DBYSCNRR @                  9  3620                      22
178  1 78          DCW   @DBZMRNR  @                  9  3629                      22
179  1 79          DCW   @DB0MRZ   @                  9  3638                      22
180  1 80          DCW   @DB1MLNS  @                  9  3647                      22
181  1 81          DCW   @DB2MLZS  @                  9  3656                      23
182  1 82          DCW   @DB3MLCS  @                  9  3665                      23
183  1 83          DCW   @DB4MLWS  @                  9  3674                      23
184  1 84          DCW   @DB5MLNWS @                  9  3683                      23
185  1 85          DCW   @DB6MLZWS @                  9  3692                      24
186  1 86          DCW   @DB7MLCWS @                  9  3701                      24
187  1 87          DCW   @DB8SCNR  @                  9  3710                      24
188  1 88          DCW   @DB9MRN   @                  9  3719                      24
189  1 89          DCW   @E  MCE   @                  9  3728                      25
190  1 90          DCW   @GAASAR   @                  9  3737                      25
191  1 91          DCW   @GABSBR   @                  9  3746                      25
192  1 92          DCW   @GAESER   @                  9  3755                      25
193  1 93          DCW   @GAFSFR   @                  9  3764                      26
194  1 94          DCW   @GATSTC   @                  9  3773                      26
195  1 95          DCW   @IA1BCLR1 @                  9  3782                      26
196  1 96          DCW   @IA2BCNR1 @                  9  3791                      26
197  1 97          DCW   @IA3BCRC1 @                  9  3800                      27
```

```
SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

198  1 98          DCW   @IA4BCAF1 @                                          9  3809                      27
199  1 99          DCW   @IA5BCPC1 @                                          9  3818                      27
200  2 00          DCW   @IA6BCAN1 @                                          9  3827                      27
201  2 01          DCW   @IA7BCTC1 @                                          9  3836                      28
202  2 02          DCW   @IA8BCDC1 @                                          9  3845                      28
203  2 03          DCW   @!  ZS    @                                          9  3854                      28
204  2 04          DCW   @J  B     @                                          9  3863                      28
205  2 05          DCW   @JA B     @                                          9  3872                      29
206  2 06          DCW   @JA)BCV2  @                                          9  3881                      29
207  2 07          DCW   @JA*BNQ2  @                                          9  3890                      29
208  2 08          DCW   @JA/BU    @                                          9  3899                      29
209  2 09          DCW   @JA%BB2   @                                          9  3908                      30
210  2 10          DCW   @JA@BCV   @                                          9  3917                      30
211  2 11          DCW   @JA!BC92  @                                          9  3926                      30
212  2 12          DCW   @JALBPCB2 @                                          9  3935                      30
213  2 13          DCW   @JAMBB1   @                                          9  3944                      31
214  2 14          DCW   @JANBOQ   @                                          9  3953                      31
215  2 15          DCW   @JAQBNQ   @                                          9  3962                      31
216  2 16          DCW   @JARBPCB  @                                          9  3971                      31
217  2 17          DCW   @JA|BOQ2  @                                          9  3980                      32
218  2 18          DCW   @JASBE    @                                          9  3989                      32
219  2 19          DCW   @JATBL    @                                          9  3998                      32
220  2 20          DCW   @JAUBH    @                                          9  4007                      32
221  2 21          DCW   @JAVBZ    @                                          9  4016                      33
222  2 22          DCW   @JAWBDV   @                                          9  4025                      33
223  2 23          DCW   @JAXBXU   @                                          9  4034                      33
224  2 24          DCW   @JAYBXO   @                                          9  4043                      33
225  2 25          DCW   @JAZBAV   @                                          9  4052                      34
226  2 26          DCW   @JA1BOL1  @                                          9  4061                      34
227  2 27          DCW   @JA2BOL2  @                                          9  4070                      34
228  2 28          DCW   @JA9BC9   @                                          9  4079                      34
229  2 29          DCW   @LB$*I/O* @                                          9  4088                      35
230  2 30          DCW   @LBC*I/O* @                                          9  4097                      35
231  2 31          DCW   @LBR*I/O* @                                          9  4106                      35
232  2 32          DCW   @LBS*I/O* @                                          9  4115                      35
233  2 33          DCW   @LBW*I/O* @                                          9  4124                      36
234  2 34          DCW   @LBX*I/O* @                                          9  4133                      36
235  2 35          DCW   @MB$*I/O* @                                          9  4142                      36
236  2 36          DCW   @MBC*I/O* @                                          9  4151                      36
237  2 37          DCW   @MBR*I/O* @                                          9  4160                      37
238  2 38          DCW   @MBS*I/O* @                                          9  4169                      37
239  2 39          DCW   @MBW*I/O* @                                          9  4178                      37
240  2 40          DCW   @MBX*I/O* @                                          9  4187                      37
241  2 41          DCW   @N  NOP   @                                          9  4196                      38
242  2 42          DCW   @OA1BCLR2 @                                          9  4205                      38
243  2 43          DCW   @OA2BCNR2 @                                          9  4214                      38
244  2 44          DCW   @OA3BCRC2 @                                          9  4223                      38
245  2 45          DCW   @OA4BCAF2 @                                          9  4232                      39
246  2 46          DCW   @OA5BCPC2 @                                          9  4241                      39
247  2 47          DCW   @OA6BCAN2 @                                          9  4250                      39
```

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION TYPE	CARD
248	2	48		DCW	@OA7BCTC2 @		9	4259		39
249	2	49		DCW	@OA8BCDC2 @		9	4268		40
250	2	50		DCW	@P DDCR1 @		9	4277		40
251	2	51		DCW	@P EERC1 @		9	4286		40
252	2	52		DCW	@Q DDCR2 @		9	4295		40
253	2	53		DCW	@Q EERC2 @		9	4304		41
254	2	54		DCW	@RA}BA1 GM@		9	4313		41
255	2	55		DCW	@RA-BWL1 @		9	4322		41
256	2	56		DCW	@RA BNT1 @		9	4331		41
257	2	57		DCW	@RA@BRC1 @		9	4340		42
258	2	58		DCW	@RA1BNR1 @		9	4349		42
259	2	59		DCW	@RA2BCB1 @		9	4358		42
260	2	60		DCW	@RA4BER1 @		9	4367		42
261	2	61		DCW	@RA8BEF1 @		9	4376		43
262	2	62		DCW	@S S @		9	4385		43
263	2	63		DCW	@TB *L* @		9	4394		43
264	2	64		DCW	@TB1LL @		9	4403		43
265	2	65		DCW	@TB2LE @		9	4412		44
266	2	66		DCW	@TB3LLE @		9	4421		44
267	2	67		DCW	@TB4LH @		9	4430		44
268	2	68		DCW	@TB5LLH @		9	4439		44
269	2	69		DCW	@TB6LEH @		9	4448		45
270	2	70		DCW	@TB7*L* @		9	4457		45
271	2	71		DCW	@UBA*I/O* @		9	4466		45
272	2	72		DCW	@UBBBSP @		9	4475		45
273	2	73		DCW	@UBESKP @		9	4484		46
274	2	74		DCW	@UBMWTM @		9	4493		46
275	2	75		DCW	@UBRRWD @		9	4502		46
276	2	76		DCW	@UBURWU @		9	4511		46
277	2	77		DCW	@VBBBZN B @		9	4520		47
278	2	78		DCW	@VBCBWZ C @		9	4529		47
279	2	79		DCW	@VBKBZN K @		9	4538		47
280	2	80		DCW	@VBLBWZ L @		9	4547		47
281	2	81		DCW	@VBSBZN S @		9	4556		48
282	2	82		DCW	@VBTBWZ T @		9	4565		48
283	2	83		DCW	@VB1BW @		9	4574		48
284	2	84		DCW	@VB2BZN 2 @		9	4583		48
285	2	85		DCW	@VB3BWZ 3 @		9	4592		49
286	2	86		DCW	@XA}BA2 GM@		9	4601		49
287	2	87		DCW	@XA-BWL2 @		9	4610		49
288	2	88		DCW	@XA BNT2 @		9	4619		49
289	2	89		DCW	@XA@BRD2 @		9	4628		50
290	2	90		DCW	@XA1BNR2 @		9	4637		50
291	2	91		DCW	@XA2BCB2 @		9	4646		50
292	2	92		DCW	@XA4BER2 @		9	4655		50
293	2	93		DCW	@XA8BEF2 @		9	4664		51
294	2	94		DCW	@YA*BIPR2 @		9	4673		51
295	2	95		DCW	@YAABXPR1 @		9	4682		51
296	2	96		DCW	@YABBXPR2 @		9	4691		51
297	2	97		DCW	@YAEBEPA @		9	4700		52

```
SEQ PG LIN  LABEL  OP    OPERANDS                                                      SFX CT  LOCN  INSTRUCTION TYPE  CARD

298  2 98          DCW   @YAFBUPR2 @                                                        9  4709                      52
299  2 99          DCW   @YANBQPR  @                                                        9  4718                      52
300  3 00          DCW   @YAQBIPR  @                                                        9  4727                      52
301  3 01          DCW   @YA|BQPR2 @                                                        9  4736                      53
302  3 02          DCW   @YASBSPR1 @                                                        9  4745                      53
303  3 03          DCW   @YATBSPR2 @                                                        9  4754                      53
304  3 04          DCW   @YAUBUPR  @                                                        9  4763                      53
305  3 05          DCW   @YA1BOPR1 @                                                        9  4772                      54
306  3 06          DCW   @YA2BOPR2 @                                                        9  4781                      54
307  3 07          DCW   @Z  MCS   @                                                        9  4790                      54
308  3 08          LTORG *&1                                                                         4792
309  3 09   HIGH   EQU   *&1                                                                   4792
310  3 10   TABORG EQU   3000                                                                  3000
311  3 11   RETURN EQU   900                                                                   0900
312  3 12          END   RETURN                                                                      / 900 080            55
```

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION TYPE	CARD
298	2	98		DCW	@YAFBUPR2 @		9	4709		52

```
CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                          1              5VERX
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?       2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040        3

