```
SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

101                JOB   FORTRAN COMPILER -- NORMAL FORMAT -- PHASE 54C
102                CTL   6611
103         *
104         * NORMAL FORMAT ROUTINE
105         *
106         * FOR EACH INPUT-OUTPUT STATEMENT, AN ENTRY TO THE FORMAT
107         * ROUTINE IS COMPILED.  FOLLOWING THIS APPEARS:
108         * 1. A CODE INDICATING THE APPROPRIATE I/O DEVICE;
109         *    & IS READ, - IS PUNCH, * IS PRINT, OTHERWISE DIGIT PART
110         *    IS TAPE NUMBER AND NO ZONE IS READ TAPE, A ZONE IS WRITE
111         *    TAPE, B ZONE IS READ INPUT TAPE, AB ZONE IS WRITE OUTPUT
112         *    TAPE;
113         * 2. THE ADDRESS OF A SERIES OF INSTRUCTIONS (FORMAT STRING)
114         *    WHICH DETERMINES THE ARRANGEMENT OF THE DATA (COMPILED
115         *    FROM THE REFERENCED FORMAT STATEMENT); AND
116         * 3. THE ADDRESS OF THE SPECIFIED LIST OF DATA (LIST STRING).
117         *
118         * THE FORMAT STRING CONSISTS OF
119         * 1. BRANCHES TO APPROPRIATE CLOSED SUBROUTINES OF THE FORMAT
120         *    ROUTINE,
121         * 2. PARAMETERS DESCRIBING THE DATA WHICH ARE NEEDED BY THESE
122         *    SUBROUTINES,
123         * 3. THE DATA ITSELF (H-CONVERSION FIELDS), AND
124         * 4. CERTAIN REGISTER-UPDATING INSTRUCTIONS.
125         *
126         X1     EQU   89                                                 0089
127         X2     EQU   94                                                 0094
128         X3     EQU   99                                                 0099
129         *
130                EXT00   SNAPSH, LOADNX, CDOVLY                                    MACRO
131         SNAPSH EQU   333                                                0333       GEN
132         PHASLD EQU   381                                                0381       GEN
133         SNAPEX EQU   564                                                0564       GEN
134         LOADNX EQU   700   CARD OVERLAY UNLESS NOP                     0700       GEN
135         CDOVLY EQU   700   1 IF LOADING FROM CARDS, N IF FROM TAPE      0700       GEN
136         TPREAD EQU   704   LOAD OVERLAY FROM TAPE                       0704       GEN
137         TPERR  EQU   728                                                0728       GEN
138         *
139                XT52A    STUFF IN PHASE 52A -- LOAD 54B&C                         MACRO
140         EXLINK EQU   840   139 I XLINKF ENTRY ADDRESS                  0840       GEN
141         USER1  EQU   876   127 R USER FUNCTION 01 ENTRY ADDRESS        0876       GEN
142         SUBSC  EQU   909   116 SUBSCRIPT                              0909       GEN
143         OBLIST EQU   912   115 I/O LIST AND NOT LIMITED FORMAT        0912       GEN
144         SX2    EQU   927                                                0927       GEN
145         CONBOT EQU   930   BOTTOM OF CONSTANTS - 1  FIXWD             0930       GEN
146         ARYBOT EQU   933   BOTTOM OF ARRAYS - 1     FLTWD             0933       GEN
147         BEG52A EQU   934   V3M4                                         0934       GEN
148                XT54A    STUFF IN PHASE 54A -- FORMAT LOADER                      MACRO
149         LOAD54 EQU   934                                                0934       GEN
150         SKIPB  EQU   934   SKIP 54B -- LIMITED FORMAT                  0934       GEN
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SEQ PG LIN  LABEL   OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

151         SKIPC   EQU   935   SKIP 54C -- NORMAL FORMAT                          0935             GEN
152         SKIPD   EQU   936   SKIP 54D -- A FORMAT                              0936             GEN
153         SKIP54  EQU   995   Q: LOADING FROM AUTOCODER TAPE?                   0995             GEN
154         GMWM54  EQU   1070                                                    1070             GEN
155                 XT54B    STUFF IN PHASE 54B -- TO GET FMTBAS                                   MACRO
156         FMTBAS  EQU   1697                                                    1697             GEN
157         LIMADR  EQU   2015  USED IN DIMENSION PHASE 2                        2015             GEN
158         LGM     EQU   2031                                                    2031             GEN
159                 EXT63    STUFF IN PHASE 63 -- RUNTIME ARITHMETIC                               MACRO
160         ARITF   EQU   700                                                     0700             GEN
161         SETFP   EQU   831   LOADER PLUGS MANTISSA WIDTH INTO B               0831             GEN
162         DOSUB   EQU   1206  LOADER PLUGS SUBSCRIPT ROUTINE ADDRESS HERE      1206             GEN
163         QFUNCT  EQU   1327  GO TO FUNCTION SELECTOR                         1327             GEN
164         ARITI   EQU   1530  LOADER PUTS INTEGER SIZE IN B                   1530             GEN
165         AGMWM   EQU   1696                                                    1696             GEN
166         *
167         * RUNTIME ADDRESSES
168         MANWID  EQU   SETFP&6  MANTISSA WIDTH. IN ARITHMETIC INTERPRETER     0837
169         *
170         PHS54C  LDPH  ,FMTBAS,LOADNX,SKIPC,SKIP54,54C.1                                      MACRO
            * PHAZ   LDPH [PHASID],LOADAD,ENTAD[,SKIPFG,SKIP],[NUMBER][,HALT]                    GEN
            *        XFR  PHASZ     PROHIBITED IN A MACRO                                        GEN
            *                                                                                    GEN
            * LOAD THE BLOCK IF NO WM IN SKIPC, ELSE SKIP IT                                     GEN
            *                                                                                    GEN
171         )6K006  EQU   700  LOAD NEXT PHASE                                  0700             GEN
172         )6L006  EQU   704  TAPE READ INSTRUCTION                            0704             GEN
173         )6M006  EQU   728  TAPE ERROR HANDLER                               0728             GEN
            *                                                                                    GEN
174                 ORG   201                                                           0201
175         PHS54C  BSS   )8J006,G                                          5   0201  B 265 G    GEN      1   265
176                 NOP     TO PATCH IN TRAPS FOR DEBUGGING                 1   0206  N          GEN      1
177         )0J006  EQU   *&1                                                     0207             GEN
178                 BW    )2J006,SKIPC      Q: SKIP THE BLOCK?            8   0207  V 258 935 1 GEN      1   258     935
179                 BCE   )1J006,)6K006,1    Q: LOADING FROM CARDS?        8   0215  B 251 700 1 GEN      1   251     700
180                 BCE   )1J006,)6L006&4,0  Q: LOADING FROM AUTOCODER TAPE? 8   0223  B 251 708 0 GEN      1   251     708
181                 RTW   1,FMTBAS           READ THE BLOCK                8   0231  L %U1 W97 R GEN      1   %U1    1697
182                 BER   )6M006             Q: TAPE ERROR?                5   0239  B 728 L    GEN      2   728
183                 CS    LOADNX,)9R006      ENTER THE BLOCK               7   0244  / 700 287  GEN      2   700     287
184         )1J006  CS    )6K006,)9R006      LOAD CARDS OR AUTOCODER TAPE  7   0251  / 700 287  GEN      2   700     287
            * SKIP THE BLOCK                                                                     GEN
185         )2J006  CS    SKIP54,)9R006                                   7   0258  / 995 287  GEN      2   995     287
186         )8J006  SW    )9R006                                          4   0265  , 287      GEN      2   287
187                 MU    %T0,)8K006,W                                    8   0269  M %T0 281 W GEN      2   %T0     281
188                 H     )0J006                                          4   0277  . 207      GEN      3   207
189         )8K006  EQU   *&1                                                     0281             GEN
190                 DCW   #1                                              1   0281             GEN      3
191                 DC    @54C.1@          PHASE NUMBER                 5   0286             GEN      3
192         )9R006  DCW   @}@                                           1   0287             GEN      3
193                 XFR   PHS54C                                                  B 201              4   201
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SEQ PG LIN  LABEL   OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

194         *
195                 ORG   FMTBAS                                                    1697
196  1 697  FMTBA2  SBR   X1                                                  4  1697  H 089               5   089
197  1 701          MCW   0&X1,UNIT                                          7  1701  M 0|0 J36           5   000+1  2136
198  1 708          MCW   *-6,TAPE  ASSUME TAPE I/O WITHOUT WORD MARKS      7  1708  M X08 D34           5  1708    3434
199  1 715          SBR   RELENT&3,7&X1                                     7  1715  H J35 0|7           5  2135     007+1
200  1 722          MCW   6&X1,LSTPOS                                       7  1722  M 0|6 Z68           5   006+1  1968
201  1 729          ZA    *-6,A12K                                          7  1729  ? X29 L27           5  1729    2327
202  1 736          CW    RDFLAG    START BY ASSUMING WRITE                 4  1736  ) 23V               6  4235
203  1 740          SW    GMWM                                              4  1740  , 27Z               6  4279
204  1 744          MCW   3&X1,X2                                          7  1744  M 0|3 094           6   003+1   094
205  1 751          SBR   X3,200                                           7  1751  H 099 200           6   099     200
206  1 758          SBR   ENDREC,334                                       7  1758  H 23Y 334           6  4238     334
207  1 765          BCE   READCD,0&X1,&  READ CARD                        8  1765  B E56 0|0 &         6  3556     000+1
208  1 773          BCE   PUNCH,0&X1,-   PUNCH                           8  1773  B E25 0|0 -         7  3525     000+1
209  1 781          BCE   CLEARP,0&X1,*  PRINT                           8  1781  B D71 0|0 *         7  3471     000+1
210  1 789          BM    RDTAPE,0&X1    READ TAPE FORMATTED               8  1789  V C12 0|0 K         7  3312     000+1
211  1 797          BWZ   CLEARW,0&X1,B  WRITE TAPE FORMATTED              8  1797  V C75 0|0 B         7  3375     000+1
212  1 805          SBR   X2,GETWM                                         7  1805  H 094 Z16           7   094    1916
213  1 812          CS    332                                               4  1812  / 332               8   332
214  1 816          CS                                                      1  1816  /                   8
215  1 817          CS                                                      1  1817  /                   8
216  1 818          SBR   X3,100                                           7  1818  H 099 100           8   099     100
217  1 825          MCW   LCA,TAPE  TAPE I/O WITH WORD MARKS               7  1825  M !79 D34           8  2079    3434
218  1 832          SW    0&X3                                              4  1832  , 0?0               8   000+3
219  1 836          B     1943                                              4  1836  B Z43               8  1943
220  1 840          BWZ   RDTAPE,UNIT,2                                    8  1840  V C12 J36 2         9  3312    2136
221  1 848          SBR   RECPOS,100                                        7  1848  H 24/ 100           9  4241     100
222         *
223         * FIND THE RIGHT-HAND (HIGHER CORE ADDRESS) OF A HOLLERITH
224         * FIELD WITH A LEFT-HAND END HAVING A WORD MARK, AS IT IS
225         * MOVED TO THE OUTPUT BUFFER.