                          7070 TABLE FOR VERIFY                                 5VERX              PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101  1 01   000    JOB   7070 TABLE FOR VERIFY
 102  1 02          CTL   4401 1
 103  1 03          DCW   @$ADD     @                                           9  0341                      4
 104  1 04          DC    &TABORG                                               3  0344  ?00                 4
 105  1 05          DC    &RETURN                                               3  0347  900                 4
 106  1 06          DC    &HIGH                                                 3  0350  13V                 4
 107  1 07          DC    @ 4  1 65@                                            8  0358                      4
 108  1 08          ORG   TABORG                                                        3000
 109  1 09          DCW   @&00HB    @                                           9  3008                      5
 110  1 10          DCW   @&01B     @                                           9  3017                      5
 111  1 11          DCW   @&02BLX   @                                           9  3026                      5
 112  1 12          DCW   @&03CD    @                                           9  3035                      5
 113  1 13          DCW   @&04*ASS* @                                           9  3044                      6
 114  1 14          DCW   @&10BZ1   @                                           9  3053                      6
 115  1 15          DCW   @&11BV1   @                                           9  3062                      6
 116  1 16          DCW   @&12ST1   @                                           9  3071                      6
 117  1 17          DCW   @&13ZA1   @                                           9  3080                      7
 118  1 18          DCW   @&14A1    @                                           9  3089                      7
 119  1 19          DCW   @&15C1    @                                           9  3098                      7
 120  1 20          DCW   @&16ZAA   @                                           9  3107                      7
 121  1 21          DCW   @&17AA    @                                           9  3116                      8
 122  1 22          DCW   @&18AS1   @                                           9  3125                      8
 123  1 23          DCW   @&19AAS1  @                                           9  3134                      8
 124  1 24          DCW   @&20BZ2   @                                           9  3143                      8
 125  1 25          DCW   @&21BV2   @                                           9  3152                      9
 126  1 26          DCW   @&22ST2   @                                           9  3161                      9
 127  1 27          DCW   @&23ZA2   @                                           9  3170                      9
 128  1 28          DCW   @&24A2    @                                           9  3179                      9
 129  1 29          DCW   @&25C2    @                                           9  3188                     10
 130  1 30          DCW   @&30BZ3   @                                           9  3197                     10
 131  1 31          DCW   @&31BV3   @                                           9  3206                     10
 132  1 32          DCW   @&32ST3   @                                           9  3215                     10
 133  1 33          DCW   @&33ZA3   @                                           9  3224                     11
 134  1 34          DCW   @&34A3    @                                           9  3233                     11
 135  1 35          DCW   @&35C3    @                                           9  3242                     11
 136  1 36          DCW   @&38AS3   @                                           9  3251                     11
 137  1 37          DCW   @&39AAS3  @                                           9  3260                     12
 138  1 38          DCW   @&40BL    @                                           9  3269                     12
 139  1 39          DCW   @&41*FV*  @                                           9  3278                     12
 140  1 40          DCW   @&44BXN   @                                           9  3287                     12
 141  1 41          DCW   @&45XL    @                                           9  3296                     13
 142  1 42          DCW   @&46XZA   @                                           9  3305                     13
 143  1 43          DCW   @&47XA    @                                           9  3314                     13
 144  1 44          DCW   @&48XSN   @                                           9  3323                     13
 145  1 45          DCW   @&49BIX   @                                           9  3332                     14
 146  1 46          DCW   @&50*S#*  @                                           9  3341                     14
 147  1 47          DCW   @&51*B*   @                                           9  3350                     14
```

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION TYPE	CARD
148	1	48		DCW	@&53M @		9	3359		14
149	1	49		DCW	@&54*Q* @		9	3368		15
150	1	50		DCW	@&55*PC* @		9	3377		15
151	1	51		DCW	@&56ENA @		9	3386		15
152	1	52		DCW	@&57ENB @		9	3395		15
153	1	53		DCW	@&60*I/O* @		9	3404		16
154	1	54		DCW	@&61*ES* @		9	3413		16
155	1	55		DCW	@&62*ES* @		9	3422		16
156	1	56		DCW	@&63*ES* @		9	3431		16
157	1	57		DCW	@&64PR @		9	3440		17
158	1	58		DCW	@&65RS @		9	3449		17
159	1	59		DCW	@&66LL @		9	3458		17
160	1	60		DCW	@&67LE @		9	3467		17
161	1	61		DCW	@&68LEH @		9	3476		18
162	1	62		DCW	@&69*I/O* @		9	3485		18
163	1	63		DCW	@&70FBV @		9	3494		18
164	1	64		DCW	@&71FR @		9	3503		18
165	1	65		DCW	@&73FM @		9	3512		19
166	1	66		DCW	@&74FA @		9	3521		19
167	1	67		DCW	@&75FZA @		9	3530		19
168	1	68		DCW	@&76FAD @		9	3539		19
169	1	69		DCW	@&77FAA @		9	3548		20
170	1	70		DCW	@&81*I/O* @		9	3557		20
171	1	71		DCW	@&82*I/O* @		9	3566		20
172	1	72		DCW	@&83*I/O* @		9	3575		20
173	1	73		DCW	@&84*I/O* @		9	3584		21
174	1	74		DCW	@&88TRN @		9	3593		21
175	1	75		DCW	@&93*DC* @		9	3602		21
176	1	76		DCW	@&94*DC* @		9	3611		21
177	1	77		DCW	@&96*DC* @		9	3620		22
178	1	78		DCW	@&97*DC* @		9	3629		22
179	1	79		DCW	@-00HP @		9	3638		22
180	1	80		DCW	@-01NOP @		9	3647		22
181	1	81		DCW	@-03*SC* @		9	3656		23
182	1	82		DCW	@-10BM1 @		9	3665		23
183	1	83		DCW	@-11ZST1 @		9	3674		23
184	1	84		DCW	@-12STD1 @		9	3683		23
185	1	85		DCW	@-13ZS1 @		9	3692		24
186	1	86		DCW	@-14S1 @		9	3701		24
187	1	87		DCW	@-15CA @		9	3710		24
188	1	88		DCW	@-16ZSA @		9	3719		24
189	1	89		DCW	@-17SA @		9	3728		25
190	1	90		DCW	@-18SS1 @		9	3737		25
191	1	91		DCW	@-20BM2 @		9	3746		25
192	1	92		DCW	@-21ZST2 @		9	3755		25
193	1	93		DCW	@-22STD2 @		9	3764		26
194	1	94		DCW	@-23ZS2 @		9	3773		26
195	1	95		DCW	@-24S2 @		9	3782		26
196	1	96		DCW	@-28SS2 @		9	3791		26
197	1	97		DCW	@-30BM3 @		9	3800		27

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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

198  1 98          DCW   @-31ZST3  @                                              9  3809                      27
199  1 99          DCW   @-32STD3  @                                              9  3818                      27
200  2 00          DCW   @-33ZS3   @                                              9  3827                      27
201  2 01          DCW   @-34S3    @                                              9  3836                      28
202  2 02          DCW   @-38SS3   @                                              9  3845                      28
203  2 03          DCW   @-40BH    @                                              9  3854                      28
204  2 04          DCW   @-41BE    @                                              9  3863                      28
205  2 05          DCW   @-43BCX   @                                              9  3872                      29
206  2 06          DCW   @-44BXM   @                                              9  3881                      29
207  2 07          DCW   @-45XU    @                                              9  3890                      29
208  2 08          DCW   @-46XZS   @                                              9  3899                      29
209  2 09          DCW   @-47XS    @                                              9  3908                      30
210  2 10          DCW   @-48XLIN  @                                              9  3917                      30
211  2 11          DCW   @-49BDX   @                                              9  3926                      30
212  2 12          DCW   @-50*S*   @                                              9  3935                      30
213  2 13          DCW   @-53D     @                                              9  3944                      31
214  2 14          DCW   @-56ENS   @                                              9  3953                      31
215  2 15          DCW   @-57EAN   @                                              9  3962                      31
216  2 16          DCW   @-61*LN*  @                                              9  3971                      31
217  2 17          DCW   @-62*LF*  @                                              9  3980                      32
218  2 18          DCW   @-65RG    @                                              9  3989                      32
219  2 19          DCW   @-70FBU   @                                              9  3998                      32
220  2 20          DCW   @-73FD    @                                              9  4007                      32
221  2 21          DCW   @-74FS    @                                              9  4016                      33
222  2 22          DCW   @-75FDD   @                                              9  4025                      33
223  2 23          DCW   @-76FADS  @                                              9  4034                      33
224  2 24          DCW   @-77FSA   @                                              9  4043                      33
225  2 25          DCW   @-81*I/O* @                                              9  4052                      34
226  2 26          DCW   @-82*I/O* @                                              9  4061                      34
227  2 27          DCW   @-83*I/O* @                                              9  4070                      34
228  2 28          DCW   @-84*I/O* @                                              9  4079                      34
229  2 29          DCW   @-88TRN   @                                              9  4088                      35
230  2 30          DCW   @-93*DC*  @                                              9  4097                      35
231  2 31          DCW   @-94*DC*  @                                              9  4106                      35
232  2 32          DCW   @-96*DC*  @                                              9  4115                      35
233  2 33          DCW   @-97*DC*  @                                              9  4124                      36
234  2 34          DCW   @999999999@                                              9  4133                      36
235  2 35   *
236  2 36          LTORG *&1                                                                4135
237  2 37   HIGH   EQU   *&1                                                         4135
238  2 38   TABORG EQU   3000                                                        3000
239  2 39   RETURN EQU   900                                                         0900
240  2 40          END   RETURN                                                            / 900 080           37
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223  2 23          DCW   @-76FADS  @                                              9  4034                      33             *****
224  2 24          DCW   @-77FSA   @                                              9  4043                      33
225  2 25          DCW   @-81*I/O* @                                              9  4052                      34
226  2 26          DCW   @-82*I/O* @                                              9  4061                      34
227  2 27          DCW   @-83*I/O* @                                              9  4070                      34
228  2 28          DCW   @-84*I/O* @                                              9  4079                      34
229  2 29          DCW   @-88TRN   @                                              9  4088                      35
230  2 30          DCW   @-93*DC*  @                                              9  4097                      35
231  2 31          DCW   @-94*DC*  @                                              9  4106                      35
232  2 32          DCW   @-96*DC*  @                                              9  4115                      35
```

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CLEAR STORAGE 1     ,008015,022026,030037,044,049,053053N000000N00001026                             1              6CONA
CLEAR STORAGE 2     L068116,105106,110117B101/I9Z#071029C029056B026/B001/0991,001/001117I0?          2
BOOTSTRAP           ,008015,022029,036040,047054,061068,072/061039             ,0010011040           3

                          SYSTEM MAINTENANCE ROUTINE                                     6CONA               PAGE    1

 SEQ PG LIN  LABEL  OP    OPERANDS                                                   SFX CT  LOCN  INSTRUCTION TYPE  CARD

 101  1 01   000    JOB   SYSTEM MAINTENANCE ROUTINE
 102  1 02          CTL   440
 103  1 03   COR1   EQU   1                                                                  0001
 104  1 04   COR85  EQU   85                                                                 0085
 105  1 05   COR86  EQU   86                                                                 0086
 106  1 06   X1     EQU   89                                                                 0089
 107  1 07   COR97  EQU   97                                                                 0097
 108  1 08   COR101 EQU   101                                                                0101
 109  1 09   PAGECT EQU   199                                                                0199
 110  1 10   COR201 EQU   201                                                                0201
 111  1 11   COR399 EQU   399                                                                0399
 112  1 12   SYSLNK EQU   400                                                                0400
 113  1 13   SETMOV EQU   478                                                                0478
 114  1 14   SYSIO  EQU   500                                                                0500
 115  1 15   IO     EQU   547                                                                0547
 116  1 16   MESSG  EQU   660                                                                0660
 117  1 17   MRET   EQU   669                                                                0669
 118  1 18   EJECT  EQU   704                                                                0704
 119  1 19   PRINT  EQU   747                                                                0747
 120  1 20   READ   EQU   781                                                                0781
 121  1 21   PUNCH  EQU   789                                                                0789
 122  1 22   INGM   EQU   799                                                                0799
 123  1 23   *                                 PHASE 2 - LOADED AND EXECUTED
 124  1 24   *                                      AT THE END OF PHASE 1.
 125  1 25          ORG   COR85                                                                    0085
 126  1 26          DCW   @ @            GROUP MARK POSITION                              1  0085                     4
 127  1 27   SWMODE DCW   #1   A - ADD, C - COPY, D - DELETE, P - PATCH                   1  0086                     4
 128  1 28   SWHEDR DCW   #1      ON - NEXT RECORD ON OLD MASTER IS A HEADER              1  0087                     4
 129  1 29   SWGAP  DC    #1   ON - PROGRAM INSERTION POINT FOUND                        1  0088                     4
 130  1 30   SWPATC DC    #1  ON - PROGRAM TO BE PATCHED FOUND                           1  0089                     4
 131  1 31   SIX99  DCW   @799@                                                         3  0092                     4
 132  1 32   I9Z    DCW   @I9Z@                                                         3  0095                     4
 133  1 33          ORG   COR97                                                                    0097
 134  1 34   X3     DCW   #3                                                            3  0099                     5
 135  1 35   START  B     SYSIO      READ INPUT CHANGE FILE CREATED IN PHASE 1          4  0100  B 500               5
 136  1 36          DCW   @3001R@                                                       5  0108                     5
 137  1 37          CW    SWGAP              TURN OFF GAP SWITCH                        4  0109  ) 088               5
 138  1 38          MLC   COR1&1,SWMODE      SET MODE SWITCH                            7  0113  M 002 086           5
 139  1 39   TSTHDR BW    RDHEDR,SWHEDR      IS HEADER SWITCH ON                        8  0120  V 214 087 1         5
 140  1 40          BW    COR1&30,SWGAP      IS GAP SWITCH ON                           8  0128  V 031 088 1         5
 141  1 41          MLC   LOADDR,IOCON1-1    INIT I/O LINKAGES FOR COPY                 7  0136  M 802 157           6
 142  1 42          MLC   LOADDR,IOCON2-1                                               7  0143  M 802 196           6
 143  1 43          B     SYSIO      READ OLD MASTER SEGMENT                            4  0150  B 500               6
 144  1 44   IOCON1 DCW   @1000R@                                                       5  0158                     6
 145  1 45          SW    SWHEDR             TURN ON HEADER SWITCH                      4  0159  , 087               6
 146  1 46          BW    PATOFF,SWPATC      IS PATCH SWITCH ON                         8  0163  V 392 089 1         6
 147  1 47          MLC   INGM,OUTGM1&3      INIT I/O GMWM SET AND CLEAR                7  0171  M 799 188           7
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