226         *
227  1 855  CHARS   MCW   0&X1,0&X3                                          7  1855  M 0|0 0?0           9   000+1   000+3
228  1 862          SAR   X2                                                4  1862  Q 094               9   094
229  1 866          B     INCX3                                             4  1866  B J37               9  2137
230  1 870          BW    *&5,1&X2                                          8  1870  V Y82 0!1 1         9  1882     001+2
231  1 878          B     CHARS                                             4  1878  B Y55              10  1855
232  1 882          B     CHKLEN                                            4  1882  B Q08              10  2808
233  1 886          SBR   2222,REDOIO                                       7  1886  H K22 C84          10  2222    3384
234  1 893          B     1832                                              4  1893  B Y32              10  1832
235         *
236         * MOVE A FIELD TO THE OUTPUT BUFFER
237         *
238  1 897  GOTWM   B     CHKLEN                                            4  1897  B Q08              10  2808
239  1 901          LCA   0&X3,0&X1                                         7  1901  L 0?0 0|0          10   000+3   000+1
240  1 908          B     1943                                              4  1908  B Z43              10  1943
241  1 912  GETWML  B     INCX3      GET X3 UP TO                           4  1912  B J37              11  2137
242  1 916  GETWM   BW    GOTWM,1&X3   ONE BELOW NEXT WM                    8  1916  V Y97 0?1 1        11  1897     001+3
243  1 924          B     GETWML                                            4  1924  B Z12              11  1912
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SEQ PG LIN  LABEL   OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

244         *
245  1 928          SBR   2222                                               4  1928  H K22              11  2222
246  1 932          MCW   X3,RECPOS                                          7  1932  M 099 24/          11   099    4241
247  1 939          B     0&X2                                               4  1939  B 0!0              11   000+2
248         *
249  1 943          SBR   2006                                               4  1943  H !06              11  2006
250  1 947          MCW   X2,MYSX2&6                                         7  1947  M 094 !02          12   094    2002
251  1 954          BW    2031,FLAG                                          8  1954  V !31 23U 1        12  2031    4234
252  1 965             T  OBLIST                                             4  1962  T 912              12   912
253  1 968  LSTPOS  DCW   #3  POSITION IN I/O LIST                           3  1968                     12
254  1 969          SBR   X2                                                 4  1969  H 094              12   094
255  1 973          MZ    NOZONE,X1-1                                        7  1973  Y B62 088          12  3262     088
256  1 980          BCE   2046,X1,.                                          8  1980  B !46 089 .        13  2046     089
257  1 988          BCE   2007,X1,                                           8  1988  B !07 089          13  2007     089
258  1 996  MYSX2   SBR   X2,0                                              7  1996  H 094 000          13   094     000
259  2 003          B     0                                                  4  2003  B 000              13   000
260         *
261  2 007          BW    RELENT,RDFLAG                                      8  2007  V J32 23V 1        13  2132    4235
262  2 015          C     RECPOS,X3                                          7  2015  C 24/ 099          14  4241     099
263  2 022          BU    2208                                               5  2022  B K08 /            14  2208
264  2 027          B     RELENT                                             4  2027  B J32              14  2132
265  2 031          CW    FLAG                                               4  2031  ) 23U              14  4234
266  2 035          MCW   SX1,X1                                             7  2035  M 24Z 089          14  4249     089
267  2 042          B     1973                                               4  2042  B Z73              14  1973
268         *
269  2 046          MCW   2&X2,X3                                           7  2046  M 0!2 099          14   002+2   099
270  2 053          MCW   5&X2,X1                                           7  2053  M 0!5 089          15   005+2   089
271  2 060          MCW   1&X1,CH                                           7  2060  M 0|1 24S          15   001+1  4242
272  2 067          BW    LCA,1&X1                                           8  2067  V !79 0|1 1        15  2079     001+1
273  2 075          CW    WMFLAG                                             4  2075  ) 24T              15  4243
274  2 079  LCA     LCA   GMWM,1&X1                                          7  2079  L 27Z 0|1          15  4279     001+1
275  2 086          B     INCX3                                              4  2086  B J37              15  2137
276  2 090          SBR   X2,*&13                                           7  2090  H 094 J09          16   094    2109
277  2 097          BWZ   RDTAPE,UNIT,2                                      8  2097  V C12 J36 2        16  3312    2136
278  2 105          B     REDOIO                                             4  2105  B C84              16  3384
279  2 109          MCW   CH,1&X1                                           7  2109  M 24S 0|1          16  4242     001+1
280  2 116          BW    RELENT,WMFLAG                                      8  2116  V J32 24T 1        16  2132    4243
281  2 124          CW    1&X1                                               4  2124  ) 0|1              16   001+1
282  2 128          SW    WMFLAG                                             4  2128  , 24T              17  4243
283 *2 132  RELENT  B     0   ENTER HERE FROM RELOCATABLE FUNCTION TABLE     4  2132  B 000              17   000
284  2 136  UNIT    DCW   #1  TAPE UNIT NUMBER                              1  2136                     17
285         *
286         * INCREMENT X3 BY 1.
287         *
288  2 137  INCX3   SBR   INCX3X&3                                          4  2137  H J51              17  2151
289  2 141          SBR   X3,1&X3                                          7  2141  H 099 0?1          17   099     001+3
290  2 148  INCX3X  B     0                                                  4  2148  B 000              17   000
291         *
292  2 152          SBR   X2                                                 4  2152  H 094              17   094
293  2 156          MN    0&X2                                               4  2156  D 0!0              18   000+2
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SEQ PG LIN  LABEL   OP    OPERANDS                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

294  2 160          MN                                               1  2160  D                   18
295  2 161          MN                                               1  2161  D                   18
296  2 162          MN                                               1  2162  D                   18
297  2 163          SAR   2309                                       4  2163  Q L09               18  2309
298  2 167          MCW   2&X2,COUNT                                 7  2167  M 0!2 24W           18   002+2  4246
299  2 174          SBR   2207,3&X2                                  7  2174  H K07 0!3           18  2207     003+2
300  2 181          B     *&5                                        4  2181  B J89               19  2189
301  2 185          SBR   X2                                         4  2185  H 094               19   094
302  2 189          S     K1,COUNT                                   7  2189  S E74 24W           19  3574    4246
303  2 196          BM    0&X2,COUNT                                 8  2196  V 0!0 24W K         19   000+2  4246
304  2 204          B     0                                          4  2204  B 000               19   000
305          *
306  2 208          SBR   X2                                         4  2208  H 094               19   094
307  2 212          MCW   RECPOS,X3                                  7  2212  M 24/ 099           19  4241     099
308  2 219          B     0                                          4  2219  B 000               20   000
309          *