148  1 48          MLC   INGM,OUTGM2&3                                             7  0178  M 799 201            7
149  1 49   OUTGM1 SW    0                  SET GMWM                               4  0185  , 000                7
150  1 50          B     SYSIO                                                     4  0189  B 500                7
151  1 51   IOCON2 DCW   @2000W@      WRITE SEGMENT ON NEW MASTER                  5  0197                       7
152  1 52   OUTGM2 CW    0                  CLEAR GMWM                             4  0198  ) 000                7
153  1 53          BW    START,SWGAP        IS GAP SWITCH ON                       8  0202  V 100 088 1          7
154  1 54          B     TSTHDR                                                    4  0210  B 120                8
155  1 55   RDHEDR B     SYSIO    READ HEADER ON OLD MASTER                        4  0214  B 500                8
156  1 56          DCW   @1@                                                       1  0218                       8
157  1 57          DC    &HDRARA                                                   3  0221  800                  8
158  1 58          DC    @R@                                                       1  0222                       8
159  1 59          BEF   EOF1                                                      5  0223  B C31 K              8
160  1 60          CW    SWHEDR             TURN OFF HEADER SWITCH                 4  0228  ) 087                8
161  1 61          BCE   WRHED,SWMODE,C     IS COPY MODE                           8  0232  B 277 086 C          8
162  1 62          C     COR1&22,TAPEID     IS OLD MASTER POSITIONED               7  0240  C 023 813            8
163  1 63          BL    WRHED                                                     5  0247  B 277 T              9
164  1 64          BH    BACKSP                                                    5  0252  B 383 U              9
165  1 65          BCE   SKIP,SWMODE,A      IS ADD MODE                            8  0257  B 298 086 A          9
166  1 66          BCE   SKIP2,SWMODE,D     IS DELETE MODE                         8  0265  B 366 086 D          9
167  1 67          SW    SWPATC             TURN ON PATCH SWITCH                   4  0273  , 089                9
168  1 68   WRHED  SW    GMPOS              INIT GMWM FOR HEADER WRITE             4  0277  , 814                9
169  1 69          B     SYSIO                                                     4  0281  B 500                9
170  1 70          DCW   @2@                                                       1  0285                      10
171  1 71          DC    &HDRARA                                                   3  0288  800                 10
172  1 72          DC    @W@                                                       1  0289                      10
173  1 73          CW    GMPOS              CLEAR GMWM                             4  0290  ) 814               10
174  1 74          B     TSTHDR                                                    4  0294  B 120               10
175  1 75   SKIP   B     SYSIO     SKIP DUPLICATE PROGRAM WHEN ADDING              4  0298  B 500               10
176  1 76          DCW   @1@                                                       1  0302                      10
177  1 77          DC    &COR85-1                                                  3  0305  084                 10
178  1 78          DC    @R@                                                       1  0306                      10
179  1 79   GAPON  SW    SWHEDR,SWGAP       TURN ON HEADER AND GAP SWITCHES        7  0307  , 087 088           10
180  1 80          MLCWA COR85,GMPOS        INIT HEADER WRITE GMWM                 7  0314  L 085 814           10
181  1 81          MLCWA COR1&22            LOAD HEADER INFO TO I/O AREA           4  0321  L 023               11
182  1 82          MLCWA                                                           1  0325  L                   11
183  1 83          B     SYSIO     WRITE HEADER ON NEW MASTER                      4  0326  B 500               11
184  1 84          DCW   @2@                                                       1  0330                      11
185  1 85          DC    &HDRARA                                                   3  0333  800                 11
186  1 86          DC    @W@                                                       1  0334                      11
187  1 87   CS     CS    7999               CLEAR STORAGE FROM HIGH TO 799         4  0335  / I9Z               11
188  1 88          SBR   CS&3                                                      4  0339  H 338               11
189  1 89          C     CS&3,SIX99                                                7  0343  C 338 092           11
190  1 90          BU    CS                                                        5  0350  B 335 /             12
191  1 91          MLC   I9Z,CS&3           REINIT CLEAR                           7  0355  M 095 338           12
192  1 92          B     COR1&30            EXECUTE OBJECT LOAD RECORDS            4  0362  B 031               12
193  1 93   SKIP2  B     SYSIO   SKIP PROGRAM TO BE DELETED                        4  0366  B 500               12
194  1 94          DCW   @1@                                                       1  0370                      12
195  1 95          DC    &COR85-1                                                  3  0373  084                 12
196  1 96          DC    @R@                                                       1  0374                      12
197  1 97          SW    SWHEDR             TURN ON HEADER SWITCH                  4  0375  , 087               12
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SEQ PG LIN  LABEL  OP    OPERANDS                                               SFX CT  LOCN  INSTRUCTION TYPE  CARD

198  1 98          B     START                                                       4  0379  B 100               12
199  1 99   BACKSP BSP   1     GONE TOO FAR ON OLD MASTER                            5  0383  U %U1 B             13
200  2 00          B     GAPON                                                       4  0388  B 307               13
201  2 01   PATOFF CW    SWPATC              TURN OFF PATCH SWITCH                   4  0392  ) 089               13
202  2 02          B     COR1&30                                                     4  0396  B 031               13
203  2 03          LTORG *     ADDRESS AT RIGHT MUST NOT EXCEED 400                          0400
204  2 04          ORG   800                                                                 0800
205  2 05   HDRARA DA    1X15                                                           0800   0814               13
206  2 06   LOADDR       3                                                              0802             SBFLD
207  2 07   TAPEID       14                                                             0813             SBFLD
208  2 08   GMPOS        15                                                             0814             SBFLD
209  2 09   *                                     PHASE 1 - PERFORMS DIAGNOSTICS
210  2 10   *                                          AND PREPARES INPUT TO PHASE
211  2 11   *                                          2, THEN LOADS PHASE 2 AND
212  2 12   *                                          AND TURNS CONTROL OVER TO IT
213  2 13   START1 CS    COR201&131                                                  4  0815  / 332               14
214  2 14          CS                                                                1  0819  /                   14
215  2 15          CS    COR101&79                                                   4  0820  / 180               14
216  2 16          MLCWA @0000@,PAGECT                                               7  0824  L 36W 199           14
217  2 17          MLC   @PAGE@,COR101&79                                            7  0831  M 37| 180           14
218  2 18          MLC   @DOCUMENTATION AIDS SYSTEM CHANGE LISTING@,COR101&67        7  0838  M 41| 168           14
219  2 19          SW    COR101                                                      4  0845  , 101               14
220  2 20          B     EJECT               PRINT HEADING LINE                      4  0849  B 704               15
221  2 21   PHASE1 B     READ                                                        4  0853  B 781               15
222  2 22   PHAS1A MRCM  COR1,COR201&1       MOVE CARD IMAGE TO PRINT                7  0857  P 001 202           15
223  2 23          SAR   PHAS1A&3                                                    4  0864  Q 860               15
224  2 24          C     PHAS1A&3,&COR86     IS MOVE COMPLETED                       7  0868  C 860 41T           15
225  2 25          BE    PHAS1B                                                      5  0875  B 906 S             15
226  2 26          SW    PHAS1A&5                                                    4  0880  , 862               15
227  2 27          MLC   PHAS1A&3,PHAS1A&6                                           7  0884  M 860 863           16
228  2 28          CW    PHAS1A&5                                                    4  0891  ) 862               16
229  2 29          MA    @001@,PHAS1A&6                                              7  0895  # 41W 863           16
230  2 30          B     PHAS1A                                                      4  0902  B 857               16
231  2 31   PHAS1B MLC   @001202@,PHAS1A&6  REINIT MOVE                              7  0906  M 42S 863           16
232  2 32          C     COR1&13,@022026@    IS CLEAR STORAGE 1 CARD                 7  0913  C 014 42Y           16
233  2 33          BE    CLEARA                                                      5  0920  B R16 S             17
234  2 34          C     COR1&13,@105106@    IS CLEAR STORAGE 2 CARD                 7  0925  C 014 43U           17
235  2 35          BE    CLEARB                                                      5  0932  B R31 S             17
236  2 36          C     COR1&13,@022029@    IS BOOTSTRAP CARD                       7  0937  C 014 44|           17
237  2 37          BE    BOOTSA                                                      5  0944  B R46 S             17
238  2 38          C     COR1&13,@024056@    IS EXECUTE BOOTSTRAP CARD               7  0949  C 014 44W           17
239  2 39          BE    BOOTSB                                                      5  0956  B R61 S             18
240  2 40          C     COR1&13,@063067@    IS EXECUTE BOOTSTRAP CARD               7  0961  C 014 45S           18
241  2 41          BE    BOOTSB                                                      5  0968  B R61 S             18
242  2 42   IS1OK  BCE   COL1OK,1,$          IS CONTROL CARD                         8  0973  B |04 001 $         18
243  2 43          MLC   @ERROR - NO $ IN COLUMN 1@,COR201&107                       7  0981  M 47W 308           18
244  2 44          SW    SWERR                                                       4  0988  , V7U               18
245  2 45          B     PRINT                                                       4  0992  B 747               19
246  2 46          B     PRINT                                                       4  0996  B 747               19
247  2 47          B     PHASE1                                                      4  1000  B 853               19
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

248  2 48  COL1OK C     COR1&3,@ADD@        WHAT TYPE OF CONTROL CARD               7  1004  C 004 47Z            19
249  2 49         BE    ADDCD                                                       5  1011  B /43 S              19
250  2 50         C     COR1&6,@DELETE@                                             7  1016  C 007 48V            19
251  2 51         BE    DELCD                                                       5  1023  B Z20 S              19
252  2 52         C     COR1&5,@PATCH@                                              7  1028  C 006 49|            20
253  2 53         BE    PATCD                                                       5  1035  B Z12 S              20
254  2 54         C     COR1&5,@DAEND@                                              7  1040  C 006 49V            20
255  2 55         BE    ENDCD                                                       5  1047  B Y07 S              20
256  2 56  DISNOP NOP   BADCTL                                                      4  1052  N /16                20
257  2 57  DISTRB C     COR1&6,@SAMPLE@                                             7  1056  C 007 50/            20
258  2 58         BE    DISSRC                                                      5  1063  B E29 S              21
259  2 59         C     COR1&6,@SOURCE@                                             7  1068  C 007 50X            21
260  2 60         BE    DISSRC                                                      5  1075  B E29 S              21
261  2 61         C     COR1&4,@FLOW@                                               7  1080  C 005 51/            21
262  2 62         BE    DISSRC                                                      5  1087  B E29 S              21
263  2 63         C     COR1&7,@LISTING@                                            7  1092  C 008 51Y            21
264  2 64         BE    DISSRC                                                      5  1099  B E29 S              22
265  2 65         C     COR1&5,@DAEND@                                              7  1104  C 006 52T            22
266  2 66         BE    ENDDIS                                                      5  1111  B 04X S              22
267  2 67  BADCTL MLC   @ $ CONTROL CARD@,COR201&124                                7  1116  M 53Y 325            22
268  2 68         MLC   @ERROR - NOT A RECOGNIZABLE@                                4  1123  M 56U                22
269  2 69         SW    SWERR                                                       4  1127  , V7U                22
270  2 70         B     PRINT                                                       4  1131  B 747                22
271  2 71         B     PRINT                                                       4  1135  B 747                23
272  2 72         B     PHASE1                                                      4  1139  B 853                23
273  2 73  ADDCD  SW    COR1&9,COR1&15                                              7  1143  , 010 016            23
274  2 74         MLC   COR1&11,IOCON3-1   MOVE ADDRESSES FROM $ADD CARD TO         7  1150  M 012 33V            23
275  2 75         MLC   COR1&17,ENDCW&3         START ROUTINE INSTRUCTIONS          7  1157  M 018 34|            23
276  2 76         MLC   COR1&17,WRSEG2&6                                            7  1164  M 018 32X            23
277  2 77         CW    COR1&15                                                     4  1171  ) 016                24
278  2 78         MLC   @B@,DISNOP         DISABLE CHECK FOR DIST. CARDS            7  1175  M 56V |52            24
279  2 79         MLCWA STRTN,COR1&38      LOAD START ROUTINE TO I/O AREA           7  1182  L 35U 039            24
280  2 80         MLCWA                                                             1  1189  L                    24
281  2 81         BCE   ADDERR,COR1&17,    CHECK ADDRESSES FOR BLANKS               8  1190  B W99 018            24
282  2 82         CHAIN 8                                                                                 MACRO
283               BCE                                                               1  1198  B           GEN      24
284               BCE                                                               1  1199  B           GEN      24
285               BCE                                                               1  1200  B           GEN      25
286               BCE                                                               1  1201  B           GEN      25
287               BCE                                                               1  1202  B           GEN      25
288               BCE                                                               1  1203  B           GEN      25
289               BCE                                                               1  1204  B           GEN      25
290               BCE                                                               1  1205  B           GEN      25
291  2 83         MLCWA @000@,X3                                                    7  1206  L 56Y 099            25
292  2 84  LOENTR BWZ   CKLOW,11&X3,2    CHECK 10 S POSITION FOR ZONES              8  1213  V S48 0A1 2          26
293  2 85         B     ADDERR                                                      4  1221  B W99                26
294  2 86  LOWERR SW    SWERR                                                       4  1225  , V7U                26
295  2 87         MLC   @ 10 - 18 TOO LOW@,COR201&123                               7  1229  M 58U 324            26
296  2 88         MLC   @ERROR - ADDRESS IN COLS.@                                  4  1236  M 60Y                26
297  2 89         B     PRINT                                                       4  1240  B 747                26
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