310  2 223          BW    *&13,RDFLAG                                8  2223  V K43 23V 1         20  2243    4235
311  2 231          C     RECPOS,X3                                  7  2231  C 24/ 099           20  4241     099
312  2 238          BU    2208                                       5  2238  B K08 /             20  2208
313  2 243          MCW   LSTPOS,*&7                                7  2243  M Z68 K56           20  1968    2256
314  2 250          BCE   2298,0,,                                   8  2250  B K98 000 ,         20  2298     000
315  2 258          MCW   LSTPOS,LISTP2                             7  2258  M Z68 K71           21  1968    2271
316  2 268             T  OBLIST                                     4  2265  T 912               21   912
317  2 271  LISTP2  DCW   #3                                         3  2271                      21
318  2 272          BCE   RELENT,X1,                                 8  2272  B J32 089           21  2132     089
319  2 280          MCW   LISTP2,LSTPOS                             7  2280  M K71 Z68           21  2271    1968
320  2 287          MCW   X1,SX1                                     7  2287  M 089 24Z           21   089    4249
321  2 294          SW    FLAG                                       4  2294  , 23U               22  4234
322  2 298          BW    2208,RDFLAG                                8  2298  V K08 23V 1         22  2208    4235
323  2 306          B     0                                          4  2306  B 000               22   000
324          *
325  2 310          SBR   X2                                         4  2310  H 094               22   094
326  2 314          ZA    2&X2,A12K                                  7  2314  ? 0!2 L27           22   002+2  2327
327  2 321          B     3&X2                                       4  2321  B 0!3               22   003+2
328          *
329  2 327  A12K    DSA   12000                                      3  2327  00?                 22 12000
330          *
331          * COPY THE ARGUMENT TO THE OUTPUT BUFFER
332          *
333  2 328          SBR   X2                                         4  2328  H 094               23   094
334  2 332  CPARGL  BW    *&8,RDFLAG                                 8  2332  V L47 23V 1         23  2347    4235
335  2 340          MCW   0&X2,0&X3                                  7  2340  M 0!0 0?0           23   000+2   000+3
336  2 347          MCW   0&X3,0&X2  WHY?                           7  2347  M 0?0 0!0           23   000+3   000+2
337  2 354          B     INCX3                                      4  2354  B J37               23  2137
338  2 358          SBR   X2,1&X2                                   7  2358  H 094 0!1           23   094     001+2
339  2 365          BW    *&5,0&X2                                   8  2365  V L77 0!0 1         24  2377     000+2
340  2 373          B     CPARGL                                     4  2373  B L32               24  2332
341  2 377          B     CHKLEN                                     4  2377  B Q08               24  2808
342  2 381          B     0&X2                                       4  2381  B 0!0               24   000+2
343          *
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SEQ PG LIN  LABEL  OP    OPERANDS                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

344  2 385         SBR   X2                                          4  2385  H 094               24   094
345  2 389         MCW   3&X2,COUNT2                                 7  2389  M 0!3 25S           24   003+2  4252
346  2 396  DEC2   S     K1,COUNT2                                   7  2396  S E74 25S           24  3574    4252
347  2 403         BWZ   MORE,COUNT2,B  STILL POSITIVE?             8  2403  V M31 25S B         25  2431    4252
348  2 411         BCE   7&X2,0&X2,I                                8  2411  B 0!7 0!0 I         25   007+2   000+2
349  2 419         BCE   7&X2,0&X2,A                                8  2419  B 0!7 0!0 A         25   007+2   000+2
350  2 427         B     10&X2                                       4  2427  B 0J0               25   010+2
351  2 431  MORE   B     1943                                        4  2431  B Z43               25  1943
352  2 434         S                                                 1  2435  S                   25
353  2 438         DC    @_00@                                       3  2438                      25
354  2 539         SW                                                1  2439  ,                   25
355  2 442         DC    @;0J@                                       3  2442                      26
356  2 443         BW    3651,RDFLAG                                 8  2443  V F51 23V 1         26  3651    4235
357  2 451         CS    24                                          4  2451  / 024               26   024
358  2 455         SW    0&X3                                        4  2455  , 0?0               26   000+3
359  2 459         MN                                                1  2459  D                   26
360  2 460         SBR   X3                                          4  2460  H 099               27   099
361  2 464         SBR   SW1&3,2&X3                                 7  2464  H Q97 0?2           27  2897     002+3
362  2 471         SBR   CW2&3                                       4  2471  H A49               27  3149
363  2 475         SW    1                                           4  2475  , 001               27   001
364  2 479         BCE   IFMT,0&X2,I                                 8  2479  B Q33 0!0 I         27  2833     000+2
365  2 487         BCE   AFMT3,0&X2,A                                8  2487  B 41Z 0!0 A         27  4419     000+2
366  2 495         MCW   0&X1                                        4  2495  M 0|0               27   000+1
367  2 501         DC    @;00@                                       3  2501                      28
368  2 502         MCW                                               1  2502  M                   28
369  2 503         SBR   X1                                          4  2503  H 089               28   089
370  2 507         SW    0&X1                                        4  2507  , 0|0               28   000+1
371  2 511         A     6&X2,X3                                     7  2511  A 0!6 099           28   006+2   099
372  2 518         SBR   CW1&3,2&X3                                 7  2518  H A45 0?2           29  3145     002+3
373  2 525         MCW   K0DOT0  0.0                                4  2525  M 25V               29  4255
374  2 529         SW    2&X3                                        4  2529  , 0?2               29   002+3
375  2 533         BCE   *&9,1&X1,0                                  8  2533  B N49 0|1 0         29  2549     001+1
376  2 541            V  2674                                        4  2541  V O74               29  2674
377  2 548         DC    @;0K2@                                      4  2548                      29
378  2 549         BCE   EFMT,0&X2,E                                 8  2549  B N68 0!0 E         29  2568     000+2
379  2 557         A     A12K  NOT E FORMAT                          4  2557  A L27               30  2327
380  2 563         DC    @;00@                                       3  2563                      30
381  2 564         B     *&8                                         4  2564  B N75               30  2575
382  2 568  EFMT   S     A12K                                        4  2568  S L27               30  2327
383  2 574         DC    @;00@                                       3  2574                      30
384  2 575         MN                                                1  2575  D                   30
385  2 578         DC    @;00@                                       3  2578                      30
386  2 581         DC    W2                                          3  2581  F50                 30  3650
387  2 582         MN                                                1  2582  D                   30
388  2 583         MCW                                               1  2583  M                   30
389  2 586         DC    @;00@                                       3  2586                      30
390  2 587         BCE   FFMT1,0&X2,F                                8  2587  B P04 0!0 F         30  2704     000+2
391  2 595         C     W2,KZ4-2  TWO ZERO DIGITS                   7  2595  C F50 B64           31  3650    3264
392  2 602         BE    *&9                                         5  2602  B O15 S             31  2615
393  2 607         BM    *&8,SAVZON                                  8  2607  V O22 F48 K         31  2622    3648
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SEQ PG LIN  LABEL  OP   OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

394  2 615        MZ   NOZONE,SAVZON                                      7  2615  Y B62 F48          31  3262    3648
395  2 622        ZA   A12K                                               4  2622  ? L27              31  2327
396  2 628        DC   @;00@                                              3  2628                     31
397  2 629        MN                                                      1  2629  D                  31
398  2 633        DC   @;00@                                              3  2632                     31
399  2 635        DC   SBR&6                                              3  2635  O43                32  2643
400  2 636        MN                                                      1  2636  D                  32
401  2 637  SBR   SBR  X1,0&X1                                           7  2637  H 089 0|0          32   089     000+1
402  2 644        ZA   MANWID,W3  MANTISSA WIDTH IN ARITF                 7  2644  ? 837 23S          32   837    4232
403  2 651        S    K2,W3        INCLUDES THE EXPONENT WIDTH           7  2651  S E05 23S          32  3505    4232
404  2 658        C    W3                                                 4  2658  C 23S              33  4232
405  2 664        DC   @;00@                                              3  2664                     33
406  2 665        BH   2728                                               5  2665  B P28 U            33  2728
407  2 670        B    2797                                               4  2670  B P97              33  2797
408       *
409  2 674        MCW  KX,2&X3  BLANK X BLANK                             7  2674  M 25Y 0?2          33  4258     002+3
410  2 681        MCW            0.0                                      1  2681  M                  33
411  2 682        SBR  X3,2&X3                                            7  2682  H 099 0?2          33   099     002+3
412  2 689        SBR  CW3&3                                              4  2689  H A53              33  3153
413  2 693        A    9&X2,X3                                            7  2693  A 0!9 099          34   009+2   099
414  2 700        B    NOOVFL                                             4  2700  B A38              34  3138
415       *
416  2 704  FFMT1 BM   2766,SAVZON                                        8  2704  V P66 F48 K        34  2766    3648
417  2 712        C    6&X2,W2                                            7  2712  C 0!6 F50          34   006+2  3650
418  2 719        BL   2629                                               5  2719  B O29 T            34  2629
419  2 724        B    2674                                               4  2724  B O74              34  2674
420       *
421  2 728        S    23                                                 4  2728  S 023              34   023
422  2 732        MCM                                                     1  2732  P                  35
423  2 738        DC   @_0A001@                                           6  2738                     35
424  2 739        MCW  KZ4                                                4  2739  M B66              35  3266
425  2 743        MZ         NOZONE                                       1  2743  Y                  35
426  2 744        MCW  W2,X1                                              7  2744  M F50 089          35  3650     089
427  2 751        MCW  KZ4-3  ONE ZERO DIGIT                              4  2751  M B63              35  3263
428  2 755        MCW  GMWM,3&X1                                          7  2755  M 27Z 0|3          35  4279     003+1
429  2 762        B    2797                                               4  2762  B P97              35  2797
430  2 766        MZ   NOZONE,0&X1                                        7  2766  Y B62 0|0          36  3262     000+1
431  2 773        C    9&X2,W2                                            7  2773  C 0!9 F50          36   009+2  3650
432  2 780        BU   *&8                                                5  2780  B P92 /            36  2792
433  2 785        C                                                       1  2785  C                  36
434  2 788        DC   @_0A@                                              3  2788                     36
435  2 791        DC   K5                                                 3  2791  23T                36  4233
436  2 792        BH   IFMT2                                              5  2792  B Q65 U            36  2865
437  2 797        MZ                                                      1  2797  Y                  36
438  2 800        DC   @;0K@                                             3  2800                     36
439  2 803        DC   @0|0@  0&X1                                        3  2803                     36
440  2 804        B    IFMT2                                              4  2804  B Q65              37  2865
441       *
442       * CHECK RECORD LENGTH
443       *
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SEQ PG LIN  LABEL   OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

444  2 808  CHKLEN SBR   CHKLEX&3                                            4  2808  H Q32              37  2832
445  2 812         C     ENDREC,X3                                          7  2812  C 23Y 099          37  4238     099
446  2 819         BL    CHKLEX                                             5  2819  B Q29 T            37  2829
447  2 824         NOP   3700  SNAPSHOT ROUTINE IS CLOBBERED                 4  2824  N G00              37  3700
448  2 828         H                                                        1  2828  .                  37
449  2 829  CHKLEX B     0                                                  4  2829  B 000              37   000
450         *
451  2 833  IFMT   MCW   0&X1                                              4  2833  M 0|0              38   000+1
452  2 839         DC    @_00@                                              3  2839                     38
453  2 840         A     6&X2,X3                                            7  2840  A 0!6 099          38   006+2   099
454  2 847         MCW   6&X2,X1                                            7  2847  M 0!6 089          38   006+2   089
455  2 854         ZA                                                       1  2854  ?                  38
456  2 857         DC    @_00@                                              3  2857                     38
457  2 860         DC    @0|0@  0&X1                                        3  2860                     38
458  2 861         B     INCX3                                              4  2861  B J37              38  2137
459  2 865  IFMT2  MCS   0&X1,0&X3                                          7  2865  Z 0|0 0?0          38   000+1   000+3
460  2 872         SBR   SX3&6                                              4  2872  H R58              39  2958
461  2 876         MN    0&X1,0&X3  AT LEAST SHOW THE LOW ORDER DIGIT        7  2876  D 0|0 0?0          39   000+1   000+3
462  2 883         SBR   MCS&3,0&X3                                         7  2883  H A90 0?0          39  3190     000+3
463  2 890         SBR   CW3&3                                              4  2890  H A53              39  3153
464  2 894  SW1    SW    0                                                  4  2894  , 000              39   000
465  2 898         BM    *&5,0&X1                                           8  2898  V R10 0|0 K        39  2910     000+1
466  2 906         B     SX3                                                4  2906  B R52              39  2952
467  2 910  GETB   BCE   GOTB,0&X3,  FOUND A BLANK?                        8  2910  B R34 0?0          40  2934     000+3
468  2 918         SBR   X3                                                 4  2918  H 099              40   099
469  2 922         BW    SX3,1&X3  END OF THE FIELD, NO SIGN                8  2922  V R52 0?1 1        40  2952     001+3
470  2 930         B     GETB                                               4  2930  B R10              40  2910
471  2 934  GOTB   MZ    BZONE,0&X3  SET THE SIGN                           7  2934  Y G81 0?0          40  3781     000+3
472  2 941         SW    1&X3                                               4  2941  , 0?1              40   001+3
473  2 945         SBR   CW3&3,1&X3                                         7  2945  H A53 0?1          41  3153     001+3