298  2 90          B     INCRX3                                                 4  1244  B T09               26
299  2 91   CKLOW  MLC   COR1&11&X3,ADDR3                                       7  1248  M 0A2 66T           27
300  2 92          B     CONVRT                                                 4  1255  B T28               27
301  2 93          MLC   DECDBX,SAVELO                                          7  1259  M 66Y 2BZ           27
302  2 94          C     DECDBX,@00800@     CHECK FOR ADDRESSES TOO LOW         7  1266  C 66Y 61T           27
303  2 95          BH    LOWERR                                                 5  1273  B S25 U             27
304  2 96          C     DECDBX,@07999@    CHECK FOR ADDRESSES TOO HIGH         7  1278  C 66Y 61Y           27
305  2 97          BH    INCRX3                                                 5  1285  B T09 U             28
306  2 98          SW    SWERR                                                  4  1290  , V7U               28
307  2 99          MLC   @. 10 - 18 TOO HIGH@,COR201&124                        7  1294  M 63W 325           28
308  3 00          MLC   @ERROR - ADDRESS IN COLS@                              4  1301  M 65Z               28
309  3 01          B     PRINT                                                  4  1305  B 747               28
310  3 02   INCRX3 A     @3@,X3                                                 7  1309  A 66| 099           28
311  3 03          BCE   GOTOLG,X3,9                                            8  1316  B U64 099 9         28
312  3 04          B     LOENTR                                                 4  1324  B S13               29
313  3 05   CONVRT SBR   CONVEX&3           CONVERT 3 - CHAR. ADDRESSES TO 5    4  1328  H T97               29
314  3 06          ZA    ADDR3#3,DECDBX#5                                       7  1332  ? 66T 66Y           29
315  3 07          BWZ   ADD1,ADDR3-2,S                                         8  1339  V T98 66/ S         29
316  3 08          BWZ   ADD2,ADDR3-2,K                                         8  1347  V U09 66/ K         29
317  3 09          BWZ   ADD3,ADDR3-2,B                                         8  1355  V U20 66/ B         29
318  3 10   CKHI2  BWZ   ADD4,ADDR3,S                                           8  1363  V U31 66T S         30
319  3 11          BWZ   ADD8,ADDR3,K                                           8  1371  V U42 66T K         30
320  3 12          BWZ   ADD12,ADDR3,B                                          8  1379  V U53 66T B         30
321  3 13   CKHI3  MLZS  @ @,DECDBX                                             7  1387  Y 66Z 66Y           30
322  3 14   CONVEX B     0                                                      4  1394  B 000               30
323  3 15   ADD1   A     @1000@,DECDBX                                          7  1398  A 67T 66Y           31
324  3 16          B     CKHI2                                                  4  1405  B T63               31
325  3 17   ADD2   A     @2000@,DECDBX                                          7  1409  A 67X 66Y           31
326  3 18          B     CKHI2                                                  4  1416  B T63               31
327  3 19   ADD3   A     @3000@,DECDBX                                          7  1420  A 68/ 66Y           31
328  3 20          B     CKHI2                                                  4  1427  B T63               31
329  3 21   ADD4   A     @4000@,DECDBX                                          7  1431  A 68V 66Y           32
330  3 22          B     CKHI3                                                  4  1438  B T87               32
331  3 23   ADD8   A     @8000@,DECDBX                                          7  1442  A 68Z 66Y           32
332  3 24          B     CKHI3                                                  4  1449  B T87               32
333  3 25   ADD12  A     @12000@,DECDBX                                         7  1453  A 69U 66Y           32
334  3 26          B     CKHI3                                                  4  1460  B T87               32
335  3 27   GOTOLG B     IDLEGL             GO TO CHECK ID LEGALITY             4  1464  B U99               32
336  3 28          C     SAVELO&X0,SAVEHI&X0  IS HIGH ADDRESS HIGHER THAN LOW   7  1468  C 22Z 23V           33
337  3 29          BH    WRITE3                                                 5  1475  B W09 U             33
338  3 30          MLC   @AN LOW ADDRESS@,COR201&126                            7  1480  M 70Y 327           33
339  3 31          MLC   @ERROR - HIGH ADDRESS LOWER TH@                        4  1487  M 73X               33
340  3 32          B     PRINT                                                  4  1491  B 747               33
341  3 33          B     WRITE3                                                 4  1495  B W09               33
342  3 34   IDLEGL SBR   IDEXIT&3           CHECK ID FOR LEGALITY               4  1499  H V84               33
343  3 35          BCE   IDILL,COR1&79,     CHECK ID FOR BLANKS                 8  1503  B W80 080           34
344  3 36          CHAIN 4                                                                           MACRO
345                BCE                                                          1  1511  B           GEN     34
346                BCE                                                          1  1512  B           GEN     34
347                BCE                                                          1  1513  B           GEN     34
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SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

348                BCE                                                                  1  1514  B           GEN     34
349  3 37          C     BLANKS#5,IDHOLD#5                                              7  1515  C 74S 74X           34
350  3 38          BE    IDOK                                                           5  1522  B V67 S             34
351  3 39          C     COR1&79,IDHOLD      COMPARE ID TO LAST ID                      7  1527  C 080 74X           35
352  3 40          BE    CKEQAL                                                         5  1534  B V85 S             35
353  3 41          BL    IDOK                                                           5  1539  B V67 T             35
354  3 42   IDSQER MLC   @UENCE BY I. D. IN 76 - 80@,COR201&126                         7  1544  M 77S 327           35
355  3 43          MLC   @ERROR - OUT OF SEQ@                                           4  1551  M 79|               35
356  3 44          SW    SWERR                                                          4  1555  , V7U               35
357  3 45          B     PRINT                                                          4  1559  B 747               35
358  3 46          B     IDEXIT                                                         4  1563  B V81               36
359  3 47   IDOK   MLC   COR1&79,IDHOLD                                                 7  1567  M 080 74X           36
360  3 48          MLC   COR1&1,SWTYPE#1                                                7  1574  M 002 79/           36
361  3 49   IDEXIT B     0                                                              4  1581  B 000               36
362  3 50   CKEQAL BCE   LASTDL,COR1&1,A     IS ADD MODE                                8  1585  B V97 002 A         36
363  3 51          B     IDSQER                                                         4  1593  B V44               36
364  3 52   LASTDL BCE   IDOK,SWTYPE,D       WAS LAST MODE DELETE                       8  1597  B V67 79/ D         37
365  3 53          B     IDSQER                                                         4  1605  B V44               37
366  3 54   WRITE3 SW    COR1&75                                                        4  1609  , 076               37
367  3 55          MLCWA COR1&79,COR1&22                                                7  1613  L 080 023           37
368  3 56          B     SYSIO               WRITE SELF-LOADING RECORD ON WORK          4  1620  B 500               37
369  3 57          DCW   @3001W@                                                        5  1628                      37
370  3 58          BEF   EOF3                                                           5  1629  B D89 K             37
371  3 59          B     PRINT               PRINT CARD IMAGE IF THERE WERE NO          4  1634  B 747               38
372  3 60          CW    COR1&30,COR1&34     ERRORS OR BLANK IF THERE WERE.             7  1638  ) 031 035           38
373  3 61          CW    COR1&9,COR1&18                                                 7  1645  ) 010 019           38
374  3 62          SW    1                                                              4  1652  , 001               38
375  3 63          BCE   READLD,2,A          IS ADD MODE                                8  1656  B !40 002 A         38
376  3 64          BCE   READLD,2,P          IS PATCH MODE                              8  1664  B !40 002 P         38
377  3 65          CS    COR1&83                                                        4  1672  / 084               39
378  3 66          B     PHASE1                                                         4  1676  B 853               39
379  3 67   IDILL  MLC   @ERROR - I.D. IN COLS. 76 - 80 INCORRECT@,COR201&122           7  1680  M 83| 323           39
380  3 68          SW    SWERR                                                          4  1687  , V7U               39
381  3 69          B     PRINT                                                          4  1691  B 747               39
382  3 70          B     WRITE3                                                         4  1695  B W09               39
383  3 71   ADDERR SW    SWERR                                                          4  1699  , V7U               39
384  3 72          MLC   @ - 18 ILLEGAL@,COR201&125                                     7  1703  M 84T 326           40
385  3 73          MLC   @ERROR - ADDRESSES IN COLS. 10@                                4  1710  M 87S               40
386  3 74          B     PRINT                                                          4  1714  B 747               40
387  3 75          B     IDLEGL                                                         4  1718  B U99               40
388  3 76          B     WRITE3                                                         4  1722  B W09               40
389  3 77   REWIND WTM   3                   END OF PHASE 1                             5  1726  U %U3 M             40
390  3 78          RWD   3                                                              5  1731  U %U3 R             40
391  3 79          RWD   1                                                              5  1736  U %U1 R             41
392  3 80          B     SYSIO       SKIP OVER SYSTEM READ                              4  1741  B 500               41
393  3 81          DCW   @1@                                                            1  1745                      41
394  3 82          DC    &TAPEID                                                        3  1748  813                 41
395  3 83          DC    @R@                                                            1  1749                      41
396  3 84          BW    HALT,SWERR          WERE THERE ANY ERRORS                      8  1750  V X62 V7U 1         41
397  3 85          B     LODHTL              GO TO INIT PHASE 2                         4  1758  B A60               41
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SEQ PG LIN  LABEL  OP    OPERANDS                                            SFX CT  LOCN  INSTRUCTION TYPE  CARD

398  3 86  HALT   B     EJECT                                                    4  1762  B 704                41
399  3 87         MLC   @CORRECT INDICATED ERRORS AND RESTART@,COR201&64         7  1766  M 90Y 265            41
400  3 88         B     PRINT                                                    4  1773  B 747                42
401  3 89         B     PRINT                                                    4  1777  B 747                42
402  3 90         MLC   @RUN TERMINATED@,COR201&57                               7  1781  M 92S 258            42
403  3 92         RWD   1                                                        5  1788  U %U1 R              42
404  3 93         RWD   2                                                        5  1793  U %U2 R              42
405  3 94         RWD   3                                                        5  1798  U %U3 R              42
406  3 95         B     ENDMS2                                                   4  1803  B D44                42
407  3 96  ENDCD  B     PRINT                                                    4  1807  B 747                43
408  3 97         MLC   @C@,2              MOVE COPY TO MODE SWITCH              7  1811  M 92T 002            43
409  3 98         B     SYSIO              WRITE END RECORD ON WORK TAPE         4  1818  B 500                43
410  3 99         DCW   @3001W@                                                  5  1826                       43
411  4 00         BEF   EOF3                                                     5  1827  B D89 K              43
412  4 01         B     REWIND                                                   4  1832  B X26                43
413  4 02  LODEND MLC   TAPEAR&2,IOCON3-1  SET UP SIMULATED END CARD             7  1836  M !0S 33V            43
414  4 03         SW    TAPEAR&6                                                 4  1843  , !0W                44
415  4 04         MLC   TAPEAR&8,ENDCW&3                                         7  1847  M !0Y 34|            44
416  4 05         MLC   TAPEAR&8,WRSEG2&6                                        7  1854  M !0Y 32X            44
417  4 06         CW    TAPEAR&6                                                 4  1861  ) !0W                44
418  4 07         MLCWA @000@,X3                                                 7  1865  L 56Y 099            44
419  4 08         MLC   TAPEAR&2,ADDR3                                           7  1872  M !0S 66T            44
420  4 09         B     CONVRT                                                   4  1879  B T28                45
421  4 10         MLC   DECDBX,SAVELO      INIT FOR PATCH ADDRESS CHECKING       7  1883  M 66Y 2BZ            45
422  4 11         MLC   TAPEAR&8,ADDR3                                           7  1890  M !0Y 66T            45
423  4 12         B     CONVRT                                                   4  1897  B T28                45
424  4 13         MLC   DECDBX,SAVEHI                                            7  1901  M 66Y 2CV            45
425  4 14         B     WRITE3                                                   4  1908  B W09                45
426  4 15  PATCD  MLCWA STRTN,COR1&38      PUT BOOTSTRAP IN I/O AREA             7  1912  L 35U 039            46
427  4 16         MLCWA                                                          1  1919  L                    46
428  4 17  DELCD  B     IDLEGL             CHECK FOR BLANKS IN I.D.              4  1920  B U99                46
429  4 18  CHKTP  MLCWA COR85,TAPEAR&14                                          7  1924  L 085 !1U            46
430  4 19         MLC   @B@,DISNOP         DISABLE CHECK FOR DIST. CARDS         7  1931  M 56V |52            46
431  4 20         B     SYSIO                                                    4  1938  B 500                46
432  4 21         DCW   @1@                                                      1  1942                       46
433  4 22         DC    &TAPEAR                                                  3  1945  !0|                  47
434  4 23         DC    @R@                                                      1  1946                       47
435  4 24         CW    TAPEAR&14          CLEAR GMWM                            4  1947  ) !1U                47
436  4 25         BW    BYPASS,SEGMNT#1   IS PROGRAM TO BE PATCHED OR            8  1951  V !32 92U 1          47
437  4 26         BEF   TPSQER        DELETED ON THE SYSTEM TAPE                 5  1959  B Z85 K              47
438  4 27         SW    SEGMNT                                                   4  1964  , 92U                47
439  4 28         C     COR1&79,TAPEAR&13                                        7  1968  C 080 !1T            48
440  4 29         BE    LODEND                                                   5  1975  B Y36 S              48
441  4 30         BL    CHKTP                                                    5  1980  B Z24 T              48
442  4 31  TPSQER SW    SWERR,SEGMNT                                             7  1985  , V7U 92U            48
443  4 32         RWD   1                                                        5  1992  U %U1 R              48
444  4 33         MLCWA COR85,TAPEAR&14    PLACE GMWM                            7  1997  L 085 !1U            48
445  4 34         B     SYSIO                                                    4  2004  B 500                49
446  4 35         DCW   @1@                                                      1  2008                       49
447  4 36         DC    &TAPEAR                                                  3  2011  !0|                  49
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