474  2 952  SX3    SBR   X3,111                                            7  2952  H 099 111          41   099     111
475  2 959         BCE   CW2,0&X2,I                                         8  2959  B A46 0!0 I        41  3146     000+2
476  2 967         A     9&X2,X3                                            7  2967  A 0!9 099          41   009+2   099
477  2 974         BCE   FFMT2,0&X2,F                                       8  2974  B R93 0!0 F        41  2993     000+2
478  2 982         MN    0&X3                                               4  2982  D 0?0              42   000+3
479  2 986         MN                                                       1  2986  D                  42
480  2 987         MN                                                       1  2987  D                  42
481  2 988         MN                                                       1  2988  D                  42
482  2 989         SBR   X3                                                 4  2989  H 099              42   099
483  2 993  FFMT2  SBR   SX3A&6,1&X3                                        7  2993  H ?88 0?1          42  3088     001+3
484  3 000         S     1&X3                                               4  3000  S 0?1              42   001+3
485  3 004         MN                                                       1  3004  D                  43
486  3 005         SAR   X3                                                 4  3005  Q 099              43   099
487  3 009         BCE   FINDGM,0&X2,E                                      8  3009  B ?44 0!0 E        43  3044     000+2
488  3 017         BWZ   FINDGM,SAVZON,B                                    8  3017  V ?44 F48 B        43  3044    3648
489  3 025         C     9&X2,W2                                            7  3025  C 0!9 F50          43   009+2  3650
490  3 032         BH    SX3A                                               5  3032  B ?82 U            43  3082
491  3 037         A     W2,X3                                              7  3037  A F50 099          44  3650     099
492  3 044  FINDGM BCE   SX3A,3&X1,}  GM                                   8  3044  B ?82 0|3 } GMARK  44  3082     003+1
493  3 052         MN    1&X1,2&X3                                          7  3052  D 0|1 0?2          44   001+1   002+3
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SEQ PG LIN  LABEL   OP    OPERANDS                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

494  3 059          SBR   X1,1&X1                                       7  3059  H 089 0|1           44   089     001+1
495  3 066          BWZ   SX3A,2&X3,B                                   8  3066  V ?82 0?2 B         44  3082     002+3
496  3 074          SBR   X3                                            4  3074  H 099               45   099
497  3 078          B     FINDGM                                        4  3078  B ?44               45  3044
498  3 082  SX3A    SBR   X3,0                                         7  3082  H 099 000           45   099     000
499  3 089          BAV   *&1                                           5  3089  B ?94 Z             45  3094
500  3 094          A     KP5,0&X3                                      7  3094  A F47 0?0           45  3647     000+3
501  3 101          MCW   NOZONE,0&X3                                  7  3101  M B62 0?0           45  3262     000+3
502  3 108          BCE   FFMT3,0&X2,F                                  8  3108  B A33 0!0 F         46  3133     000+2
503  3 116          SBR   X3,4&X3                                       7  3116  H 099 0?4           46   099     004+3
504  3 123          MN    0&X3                                          4  3123  D 0?0               46   000+3
505  3 127          MCW   W2                                            4  3127  M F50               46  3650
506  3 131          MZ                                                  1  3131  Y                   46
507  3 132          MCW                                                 1  3132  M                   46
508  3 133  FFMT3   BAV   OVFL                                          5  3133  B A66 Z             46  3166
509  3 138  NOOVFL  CW                                                  1  3138  )                   47
510  3 141          DC    @_00@   11-7-8,0,0                           3  3141                      47
511  3 142  CW1     CW    0                                             4  3142  ) 000               47   000
512  3 146  CW2     CW    0                                             4  3146  ) 000               47   000
513  3 150  CW3     CW    0                                             4  3150  ) 000               47   000
514  3 154  SW2     SW                                                  1  3154  ,                   47
515  3 157          DC    @_0A@   11-7-8,0,A                           3  3157                      47
516  3 158          B     CHKLEN                                        4  3158  B Q08               47  2808
517  3 162          B     DEC2                                          4  3162  B L96               47  2396
518         *
519  3 166  OVFL    MCW   CW1&3,X1                                      7  3166  M A45 089           48  3145     089
520  3 173          MZ    NOZONE,0&X1                                   7  3173  Y B62 0|0           48  3262     000+1
521  3 180          MCW           DOT                                   1  3180  M                   48
522  3 181          A             ONE                                   1  3181  A                   48
523  3 182          BAV   OVR9S                                         5  3182  B A95 Z             48  3195
524  3 187  MCS     MCS   0                                             4  3187  Z 000               48   000
525  3 191          B     NOOVFL                                        4  3191  B A38               48  3138
526  3 195  OVR9S   MN    0&X1                                          4  3195  D 0|0               49   000+1
527  3 199          C                                                   1  3199  C                   49
528  3 200          MN                                                  1  3200  D                   49
529  3 201          SBR   X1                                            4  3201  H 089               49   089
530  3 205          C     CW2&3,X1                                      7  3205  C A49 089           49  3149     089
531  3 212          BL    XXFLD                                         5  3212  B B40 T             49  3240
532  3 217          SW    0&X1                                          4  3217  , 0|0               49   000+1
533  3 221          MCW   1&X1,0&X1                                     7  3221  M 0|1 0|0           50   001+1   000+1
534  3 228          CW                                                  1  3228  )                   50
535  3 229          LCA   K10,2&X1                              V3M4    7  3229  L 27Y 0|2           50  4278     002+1
536  3 236          B     4269                                  V3M4    4  3236  B 26Z               50  4269
537  3 240  XXFLD   MCW   1&X3,0&X3  CLEAR THE FIELD                     7  3240  M 0?1 0?0           50   001+3   000+3
538  3 247          MCW                                                 1  3247  M                   50
539  3 248          MCW                                                 1  3248  M                   50
540  3 249          MCW   KX,3&X1    THEN PUT BLANK X BLANK IN IT        7  3249  M 25Y 0|3           51  4258     003+1
541  3 256          B     NOOVFL                                        4  3256  B A38               51  3138
542         *
543  3 260          DCW   1                                             1  3260                      51
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SEQ PG LIN  LABEL   OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

544  3 261          DCW   @.@                                                1  3261                    51
545  3 262  NOZONE  DCW   #1                                                 1  3262                    51
546  3 266  KZ4     DCW   @0000@                                             4  3266                    51
547         *
548         * TAPE BLOCK IS TOO BIG FOR CHM TAU EMULATOR
549         *
550         END1    DCW   @}@                                                1  3267          GMARK     51
551                 XFR   LOADNX         LOAD THIS                                    B 700             52   700