448  4 37          DC    @R@                                                  1  2012                      49
449  4 38          CW    TAPEAR&14           CLEAR GMWM                       4  2013  ) !1U               49
450  4 39          MLC   @ERROR - PROGRAM NOT ON SYSTEM TAPE@,COR201&117      7  2017  M 95Y 318           49
451  4 40          B     PRINT                                                4  2024  B 747               49
452  4 41          B     WRITE3                                               4  2028  B W09               49
453  4 42   BYPASS CW    SEGMNT                                               4  2032  ) 92U               49
454  4 43          B     CHKTP                                                4  2036  B Z24               50
455  4 44   READLD B     READ                                                 4  2040  B 781               50
456  4 45          BCE   ENDPAT,1,$                                           8  2044  B ?44 001 $         50
457  4 46   SETWMS SW    COR1&39,COR1&46    MOVE CARD IMAGE TO PRINT AREA     7  2052  , 040 047           50
458  4 47          SW    COR1&53,COR1&60                                      7  2059  , 054 061           50
459  4 48   MR2    MRCM  COR1,COR201&1                                        7  2066  P 001 202           50
460  4 49          SAR   MR2&3                                                4  2073  Q !69               51
461  4 50          C     MR2&3,&COR86       IS MOVE COMPLETED                 7  2077  C !69 96/           51
462  4 51          BE    MR2OUT                                               5  2084  B J15 S             51
463  4 52          SW    MR2&5                                                4  2089  , !71               51
464  4 53          MLC   MR2&3,MR2&6                                          7  2093  M !69 !72           51
465  4 54          CW    MR2&5                                                4  2100  ) !71               51
466  4 55          MA    @001@,MR2&6                                          7  2104  # 41W !72           51
467  4 56          B     MR2                                                  4  2111  B !66               52
468  4 57   MR2OUT MLC   @001202@,MR2&6     REINIT MOVE                       7  2115  M 96X !72           52
469  4 58          C     COR1&13,@022026@   IS CLEAR STORAGE 1 CARD           7  2122  C 014 97T           52
470  4 59          BE    CLEAR1                                               5  2129  B Q56 S             52
471  4 60          C     COR1&13,@105106@   IS CLEAR STORAGE 2 CARD           7  2134  C 014 97Z           52
472  4 61          BE    CLEAR2                                               5  2141  B Q71 S             52
473  4 62          C     COR1&13,@022029@   IS BOOTSTRAP CARD                 7  2146  C 014 98V           53
474  4 63          BE    BOOTST                                               5  2153  B Q86 S             53
475  4 64          C     COR1&13,@024056@   IS EXECUTE BOOTSTRAP CARD         7  2158  C 014 99/           53
476  4 65          BE    EXBOOT                                               5  2165  B R01 S             53
477  4 66          C     COR1&13,@063067@   IS EXECUTE BOOTSTRAP CARD         7  2170  C 014 99X           53
478  4 67          BE    EXBOOT                                               5  2177  B R01 S             53
479  4 68          BCE   END,COR1&39,/      IS END CARD                       8  2182  B R76 040 /         54
480  4 69          BCE   EX,COR1&67,B       IS EXECUTE CARD                   8  2190  B R91 068 B         54
481  4 70   CHKGM  BCE   CHKWM,COR1&38,}    CHECK FOR GROUP MARKS             8  2198  B K29 039 }         54
482  4 71   GMCOMP C     CHKGM&6,@001@      IS CHECK SET TO COL. 1            7  2206  C K04 41W           54
483  4 72          BE    NOGMWM                                               5  2213  B M97 S             54
484  4 73          MA    @I9I@,CHKGM&6      DECREMENT CHECK                   7  2218  # |0| K04           55
485  4 74          B     CHKGM                                                4  2225  B J98               55
486  4 75   *                                 CHECK FOR WM WITH GM
487  4 76   CHKWM  MLC   COR1&45,ADDR3                                        7  2229  M 046 66T           55
488  4 77          B     CONVRT             GO TO CONVERT LOAD ADDRESS        4  2236  B T28               55
489  4 78          MLC   DECDBX,HOLD46#5                                      7  2240  M 66Y |0V           55
490  4 79          MLC   CHKGM&6,ADDR3                                        7  2247  M K04 66T           55
491  4 80          B     CONVRT             CONVERT RELATIVE ADDR. OF GM      4  2254  B T28               56
492  4 81          A     DECDBX,HOLD46      ADD REL. ADDR. OF GM TO LOAD ADDR 7  2258  A 66Y |0V           56
493  4 82          MLC   COR1&42,ADDR3           AND SUBTRACT NUMBER OF       7  2265  M 043 66T           56
494  4 83          B     CONVRT                  POSITIONS LOADED GIVING CORE 4  2272  B T28               56
495  4 84          S     DECDBX,HOLD46           ADDRESS OF GMWM.             7  2276  S 66Y |0V           56
496  4 85          MLZS  @  @,HOLD46                                          7  2283  Y |0X |0V           56
497  4 86          MLC   COR1&49,ADDR3      CONVERT SET WM OPERANDS AND       7  2290  M 050 66T           57
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SEQ PG LIN  LABEL  OP    OPERANDS                                             SFX CT  LOCN  INSTRUCTION TYPE  CARD

498  4 87          B     CONVRT                    COMPARE THEM TO GM ADDRESS.      4  2297  B T28                57
499  4 88          C     DECDBX,HOLD46                                              7  2301  C 66Y |0V            57
500  4 89          BE    BCEGML                                                     5  2308  B M44 S              57
501  4 90          MLC   COR1&52,ADDR3                                              7  2313  M 053 66T            57
502  4 91          B     CONVRT                                                     4  2320  B T28                57
503  4 92          C     DECDBX,HOLD46                                              7  2324  C 66Y |0V            58
504  4 93          BE    BCEGML                                                     5  2331  B M44 S              58
505  4 94          MLC   COR1&56,ADDR3                                              7  2336  M 057 66T            58
506  4 95          B     CONVRT                                                     4  2343  B T28                58
507  4 96          C     DECDBX,HOLD46                                              7  2347  C 66Y |0V            58
508  4 97          BE    GMLOAD                                                     5  2354  B M71 S              58
509  4 98          MLC   COR1&59,ADDR3                                              7  2359  M 060 66T            59
510  4 99          B     CONVRT                                                     4  2366  B T28                59
511  5 00          C     DECDBX,HOLD46                                              7  2370  C 66Y |0V            59
512  5 01          BE    GMLOAD                                                     5  2377  B M71 S              59
513  5 02          MLC   COR1&63,ADDR3                                              7  2382  M 064 66T            59
514  5 03          B     CONVRT                                                     4  2389  B T28                59
515  5 04          C     DECDBX,HOLD46                                              7  2393  C 66Y |0V            60
516  5 05          BE    GMLOAD                                                     5  2400  B M71 S              60
517  5 06          MLC   COR1&66,ADDR3                                              7  2405  M 067 66T            60
518  5 07          B     CONVRT                                                     4  2412  B T28                60
519  5 08          C     DECDBX,HOLD46                                              7  2416  C 66Y |0V            60
520  5 09          BE    GMLOAD                                                     5  2423  B M71 S              60
521  5 10          C     CHKGM&6,@001@                                              7  2428  C K04 41W            61
522  5 11          BE    GMLOAD                                                     5  2435  B M71 S              61
523  5 12          B     GMCOMP                                                     4  2440  B K06                61
524  5 13   BCEGML C     CHKGM&6,@001@      IS GMWM IN COL. 1                       7  2444  C K04 41W            61
525  5 14          BU    GMLOAD                                                     5  2451  B M71 /              61
526  5 15          MLC   @001@,COR1&52      INIT CLEAR WM AT LOAD TIME              7  2456  M 41W 053            61
527  5 16          BCE   NOGMWM,COR1&46,)   IS INSTRUCTION A CLEAR WM               8  2463  B M97 047 )          62
528  5 17   GMLOAD SW    SWERR                                                      4  2471  , V7U                62
529  5 18          MLC   @ERROR - GROUP MARK WORD MARK LOADED IN@,COR201&121        7  2475  M |4V 322            62
530  5 19          MCS   HOLD46,COR201&127                                          7  2482  Z |0V 328            62
531  5 20          B     PRINT                                                      4  2489  B 747                62
532  5 21          B     GMCOMP                                                     4  2493  B K06                62
533  5 22   NOGMWM MLC   @039@,CHKGM&6      REINIT GM CHECK                         7  2497  M |4Y K04            63
534  5 23   BCEWSC BCE   WSHERE,COR1&38,:   CHECK FOR WORD SEPARATORS               8  2504  B N35 039 :          63
535  5 24          C     BCEWSC&6,@001@     IS END OF CARD                          7  2512  C N10 41W            63
536  5 25          BE    ENDWST                                                     5  2519  B O41 S              63
537  5 26          MA    @I9I@,BCEWSC&6     DECREMENT WS CHECK                      7  2524  # |0| N10            63
538  5 27          B     BCEWSC                                                     4  2531  B N04                63
539  5 28   WSHERE MLC   COR1&45,ADDR3      CALC ADDRESS OF WS                      7  2535  M 046 66T            64
540  5 29          B     CONVRT                                                     4  2542  B T28                64
541  5 30          MLC   DECDBX,HOLD46                                              7  2546  M 66Y |0V            64
542  5 31          MLC   BCEWSC&6,ADDR3                                             7  2553  M N10 66T            64
543  5 32          B     CONVRT                                                     4  2560  B T28                64
544  5 33          A     DECDBX,HOLD46                                              7  2564  A 66Y |0V            64
545  5 34          MLC   COR1&42,ADDR3                                              7  2571  M 043 66T            65
546  5 35          B     CONVRT                                                     4  2578  B T28                65
547  5 36          S     DECDBX,HOLD46                                              7  2582  S 66Y |0V            65
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD

548  5 37          MLZS  @ @,HOLD46                                             7  2589  Y 66Z |0V            65
549  5 38          MCS   HOLD46,COR201&121                                      7  2596  Z |0V 322            65
550  5 39          MLC   @LOADED IN @,COR201&116                                7  2603  M |5Y 317            65
551  5 40          MLC   @ERROR - WORD SEPARATOR @                              4  2610  M |8/                66
552  5 41          SW    SWERR                                                  4  2614  , V7U                66
553  5 42          B     PRINT                                                  4  2618  B 747                66
554  5 43          C     BCEWSC&6,@001@                                         7  2622  C N10 41W            66
555  5 44          MA    @I9I@,BCEWSC&6                                         7  2629  # |0| N10            66
556  5 45          BU    BCEWSC                                                 5  2636  B N04 /              66
557  5 46   ENDWST MLC   @039@,BCEWSC&6     REINIT WS CHECK                     7  2641  M |4Y N10            66
558  5 47          BCE   LERR,COR1&39,                                          8  2648  B Q37 040            67
559  5 48          BCE   LERR,COR1&46,    CHECK FOR BAD LOAD INSTRUCTIONS       8  2656  B Q37 047            67
560  5 49          BCE   LERR,COR1&53,                                          8  2664  B Q37 054            67
561  5 50          BCE   LERR,COR1&60,                                          8  2672  B Q37 061            67
562  5 51          C     COR1&45,&COR1      IS LOAD ADDRESS 1                   7  2680  C 046 |8U            67
563  5 52          BE    PRLD                                                   5  2687  B Q01 S              68
564  5 53          MLC   COR1&45,ADDR3      CONVERT LOAD ADDRESS                7  2692  M 046 66T            68
565  5 54          B     CONVRT                                                 4  2699  B T28                68
566  5 55          MLC   DECDBX,LDADDR#5                                        7  2703  M 66Y |8Z            68
567  5 56          C     LDADDR,SAVEHI&X0   IS LOAD ADDRESS HIGHER THAN $ADD    7  2710  C |8Z 23V            68
568  5 57          BL    HIERR                                                  5  2717  B P67 T              68
569  5 58          A     @1@,LDADDR                                             7  2722  A |9| |8Z            69
570  5 59          SW    COR1&40                                                4  2729  , 041                69
571  5 60          S     COR1&42,LDADDR                                         7  2733  S 043 |8Z            69
572  5 61          CW    COR1&40                                                4  2740  ) 041                69
573  5 62          MLZS  @ @,LDADDR                                             7  2744  Y 66Z |8Z            69
574  5 63          C     LDADDR,SAVELO&X0   IS LOAD ADDRESS LOWER THAN $ADD     7  2751  C |8Z 22Z            69
575  5 64          BH    LOERR                   LOW ADDRESS                    5  2758  B P86 U              70
576  5 65          B     PRLD                                                   4  2763  B Q01                70
577  5 66   HIERR  SW    SWERR                                                  4  2767  , V7U                70
578  5 67          MLC   @ERROR - LOADING ABOVE $ADD HIGH ADDRESS@,COR201&122   7  2771  M /2Z 323            70
579  5 68          B     PRINT                                                  4  2778  B 747                70
580  5 69          B     PRLD                                                   4  2782  B Q01                70
581  5 70   LOERR  MLC   @ERROR - LOADING BELOW $ADD LOW ADDRESS@,COR201&121    7  2786  M /6X 322            70
582  5 71          SW    SWERR                                                  4  2793  , V7U                71
583  5 72          B     PRINT                                                  4  2797  B 747                71
584  5 73   PRLD   B     PRINT                                                  4  2801  B 747                71
585  5 74          MLCWA ZERO&3,COR1&83     MODIFY AUTOCODER LOADER             7  2805  L 36S 084            71
586  5 75          CHAIN 3                                                                          MACRO
587                MLCWA                                                        1  2812  L          GEN       71
588                MLCWA                                                        1  2813  L          GEN       71
589                MLCWA                                                        1  2814  L          GEN       71
590  5 76          B     SYSIO              WRITE LOAD RECORD ON WORK TAPE      4  2815  B 500                72
591  5 77          DCW   @3001W@                                                5  2823                       72
592  5 78          BEF   EOF3                                                   5  2824  B D89 K              72
593  5 79          CS    COR1&83                                                4  2829  / 084                72
594  5 80          B     READLD                                                 4  2833  B !40                72
595  5 81   LERR   MLC   @ERROR - LOAD INSTRUCTIONS NOT CORRECT@,COR201&120     7  2837  M S0U 321            72
596  5 82          SW    SWERR                                                  4  2844  , V7U                72
597  5 83          B     PRINT                                                  4  2848  B 747                73
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