552         PART2   LDPH  ,IFMT3,LOADNX,SKIPC,SKIP54,54C.2  LOAD OR SKIP PART2                          MACRO
            * PHAZ    LDPH [PHASID],LOADAD,ENTAD[,SKIPFG,SKIP],[NUMBER][,HALT]                        GEN
            *         XFR  PHASZ     PROHIBITED IN A MACRO                                            GEN
            *                                                                                         GEN
            * LOAD THE BLOCK IF NO WM IN SKIPC, ELSE SKIP IT                                          GEN
            *                                                                                         GEN
553         )6K007  EQU   700  LOAD NEXT PHASE                                  0700                 GEN
554         )6L007  EQU   704  TAPE READ INSTRUCTION                            0704                 GEN
555         )6M007  EQU   728  TAPE ERROR HANDLER                               0728                 GEN
            *                                                                                         GEN
556                 ORG   201                                                          0201
557         PART2   BSS   )8J007,G                                             5  0201  B 265 G     GEN     53   265
558                 NOP     TO PATCH IN TRAPS FOR DEBUGGING                    1  0206  N           GEN     53
559         )0J007  EQU   *&1                                                    0207                 GEN
560                 BW    )2J007,SKIPC      Q: SKIP THE BLOCK?               8  0207  V 258 935 1 GEN     53   258     935
561                 BCE   )1J007,)6K007,1    Q: LOADING FROM CARDS?           8  0215  B 251 700 1 GEN     53   251     700
562                 BCE   )1J007,)6L007&4,0  Q: LOADING FROM AUTOCODER TAPE?   8  0223  B 251 708 0 GEN     53   251     708
563                 RTW   1,IFMT3           READ THE BLOCK                     8  0231  L %U1 B67 R GEN     53   %U1    3267
564                 BER   )6M007             Q: TAPE ERROR?                   5  0239  B 728 L     GEN     54   728
565                 CS    LOADNX,)9R007      ENTER THE BLOCK                  7  0244  / 700 287   GEN     54   700     287
566         )1J007  CS    )6K007,)9R007      LOAD CARDS OR AUTOCODER TAPE     7  0251  / 700 287   GEN     54   700     287
            * SKIP THE BLOCK                                                                         GEN
567         )2J007  CS    SKIP54,)9R007                                      7  0258  / 995 287   GEN     54   995     287
568         )8J007  SW    )9R007                                             4  0265  , 287       GEN     54   287
569                 MU    %T0,)8K007,W                                       8  0269  M %T0 281 W GEN     54   %T0     281
570                 H     )0J007                                             4  0277  . 207       GEN     55   207
571         )8K007  EQU   *&1                                                    0281                 GEN
572                 DCW   #1                                                 1  0281                 GEN     55
573                 DC    @54C.2@          PHASE NUMBER                      5  0286                 GEN     55
574         )9R007  DCW   @}@                                                1  0287                 GEN     55
575                 XFR   PART2                                                      B 201             56   201
576                 ORG   END1                                                        3267
577         *
578  3 267  IFMT3   MCW   X1,X3                                              7  3267  M 089 099           57   089     099
579  3 274          MZ    ZAS2,3288                                          7  3274  Y 06S B88           57  4062    3288
580  3 281          MN    0&X3                                               4  3281  D 0?0               57   000+3
581  3 287          DC    @_0A@                                              3  3287                      57
582  3 288          ZA                                                       1  3288  ?                   57
583  3 289          MCW   4146,X1                                            7  3289  M 14W 089           57  4146     089
584  3 296          LCA                                                      1  3296  L                   57
585  3 299          DC    @_00@                                              3  3299                      57
586  3 302          DC    @0|0@  0&X1                                        3  3302                      57
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

587  3 303         B     4155                                             4  3303  B 15V              58  4155
588         *
589         * END OF FILE ON INPUT
590         *
591  3 307  EOFRD  NOP   4002                                             4  3307  N 00S              58  4002
592  3 311         H                                                      1  3311  .                  58
593         *
594         * TAPE READ
595         *
596  3 312  RDTAPE SW    RDFLAG                                           4  3312  , 23V              58  4235
597  3 316  CLEARR CS    332                                              4  3316  / 332              58   332
598  3 320         CS                                                     1  3320  /                  58
599  3 321         B     REDOIO                                           4  3321  B C84              58  3384
600         *
601         * AFTER TAPE READ
602         *
603  3 325  ENDRD  BEF   EOFRD                                           5  3325  B C07 K            59  3307
604  3 330         BCE   REDOIO,12&X3,}  SHORT -- NOISE -- RECORD?       8  3330  B C84 0A2 } GMARK  59  3384     012+3
605  3 338         CHAIN 12                                                                          MACRO
606                BCE                                                    1  3338  B                GEN    59
607                BCE                                                    1  3339  B                GEN    59
608                BCE                                                    1  3340  B                GEN    59
609                BCE                                                    1  3341  B                GEN    59
610                BCE                                                    1  3342  B                GEN    59
611                BCE                                                    1  3343  B                GEN    60
612                BCE                                                    1  3344  B                GEN    60
613                BCE                                                    1  3345  B                GEN    60
614                BCE                                                    1  3346  B                GEN    60
615                BCE                                                    1  3347  B                GEN    60
616                BCE                                                    1  3348  B                GEN    60
617                BCE                                                    1  3349  B                GEN    60
618  3 350         B     1928                                             4  3350  B Z28              61  1928
619  3 354         B     CLEARR                                           4  3354  B C16              61  3316
620         *
621         * END OF TAPE ON OUTPUT
622         *
623  3 358  EOFWR  MN    UNIT,*&4                                         7  3358  D J36 C68          61  2136    3368
624  3 365         WTM   0                                                5  3365  U %U0 M            61   %U0
625  3 370         NOP   4003                                             4  3370  N 00T              61  4003
626  3 374         H                                                      1  3374  .                  61
627         *
628         * WRITE TAPE
629         *
630  3 375  CLEARW CS    332                                              4  3375  / 332              61   332
631  3 379         CS                                                     1  3379  /                  62
632  3 380         B     1928                                             4  3380  B Z28              62  1928
633  3 384  REDOIO MN    UNIT,TAPE&3                                      7  3384  D J36 D37          62  2136    3437
634  3 391         MCW   KR,TAPE&7  ASSUME IT'S READ, NOT WRITE          7  3391  M 25Z D41          62  4259    3441
635  3 398         ZA    KR,W3      @R@ USED AS -9 HERE                   7  3398  ? 25Z 23S          62  4259    4232