598  5 84          B     PRLD                                                4  2852  B Q01                73
599  5 85   CLEAR1 MLC   @CLEAR STORAGE 1 CARD@,COR201&103                   7  2856  M S2U 304            73
600  5 86          B     PRINT                                               4  2863  B 747                73
601  5 87          B     READLD                                              4  2867  B !40                73
602  5 88   CLEAR2 MLC   @CLEAR STORAGE 2 CARD@,COR201&103                   7  2871  M S4U 304            73
603  5 89          B     PRINT                                               4  2878  B 747                73
604  5 90          B     READLD                                              4  2882  B !40                74
605  5 91   BOOTST MLC   @BOOTSTRAP CARD@,COR201&97                          7  2886  M S5Y 298            74
606  5 92          B     PRINT                                               4  2893  B 747                74
607  5 93          B     READLD                                              4  2897  B !40                74
608  5 94   EXBOOT MLC   @EXECUTE BOOTSTRAP CARD@,COR201&105                 7  2901  M S8| 306            74
609  5 95          B     PRINT                                               4  2908  B 747                74
610  5 96          B     READLD                                              4  2912  B !40                74
611  5 97   CLEARA MLC   @CLEAR STORAGE 1 CARD@,COR201&103                   7  2916  M T0| 304            75
612  5 98          B     PRINT                                               4  2923  B 747                75
613  5 99          B     PHASE1                                              4  2927  B 853                75
614  6 00   CLEARB MLC   @CLEAR STORAGE 2 CARD@,COR201&103                   7  2931  M T2| 304            75
615  6 01          B     PRINT                                               4  2938  B 747                75
616  6 02          B     PHASE1                                              4  2942  B 853                75
617  6 03   BOOTSA MLC   @BOOTSTRAP CARD@,COR201&97                          7  2946  M T3U 298            75
618  6 04          B     PRINT                                               4  2953  B 747                76
619  6 05          B     PHASE1                                              4  2957  B 853                76
620  6 06   BOOTSB MLC   @EXECUTE BOOTSTRAP CARD@,COR201&105                 7  2961  M T5W 306            76
621  6 07          B     PRINT                                               4  2968  B 747                76
622  6 08          B     PHASE1                                              4  2972  B 853                76
623  6 09   END    MLC   @END CARD@,COR201&91                                7  2976  M T6U 292            76
624  6 10          B     PRINT                                               4  2983  B 747                76
625  6 11          B     MOVIND                                              4  2987  B ?02                77
626  6 12   EX     MLC   @EXECUTE CARD@,COR201&95                            7  2991  M T7W 296            77
627  6 13          B     PRINT                                               4  2998  B 747                77
628  6 14   MOVIND MLCWA ENDRTN,COR1&63     LOAD END ROUTINE TO I/O AREA     7  3002  L 34V 064            77
629  6 15          CHAIN 5                                                                     MACRO
630                MLCWA                                                     1  3009  L            GEN      77
631                MLCWA                                                     1  3010  L            GEN      77
632                MLCWA                                                     1  3011  L            GEN      77
633                MLCWA                                                     1  3012  L            GEN      78
634                MLCWA                                                     1  3013  L            GEN      78
635  6 16          MLCWA ZERO&3,COR1&83                                      7  3014  L 36S 084            78
636  6 17          MLCWA                                                     1  3021  L                    78
637  6 18          B     SYSIO                                               4  3022  B 500                78
638  6 19          DCW   @3001W@            WRITE END RECORD ON WORK TAPE    5  3030                       78
639  6 20          BEF   EOF3                                                5  3031  B D89 K              78
640  6 21          CS    COR1&83                                             4  3036  / 084                79
641  6 22          B     PHASE1                                              4  3040  B 853                79
642  6 23   ENDPAT C     COR1&8,@DAEND   @  IS $ CARD A VALID CONTROL CARD   7  3044  C 009 T8U            79
643  6 24          BE    NOMORE                                              5  3051  B ?96 S              79
644  6 25          C     COR1&8,@ADD     @                                   7  3056  C 009 T9S            79
645  6 26          BE    NOMORE                                              5  3063  B ?96 S              79
646  6 27          C     COR1&8,@PATCH   @                                   7  3068  C 009 U0|            79
647  6 28          BE    NOMORE                                              5  3075  B ?96 S              80
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SEQ PG LIN  LABEL  OP    OPERANDS                                         SFX CT  LOCN  INSTRUCTION TYPE  CARD

648  6 29          C     COR1&8,@DELETE  @                                      7  3080  C 009 U0Y            80
649  6 30          BE    NOMORE                                                 5  3087  B ?96 S              80
650  6 31          B     SETWMS                                                 4  3092  B !52                80
651  6 32   NOMORE MLCWA ENDRTN,END64       LOAD END ROUTINE TO AUX. I/O AREA   7  3096  L 34V 29Z            80
652  6 33          CHAIN 5                                                                          MACRO
653                MLCWA                                                        1  3103  L          GEN       80
654                MLCWA                                                        1  3104  L          GEN       80
655                MLCWA                                                        1  3105  L          GEN       81
656                MLCWA                                                        1  3106  L          GEN       81
657                MLCWA                                                        1  3107  L          GEN       81
658  6 34          MLCWA ZERO&3,END84                                           7  3108  L 36S 31Z            81
659  6 35          MLCWA                                                        1  3115  L                    81
660  6 36          SW    GM                                                     4  3116  , !1U                81
661  6 37          MLCWA GM,ENDGM                                               7  3120  L !1U 32|            81
662  6 38          B     SYSIO                                                  4  3127  B 500                82
663  6 39          DCW   @3@                                                    1  3131                       82
664  6 40          DC    &ENDARA                                                3  3134  23W                  82
665  6 41          DC    @W@                                                    1  3135                       82
666  6 42          CW    GM                                                     4  3136  ) !1U                82
667  6 43          CW    ENDGM,COR1&39                                          7  3140  ) 32| 040            82
668  6 44          BEF   EOF3                                                   5  3147  B D89 K              82
669  6 45          CW    COR1&76                                                4  3152  ) 077                82
670  6 46          B     PHAS1A                                                 4  3156  B 857                82
671  6 47   LODHTL MLCWA HLDARA,COR399      LOAD PHASE 2 FROM HOLD AREA         7  3160  L Z9Z 399            83
672  6 48          SBR   LODHTL&6                                               4  3167  H A66                83
673  6 49          C     LODHTL&6,&COR1&83  IS LOAD COMPLETED                   7  3171  C A66 U1/            83
674  6 50          BE    SET81                                                  5  3178  B B05 S              83
675  6 51   LOADH2 MLCWA HLDARA,COR399                                          7  3183  L Z9Z 399            83
676  6 52          SAR   LODHTL&3                                               4  3190  Q A63                83
677  6 53          MLC   LODHTL&6,LOADH2&6                                      7  3194  M A66 A89            84
678  6 54          B     LODHTL                                                 4  3201  B A60                84
679  6 55   SET81  SW    GM                                                     4  3205  , !1U                84
680  6 56          MLCWA GM,COR85           INIT PHASE 2 I/O GMWM               7  3209  L !1U 085            84
681  6 57          CW    GM                                                     4  3216  ) !1U                84
682  6 58          B     START              GO TO PHASE 2                       4  3220  B 100                84
683  6 59   RELODD SW    GM                                                     4  3224  , !1U                84
684  6 60          MLCWA GM,GMPOS           INIT GMWM S                         7  3228  L !1U 814            85
685  6 61          MLCWA GM,COR85                                               7  3235  L !1U 085            85
686  6 62          CW    GM                                                     4  3242  ) !1U                85
687  6 63          RWD   1                                                      5  3246  U %U1 R              85
688  6 64          RWD   2                                                      5  3251  U %U2 R              85
689  6 65          MLZS  @S@,BCEWSC&7       INIT WORD SEPARATOR                 7  3256  Y U1S N11            85
690  6 66          B     SYSIO        COPY SYSTEM READ ROUTINE                  4  3263  B 500                85
691  6 67          DCW   @1@                READ FROM 1                         1  3267                       86
692  6 68          DC    &GM&1                                                  3  3270  !1V                  86
693  6 69          DC    @R@                                                    1  3271                       86
694  6 70          MLC   INGM,SINGM&3                                           7  3272  M 799 B89            86
695  6 71          MLC   INGM,CINGM&3                                           7  3279  M 799 C02            86
696  6 72   SINGM  SW    0                                                      4  3286  , 000                86
697  6 73          B     SYSIO              WRITE ON 2                          4  3290  B 500                86
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SEQ PG LIN  LABEL  OP    OPERANDS                                              SFX CT  LOCN  INSTRUCTION TYPE  CARD

698  6 74          DCW   @2@                                                        1  3294                     86
699  6 75          DC    &GM&1                                                      3  3297  !1V                86
700  6 76          DC    @W@                                                        1  3298                     86
701  6 77   CINGM  CW    0                  CLEAR GMWM                              4  3299  ) 000              86
702  6 78          RWD   1                                                          5  3303  U %U1 R            87
703  6 79          RWD   3                                                          5  3308  U %U3 R            87
704  6 80          MLC   @L@,IO             CHANGE I/O MODE TO LOAD                 7  3313  M U1T 547          87
705  6 81          MLC   @N@,SETMOV         CRIPPLE CHANGE BACK TO MOVE             7  3320  M U1U 478          87
706  6 82          B     START1                                                     4  3327  B 815              87
707  6 83   EOF1   RWU   1                  END OF PHASE 2                          5  3331  U %U1 U            87
708  6 84          WTM   2                                                          5  3336  U %U2 M            87
709  6 85          RWD   2                                                          5  3341  U %U2 R            88
710  6 86          RWD   3                                                          5  3346  U %U3 R            88
711  6 87          CS    COR201&131                                                 4  3351  / 332              88
712  6 88          CS                                                               1  3355  /                  88
713  6 89          CS    COR101&79                                                  4  3356  / 180              88
714  6 90          MLC   @HEADER LISTING FROM TAPE 2@,COR101&53                     7  3360  M U4| 154          88
715  6 91          MLC   @PAGE@,COR101&79                                           7  3367  M 37| 180          88
716  6 92          MLCWA @0000@,PAGECT                                              7  3374  L 36W 199          89
717  6 93          SW    COR101                                                     4  3381  , 101              89
718  6 94          B     EJECT                                                      4  3385  B 704              89
719  6 95   LSTHDR MLCWA COR85,COR201&74        PRINT HEADER LISTING                7  3389  L 085 275          89
720  6 96          B     SYSIO              READ HEADER                             4  3396  B 500              89
721  6 97          DCW   @2@                                                        1  3400                     89
722  6 98          DC    &COR201&60                                                 3  3403  261                89
723  6 99          DC    @R@                                                        1  3404                     89
724  7 00          B     SYSIO              READ PROGRAM TO BYPASS                  4  3405  B 500              89
725  7 01          DCW   @2@                                                        1  3409                     90
726  7 02          DC    &COR201&60                                                 3  3412  261                90
727  7 03          DC    @R@                                                        1  3413                     90
728  7 04          BEF   ENDMSG                                                     5  3414  B D27 K            90
729  7 05          B     PRINT                                                      4  3419  B 747              90
730  7 06          B     LSTHDR                                                     4  3423  B C89              90
731  7 07   ENDMSG RWU   2                  UNLOAD NEW MASTER TO PULL RING          5  3427  U %U2 U            90
732  7 08   ENDMSH CS    COR201&131                                                 4  3432  / 332              90
733  7 09          CS                                                               1  3436  /                  90
734  7 11          MLCWA @END OF JOB@,COR201&71                                     7  3437  L U5| 272          91
735  7 12   ENDMS2 MLC   &MRET&3,MESSG&3                                            7  3444  M U5T 663          91
736  7 13          B     MESSG                                                      4  3451  B 660              91
737  7 14   SKPAGN B     PRINT                                                      4  3455  B 747              91
738  7 15          A     @1@,SKPCTR#2       SKIP TO CENTER OF PAGE                  7  3459  A |9| U5V          91
739  7 16          C     SKPCTR,@30@                                                7  3466  C U5V U5X          91
740  7 17          BU    SKPAGN                                                     5  3473  B D55 /            92
741  7 18   H99    H     999,999                                                    7  3478  . 999 999          92
742  7 19          B     H99                                                        4  3485  B D78              92
743  7 20   EOF3   RWU   3                                                          5  3489  U %U3 U            92
744  7 21          RWD   1                                                          5  3494  U %U1 R            92
745  7 22          RWD   2                                                          5  3499  U %U2 R            92
746  7 23          B     EJECT              UNLOAD OLD MASTER FOR REMOVAL           4  3504  B 704              92
747  7 24          MLC   @IT AND RESTART@,COR201&86                                 7  3508  M U7/ 287          93
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SEQ PG LIN  LABEL  OP    OPERANDS                                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD

748  7 25          MLC   @TAPE 3 TOO SHORT - REPLACE @                                    4  3515  M U9Y                93
749  7 26          B     MESSG                                                            4  3519  B 660                93
750  7 27   H6     H                                                                      1  3523  .                    93
751  7 28          DC    @6@                                                              1  3524                       93
752  7 29          B     H6                                                               4  3525  B E23                93
753  7 30   *                                    THIS ROUTINE PROCESSES THE DIST-
754  7 31   *                                         RIBUTION TAPE.
755  7 32   DISSRC MLC   @ @,IS1OK&4          LOAD UNCOND. BRANCH SO ONLY DIST-           7  3529  M 66Z 977            93
756  7 33          MLC   &DISTRB                   RIBUTION CONTROL CARDS WILL            4  3536  M V0/                93
757  7 34   *                                         BE RECOGNIZED.
758  7 35          MLC   @M@,IO               CHANGE IO MODE TO MOVE                      7  3540  M V0S 547            94
759  7 36          MLCWA COR85,7998           PREVENT WRAP AROUND DURING SEARCH           7  3547  L 085 I9Y            94
760  7 37          MLC   COR1&79,COR201&80                                                7  3554  M 080 281            94
761  7 38          B     PRINT                                                            4  3561  B 747                94
762  7 39          SW    CLRWMD                                                           4  3565  , W0|                94
763  7 40          MLC   COR101&79,ALTPCH&79                                              7  3569  M 180 22T            94
764  7 41   CSDIST CS    GM                   CLEAR WM S IN I/O AREA                      4  3576  / !1U                95
765  7 42          SBR   CSDIST&3                                                         4  3580  H E79                95
766  7 43          BW    CSDIST,CLRWMD                                                    8  3584  V E76 W0| 1          95
767  7 44          MLC   &GM,CSDIST&3                                                     7  3592  M V0V E79            95
768  7 45          BCE   REDDIS,TMCT,                                                     8  3599  B F39 V0W            95
769  7 46          SW    SWPAS2                                                           4  3607  , 22U                95
770  7 47          BCE   TSTLST,COR1&2,I                                                  8  3611  B 07W 003 I          96
771  7 48          BCE   TSTSOR,COR1&2,O                                                  8  3619  B 09X 003 O          96
772  7 49          BCE   TSTFLO,COR1&2,L                                                  8  3627  B 11T 003 L          96
773  7 50          B     INITP2                                                           4  3635  B 12U                96
774  7 51   REDDIS B     SYSIO                SEARCH TAPE FOR TAPE MARKS                  4  3639  B 500                96
775  7 52          DCW   @1@                                                              1  3643                       96
776  7 53          DC    &SWERR                                                           3  3646  V7U                  96
777  7 54          DC    @R@                                                              1  3647                       96
778  7 55          BEF   INTMCT                                                           5  3648  B F57 K              97
779  7 56          B     REDDIS                                                           4  3653  B F39                97
780  7 57   INTMCT A     @1@,TMCT#1           INCREMENT TAPE MARK COUNT                   7  3657  A |9| V0W            97
781  7 58          BCE   CKLIST,COR1&2,I      IS LISTING REQUESTED                        8  3664  B H94 003 I          97
782  7 59          BCE   CKSOUR,COR1&2,O      IS SOURCE REQUESTED                         8  3672  B G90 003 O          97
783  7 60          BCE   CKFLOW,COR1&2,L      IS FLOWCHART REQUESTED                      8  3680  B H82 003 L          98
784  7 61   BLKSAM MLC   @000@,X1             SAMPLE DECK IS REQUESTED                    7  3688  M 56Y 089            98
785  7 62          B     SYSIO                READ BLOCK OF CARD RECORDS                  4  3695  B 500                98
786  7 63          DCW   @1@                                                              1  3699                       98
787  7 64          DC    &SWERR                                                           3  3702  V7U                  98
788  7 65          DC    @R@                                                              1  3703                       98
789  7 66   PCHSAM C     SWERR&79&X1,@*****@                                              7  3704  C WVT V1/            98
790  7 67          BE    ENDSAM               IS PADDING RECORD                           5  3711  B G59 S              98
791  7 68          MLC   SWERR&79&X1,COR101&79                                            7  3716  M WVT 180            99
792  7 69          B     PUNCH                PUNCH THE CARD                              4  3723  B 789                99
793  7 70          CS    COR101&79                                                        4  3727  / 180                99
794  7 71          C     X1,@L20@                                                         7  3731  C 089 V1U            99
795  7 72          BE    BLKSAM               IS END OF BLOCK                             5  3738  B F88 S              99
796  7 73          A     @80@,X1              INCR FOR NEXT CARD RECORD                   7  3743  A V1W 089            99
797  7 74          B     PCHSAM                                                           4  3750  B G04                99
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

798  7 75  ENDLST CCB   PHASE1,1                                             5  3754  F 853 1             100
799  7 76  ENDSAM B     PUNCH              DUMMY PUNCH                       4  3759  B 789               100
800  7 77         MLC   ALTPCH&79,COR101&79                                  7  3763  M 22T 180           100
801  7 78         B     PHASE1                                               4  3770  B 853               100
802  7 79  ENDALL RWD   1                                                    5  3774  U %U1 R             100
803  7 80         MLC   @ @,TMCT           RESET TAPE MARK COUNT             7  3779  M 66Z V0W           100
804  7 81         B     PHASE1             READ NEXT CONTROL CARD            4  3786  B 853               100
805  7 82  CKSOUR BCE   FNDSOR,TMCT,2      TAPE POSITIONED TO RIGHT FILE     8  3790  B H02 V0W 2         101
806  7 83         B     REDDIS                                               4  3798  B F39               101
807  7 84  FNDSOR B     SYSIO                                                4  3802  B 500               101
808  7 85         DCW   @1@                SEARCH FOR CORRECT DECK           1  3806                      101
809  7 86         DC    &SWERR                                               3  3809  V7U                 101
810  7 87         DC    @R@                                                  1  3810                      101
811  7 88         BEF   ERENDS                                               5  3811  B H48 K             101
812  7 89         SW    COR1&9                                               4  3816  , 010               101
813  7 90         MLC   @000@,X1                                             7  3820  M 56Y 089           101
814  7 91         C     SWERR&79,COR1&13                                     7  3827  C W5T 014           102
815  7 92         BE    PCHSAM                                               5  3834  B G04 S             102
816  7 93         BL    ERENDS                                               5  3839  B H48 T             102
817  7 94         B     FNDSOR                                               4  3844  B H02               102
818  7 95  ERENDS BW    INITP2,SWPAS2                                        8  3848  V 12U 22U 1         102
819  7 96         MLC   @CARD IGNORED@,COR201&49                             7  3856  M V2Y 250           102
820  7 97         MLC   @ERROR -       NOT ON THE TAPE - @                   4  3863  M V6|               103
821  7 98         MLC   COR1&13,COR201&18                                    7  3867  M 014 219           103
822  7 99         B     PRINT                                                4  3874  B 747               103
823  8 00         B     ENDALL                                               4  3878  B G74               103
824  8 01  CKFLOW BCE   FNDSOR,TMCT,3                                        8  3882  B H02 V0W 3         103
825  8 02         B     REDDIS                                               4  3890  B F39               103
826  8 03  CKLIST BCE   FNDLST,TMCT,4                                        8  3894  B I06 V0W 4         103
827  8 04         B     REDDIS                                               4  3902  B F39               104
828  8 05  FNDLST MLC   @000@,X1                                             7  3906  M 56Y 089           104
829  8 06         B     SYSIO              SEARCH FOR CORRECT LISTING        4  3913  B 500               104
830  8 07         DCW   @1@                                                  1  3917                      104
831  8 08         DC    &SWERR                                               3  3920  V7U                 104
832  8 09         DC    @R@                                                  1  3921                      104
833  8 10         BEF   ERENDS                                               5  3922  B H48 K             104
834  8 11         SW    COR1&9                                               4  3927  , 010               104
835  8 12         BCE   CKLIST,SWERR&132,                                    8  3931  B H94 X0W           104
836  8 13         C     SWERR&132,COR1&13                                    7  3939  C X0W 014           105
837  8 14         BL    ERENDS                                               5  3946  B H48 T             105
838  8 15         BH    FNDLST                                               5  3951  B I06 U             105
839  8 16  PRTLST C     SWERR&132&X1,@*****@                                 7  3956  C X|W V6V           105
840  8 17         BE    ENDLST                                               5  3963  B G54 S             105
841  8 18         MLC   SWERR&132&X1,COR201&131                              7  3968  M X|W 332           105
842  8 19         BCE   RESTOR,SWERR&X1,1  IS HEADING LINE INDICATED         8  3975  B 03X VXU 1         106
843  8 20         BCE   DBLSP,SWERR&X1,0   IS DOUBLE SPACING INDICATED       8  3983  B 04S VXU 0         106
844  8 21  PRINTL W                        PRINT POST LIST LINE              1  3991  2                   106
845  8 22         CS                                                         1  3992  /                   106
846  8 23         CS                                                         1  3993  /                   106
847  8 24         C     X1,@K61@           IS END OF BLOCK                   7  3994  C 089 V6Y           106
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SEQ PG LIN  LABEL  OP    OPERANDS                                           SFX CT  LOCN  INSTRUCTION TYPE  CARD

848  8 25          BE    NEWBLK                                                  5  4001  B 01X S            106
849  8 26          A     @133@,X1                                                7  4006  A V7/ 089          107
850  8 27          B     PRTLST                                                  4  4013  B I56              107
851  8 28   NEWBLK MLC   @000@,X1                                                7  4017  M 56Y 089          107
852  8 29          B     SYSIO             READ NEXT BLOCK                       4  4024  B 500              107
853  8 30          DCW   @1@                                                     1  4028                     107
854  8 31          DC    &SWERR                                                  3  4031  V7U                107
855  8 32          DC    @R@                                                     1  4032                     107
856  8 33          B     PRTLST                                                  4  4033  B I56              107
857  8 34   RESTOR CCB   PRINTL,1                                                5  4037  F I91 1            107
858  8 35   DBLSP  CCB   PRINTL,K                                                5  4042  F I91 K            108
859  8 36   ENDDIS CS    COR201&131                                              4  4047  / 332              108
860  8 37          CS                                                            1  4051  /                  108
861  8 38          MLC   COR1&79,COR201&80                                       7  4052  M 080 281          108
862  8 39          B     PRINT             PRINT $DAEND CARD                     4  4059  B 747              108
863  8 40          RWD   1                                                       5  4063  U %U1 R            108
864  8 41          CW    GMPOS             CLEAR GMWM                            4  4068  ) 814              108
865  8 42          B     ENDMSH                                                  4  4072  B D32              109
866  8 43   TSTLST C     TMCT,@4@                                                7  4076  C V0W V7S          109
867  8 44          BE    FNDLST                                                  5  4083  B I06 S            109
868  8 45   TSTLS2 BL    INITP2                                                  5  4088  B 12U T            109
869  8 46          B     REDDIS                                                  4  4093  B F39              109
870  8 47   TSTSOR C     TMCT,@2@                                                7  4097  C V0W V7T          109
871  8 48   TSTSO2 BE    FNDSOR                                                  5  4104  B H02 S            109
872  8 49          B     TSTLS2                                                  4  4109  B 08Y              110
873  8 50   TSTFLO C     TMCT,@3@                                                7  4113  C V0W 66|          110
874  8 51          B     TSTSO2                                                  4  4120  B 10U              110
875  8 52   INITP2 MLC   @ @,TMCT                                                7  4124  M 66Z V0W          110
876  8 53          RWD   1                                                       5  4131  U %U1 R            110
877  8 54          CW    SWPAS2                                                  4  4136  ) 22U              110
878  8 55          B     REDDIS                                                  4  4140  B F39              110
879  8 56   ALTPCH DA    1X80                                                       4144   4223              111
880  8 57   SWPAS2 DC    #1                                                      1  4224                     112
881  8 58          DA    1X11,X3           AREA WHERE $ADD HIGH AND LOW             4225   4235              112
882  8 59   SAVELO       1,5                    ADDRESSES ARE STORED                4229             FIELD  112
883  8 60   SAVEHI       7,11                                                       4235             FIELD  112
884  8 61   ENDARA DA    1X85              AUXILLARY I/O AREA                       4236   4320              112
885  8 62   END64        64                                                         4299             SBFLD
886  8 63   END84        84                                                         4319             SBFLD
887  8 64   ENDGM        85                                                         4320             SBFLD
888  8 65   *                                END ROUTINE - WRITTEN AS LAST
889  8 66   *                                     RECORD OF A PROGRAM TO TER-
890  8 67   *                                     MINATE LOADING.
891  8 68   WRSEG2 MLCWA COR85,0           LOAD I/O GMWM                         7  4321  L 085 000          113
892  8 69          B     SYSIO             WRITE PROGRAM ON NEW MASTER           4  4328  B 500              113
893  8 70   IOCON3 DCW   @2000W@                                                 5  4336                     113
894  8 71   ENDCW  CW    0                 CLEAR I/O GMWM                        4  4337  ) 000              113
895  8 72          B     START             RETURN TO PHASE 2                     4  4341  B 100              113
896  8 73   *                                START ROUTINE - LOADED INTO $ADD
897  8 74   *                                     RECORD TO BEGIN LOADING AND
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SEQ PG LIN  LABEL  OP    OPERANDS                                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD

898  8 75   *                                        INTO EACH LOAD RECORD TO
899  8 76   *                                        ADAPT THE LOADER TO TAPE.
900  8 77   ENDRTN DCW   #1                                                             1  4345                     113
901  8 78          B     SYSIO              READ NEXT RECORD ON WORK TAPE               4  4346  B 500              113
902  8 79   STRTN  DCW   @3001R@                                                        5  4354                     114
903  8 80          SW    COR1                                                           4  4355  , 001              114
904  8 81   ZERO   B     COR1&39                                                        4  4359  B 040              114
905  8 82          LTORG *                                                                        4363
                   DCW   @0000@                                                         4  4366             LIT     114
                         @PAGE@                                                         4  4370             LIT     114
       218               @DOCUMENTATION AIDS SYSTEM CHANGE LISTING@                    40  4410             LIT     116
       224               &COR86                                                         3  4413  086        ADCON   116
                         @001@                                                          3  4416             LIT     116
       231               @001202@                                                       6  4422             LIT     116
       232               @022026@                                                       6  4428             LIT     116
       234               @105106@                                                       6  4434             LIT     117
       236               @022029@                                                       6  4440             LIT     117
       238               @024056@                                                       6  4446             LIT     117
       240               @063067@                                                       6  4452             LIT     117
       243               @ERROR - NO $ IN COLUMN 1@                                    24  4476             LIT     118
                         @ADD@                                                          3  4479             LIT     118
       250               @DELETE@                                                       6  4485             LIT     118
       252               @PATCH@                                                        5  4490             LIT     118
       254               @DAEND@                                                        5  4495             LIT     119
       257               @SAMPLE@                                                       6  4501             LIT     119
       259               @SOURCE@                                                       6  4507             LIT     119
                         @FLOW@                                                         4  4511             LIT     119
       263               @LISTING@                                                      7  4518             LIT     119
       265               @DAEND@                                                        5  4523             LIT     119
       267               @ $ CONTROL CARD@                                             15  4538             LIT     120
       268               @ERROR - NOT A RECOGNIZABLE@                                  26  4564             LIT     121
                         @B@                                                            1  4565             LIT     121
                         @000@                                                          3  4568             LIT     121
       295               @ 10 - 18 TOO LOW@                                            16  4584             LIT     122
       296               @ERROR - ADDRESS IN COLS.@                                    24  4608             LIT     123
       302               @00800@                                                        5  4613             LIT     123
       304               @07999@                                                        5  4618             LIT     123
       307               @. 10 - 18 TOO HIGH@                                          18  4636             LIT     124
       308               @ERROR - ADDRESS IN COLS@                                     23  4659             LIT     125
                         @3@                                                            1  4660             LIT     125
       314  ADDR3        #03                                                            3  4663             AREA    125
       314  DECDBX       #05                                                            5  4668             AREA    125
                         @ @                                                            1  4669             LIT     125
                         @1000@                                                         4  4673             LIT     125
                         @2000@                                                         4  4677             LIT     126
                         @3000@                                                         4  4681             LIT     126
                         @4000@                                                         4  4685             LIT     126
                         @8000@                                                         4  4689             LIT     126
       333               @12000@                                                        5  4694             LIT     126
       338               @AN LOW ADDRESS@                                              14  4708             LIT     126
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SEQ PG LIN  LABEL  OP    OPERANDS                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD

       339               @ERROR - HIGH ADDRESS LOWER TH@                 29  4737              LIT    127
       349  BLANKS       #05                                              5  4742              AREA   127
       349  IDHOLD       #05                                              5  4747              AREA   127
       354               @UENCE BY I. D. IN 76 - 80@                     25  4772              LIT    128
       355               @ERROR - OUT OF SEQ@                            18  4790              LIT    129
       360  SWTYPE       #01                                              1  4791              AREA   129
       379               @ERROR - I.D. IN COLS. 76 - 80 INCORRECT@       39  4830              LIT    130
       384               @ - 18 ILLEGAL@                                 13  4843              LIT    131
       385               @ERROR - ADDRESSES IN COLS. 10@                 29  4872              LIT    132
       399               @CORRECT INDICATED ERRORS AND RESTART@          36  4908              LIT    133
       402               @RUN TERMINATED@                                14  4922              LIT    134
                         @C@                                              1  4923              LIT    134
       436  SEGMNT       #01                                              1  4924              AREA   134
       450               @ERROR - PROGRAM NOT ON SYSTEM TAPE@            34  4958              LIT    135
       461               &COR86                                           3  4961  086         ADCON  135
       468               @001202@                                         6  4967              LIT    136
       469               @022026@                                         6  4973              LIT    136
       471               @105106@                                         6  4979              LIT    136
       473               @022029@                                         6  4985              LIT    136
       475               @024056@                                         6  4991              LIT    136
       477               @063067@                                         6  4997              LIT    136
                         @I9I@                                            3  5000              LIT    136
       489  HOLD46       #05                                              5  5005              AREA   137
                         @  @                                             2  5007              LIT    137
       529               @ERROR - GROUP MARK WORD MARK LOADED IN@        38  5045              LIT    138
                         @039@                                            3  5048              LIT    139
       550               @LOADED IN @                                    10  5058              LIT    139
       551               @ERROR - WORD SEPARATOR @                       23  5081              LIT    139
       562               &COR1                                            3  5084  001         ADCON  139
       566  LDADDR       #05                                              5  5089              AREA   140
                         @1@                                              1  5090              LIT    140
       578               @ERROR - LOADING ABOVE $ADD HIGH ADDRESS@       39  5129              LIT    141
       581               @ERROR - LOADING BELOW $ADD LOW ADDRESS@        38  5167              LIT    142
       595               @ERROR - LOAD INSTRUCTIONS NOT CORRECT@         37  5204              LIT    143
       599               @CLEAR STORAGE 1 CARD@                          20  5224              LIT    144
       602               @CLEAR STORAGE 2 CARD@                          20  5244              LIT    145
       605               @BOOTSTRAP CARD@                                14  5258              LIT    145
       608               @EXECUTE BOOTSTRAP CARD@                        22  5280              LIT    146
       611               @CLEAR STORAGE 1 CARD@                          20  5300              LIT    147
       614               @CLEAR STORAGE 2 CARD@                          20  5320              LIT    148
       617               @BOOTSTRAP CARD@                                14  5334              LIT    148
       620               @EXECUTE BOOTSTRAP CARD@                        22  5356              LIT    149
       623               @END CARD@                                       8  5364              LIT    149
       626               @EXECUTE CARD@                                  12  5376              LIT    150
       642               @DAEND   @                                       8  5384              LIT    150
       644               @ADD     @                                       8  5392              LIT    150
       646               @PATCH   @                                       8  5400              LIT    150
       648               @DELETE  @                                       8  5408              LIT    151
       673               &COR1&83                                         3  5411  084         ADCON  151
                         @S@                                              1  5412              LIT    151
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

                         @L@                                                  1  5413              LIT    151
                         @N@                                                  1  5414              LIT    151
       714               @HEADER LISTING FROM TAPE 2@                        26  5440              LIT    152
       734               @END OF JOB@                                        10  5450              LIT    152
       735               &MRET&3                                              3  5453  672         ADCON  152
       738  SKPCTR       #02                                                  2  5455              AREA   153
                         @30@                                                 2  5457              LIT    153
       747               @IT AND RESTART@                                    14  5471              LIT    153
       748               @TAPE 3 TOO SHORT - REPLACE @                       27  5498              LIT    154
       756               &DISTRB                                              3  5501  |56         ADCON  154
                         @M@                                                  1  5502              LIT    154
       767               &GM                                                  3  5505  !1U         ADCON  154
       780  TMCT         #01                                                  1  5506              AREA   154
       789               @*****@                                              5  5511              LIT    155
                         @L20@                                                3  5514              LIT    155
                         @80@                                                 2  5516              LIT    155
       819               @CARD IGNORED@                                      12  5528              LIT    155
       820               @ERROR -       NOT ON THE TAPE - @                  32  5560              LIT    156
       839               @*****@                                              5  5565              LIT    156
                         @K61@                                                3  5568              LIT    157
                         @133@                                                3  5571              LIT    157
                         @4@                                                  1  5572              LIT    157
                         @2@                                                  1  5573              LIT    157
906  8 83   SWERR  DC    #1                 ON IF ERROR/S DISCOVERED IN INPUT 1  5574                     157
907  8 84          ORG   *&X00                                                        5600
908  8 85   CLRWMD EQU   *&1                                                     5600
909  8 86          ORG   *&400              RESERVE PHASE 2 HOLD AREA                     6000
910  8 87   HLDARA EQU   *                                                       5999
911  8 88   TAPEAR DA    1X14               HEADER READ AREA                     6000   6013              157
912  8 89   GM     DCW   @}@                                                  1  6014                     158
913  8 90   *                                 CARD BUILD ROUTINE - EXECUTED
914  8 91   *                                      ONLY WHILE BUILDING SYSTEM
915  8 92   *                                      TAPE FROM CARD DECK.
916  8 93   BUILD  B     SYSIO              WRITE HEADER FOR MAINT. PROG.     4  6015  B 500                158
917  8 94          DCW   @1@                                                  1  6019                     158
918  8 95          DC    &HEDINF                                              3  6022  J0/                  158
919  8 96          DC    @W@                                                  1  6023                     158
920  8 97          MLCWA @B@,COR101-1       INIT FIRST INSTR. IN PHASE 2      7  6024  L J1W 100            158
921  8 98   LODLTH MLCWA COR399,HLDARA      LOAD PHASE 2 TO HOLD AREA         7  6031  L 399 Z9Z            158
922  8 99          SAR   LODLTH&3                                             4  6038  Q !3U                158
923  9 00          C     LODLTH&3,&COR1&83  IS LOAD COMPLETED                 7  6042  C !3U J1Z            158
924  9 01          BE    BUILD2                                               5  6049  B !7W S              159
925  9 02   LOADL2 MLCWA COR399,HLDARA                                        7  6054  L 399 Z9Z            159
926  9 03          SBR   LODLTH&6                                             4  6061  H !3X                159
927  9 04          MLC   LODLTH&6,LOADL2&6                                    7  6065  M !3X !6|            159
928  9 05          B     LODLTH                                               4  6072  B !3/                159
929  9 06   BUILD2 B     SYSIO              WRITE MAINT. PROG. ON TAPE        4  6076  B 500                159
930  9 07          DCW   @1@                                                  1  6080                     159
931  9 08          DC    &START1                                              3  6083  815                  160
932  9 09          DC    @W@                                                  1  6084                     160
```

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SEQ PG LIN  LABEL  OP    OPERANDS                                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD

933  9 10          WTM   1                                                                    5  6085  U %U1 M            160
934  9 11          CW    GM2,GM             CLEAR GMWM S                                      7  6090  ) J1V !1U          160
935  9 12          B     RELODD                                                               4  6097  B B24              160
936  9 13   HEDINF EQU   *&1                HEADER CONSTANTS FOR MAINT PROG.                     6101
937  9 14          DCW   &START1                                                              3  6103  815                160
938  9 15          DCW   &RELODD                                                              3  6106  B24                161
939  9 16          DCW   &GM                                                                  3  6109  !1U                161
940  9 17          DCW   @6CONA@                                                              5  6114                     161
941  9 18   GM2    DCW   @}@                                                                  1  6115                     161
                   DCW   @B@                                                                  1  6116              LIT    161
       923               &COR1&83                                                             3  6119  084         ADCON  161
942  9 19          END   BUILD                                                                         / !1V 080          162
930  9 07          DCW   @1@                                                                  1  6080                     159                *****
931  9 08          DC    &START1                                                              3  6083  815                160
932  9 09          DC    @W@                                                                  1  6084                     160
```