636  3 405         BW    DOIO,RDFLAG                                      8  3405  V D27 23V 1        62  3427    4235
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SEQ PG LIN  LABEL  OP    OPERANDS                                SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR
637  3 413         MCW   KW,TAPE&7  OOPS, IT'S WRITE              7  3413  M 26| D41          63  4260    3441
638  3 420         A     KP41,W3                                  7  3420  A 26S 23S          63  4262    4232
639  3 427  DOIO   LCA   GMWM,SNAPSH                             7  3427  L 27Z 333          63  4279     333
640  3 434  TAPE   RT    0,0&X3                                   8  3434  M %U0 0?0 R        63   %U0     000+3
641  3 442         LCA   FMTBA2,SNAPSH  UNCLOBBER                7  3442  L W97 333          63  1697     333
642  3 449         BER   TAPERR                                  5  3449  B E91 L            64  3591
643  3 454         BCE   ENDRD,TAPE&7,R                           8  3454  B C25 D41 R        64  3325    3441
644  3 462         BEF   EOFWR                                   5  3462  B C58 K            64  3358
645  3 467         B     CLEARW                                   4  3467  B C75              64  3375
646         *
647         * PRINT
648         *
649  3 471  CLEARP CS    SNAPSH                                   4  3471  / 333              64   333
650  3 475         CS                                            1  3475  /                  64
651  3 476         B     1928                                     4  3476  B Z28              64  1928
652  3 480         BCE   K2,200,     NO SPACING                   8  3480  B E05 200          65  3505     200
653  3 488         BCE   DBLE,200,0  DOUBLE SPACE?                8  3488  B E20 200 0        65  3520     200
654  3 496         MN    200,*&2     SET SKIP-TO CHANNEL          7  3496  D 200 E04          65   200    3504
655  3 503         CC    0                                        2  3503  F 0                65
656  3 505  K2     W                                              1  3505  2                  65
657  3 506         BCV   *&5                                      5  3506  B E15 @            65  3515
658  3 511         B     CLEARP                                   4  3511  B D71              65  3471
659  3 515         CCB   CLEARP,1                                5  3515  F D71 1            66  3471
660  3 520  DBLE   CCB   K2,J                                     5  3520  F E05 J            66  3505
661         *
662         * PUNCH
663         *
664  3 525  PUNCH  MCW   A281,ENDREC                             7  3525  M 26V 23Y          66  4265    4238
665  3 532         CS    1928,285                                 7  3532  / Z28 285          66  1928     285
666  3 539         SW    200                                      4  3539  , 200              66   200
667  3 543         LCA   279,180                                 7  3543  L 279 180          66   279     180
668  3 550         P                                              1  3550  4                  66
669  3 551         SSB   PUNCH,4                                 5  3551  K E25 4            67  3525
670         *
671         * READ A CARD
672         *
673  3 556  READCD CS    80                                       4  3556  / 080              67   080
674  3 560         MCW   A281,ENDREC                             7  3560  M 26V 23Y          67  4265    4238
675  3 567         SW    1,RDFLAG                                 7  3567  , 001 23V          67   001    4235
676  3 574  K1     R                                              1  3574  1                  67
677  3 575         LCA   80,279                                  7  3575  L 080 279          67   080     279
678  3 582         SSB   1928,1                                   5  3582  K Z28 1            67  1928
679  3 587         B     READCD                                   4  3587  B E56              68  3556
680         *
681         * TAPE I/O ERROR
682         *
683  3 591  TAPERR MN    UNIT,BSP&3                               7  3591  D J36 F08          68  2136    3608
684  3 598         MN    UNIT,SKP&3                               7  3598  D J36 F21          68  2136    3621
685  3 605  BSP    BSP   0                                        5  3605  U %U0 B            68   %U0
686  3 610         BCE   *&6,TAPE&7,R                             8  3610  B F23 D41 R        68  3623    3441
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SEQ PG LIN  LABEL   OP    OPERANDS                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

687  3 618  SKP     SKP   0                                           5  3618  U %U0 E             68   %U0
688  3 623         S     K1,W3                                       7  3623  S E74 23S           69  3574    4232
689  3 630         BWZ   DOIO,W3,B                                   8  3630  V D27 23S B         69  3427    4232
690  3 638         NOP   1111                                        4  3638  N /11               69  1111
691  3 642         H                                                 1  3642  .                   69
692  3 643         B     REDOIO                                      4  3643  B C84               69  3384
693         *
694  3 647  KP5     DCW   &5                                        1  3647                      69
695  3 648  SAVZON  DCW   #1                                        1  3648                      69
696  3 650  W2      DCW   00                                        2  3650                      70
697         *
698  3 651         SW    0&X3                                        4  3651  , 0?0               70   000+3
699  3 655         MCW   X1,4146                                     7  3655  M 089 14W           70   089    4146
700  3 662         MCW   X3,X1                                       7  3662  M 099 089           70   099     089
701  3 669         A     6&X2,X1                                     7  3669  A 0!6 089           70   006+2   089
702  3 676         BCE   IFMT4,0&X2,I                               8  3676  B F99 0!0 I         70  3699     000+2
703  3 684         BCE   AFMT2,0&X2,A                               8  3684  B 39| 0!0 A         71  4390     000+2
704  3 692         A     9&X2,X1                                     7  3692  A 0!9 089           71   009+2   089
705  3 699  IFMT4   SW    0&X1                                        4  3699  , 0|0               71   000+1
706  3 703         SBR   CW4&3,0&X1                                  7  3703  H 15Y 0|0           71  4158     000+1
707  3 710         S                                                 1  3710  S                   71
708  3 713         DC    @;00@                                       3  3713                      71
709  3 714         S                                                 1  3714  S                   71
710  3 715         MZ    NOZONE                              V3M4    4  3715  Y B62               71  3262
711  3 721         DC    @;0K@                               V3M4    3  3721                      71
712  3 722         MZ    ABZ2,ZAS2                           V3M4    7  3722  Y G89 06S           72  3789    4062
713  3 729         BCE   3765,0&X3,                          V3M4    8  3729  B G65 0?0           72  3765     000+3
714  3 737         BCE   BZONE,0&X3,-                        V3M4    8  3737  B G81 0?0 -         72  3781     000+3
715  3 745         BCE   BZONE,0&X3,@                        V3M4    8  3745  B G81 0?0 @         72  3781     000+3
716  3 753         BCE   3785,0&X3,&                         V3M4    8  3753  B G85 0?0 &         72  3785     000+3
717  3 761         B     3793                                V3M4    4  3761  B G93               73  3793
718  3 765         BW    4132,1&X3                           V3M4    8  3765  V 13S 0?1 1         73  4132     001+3
719  3 773         B     INCX3                               V3M4    4  3773  B J37               73  2137
720  3 777         B     3722                                V3M4    4  3777  B G22               73  3722
721  3 781  BZONE   ZS    ZAS2                                V3M4    4  3781  ! 06S               73  4062
722  3 785         SW    1&X3                                V3M4    4  3785  , 0?1               73   001+3
723  3 789  ABZ2    B     INCX3                               V3M4    4  3789  B J37               73  2137
724  3 793         BCE   IFMT3,0&X2,I                         V3M4    8  3793  B B67 0!0 I         74  3267     000+2
725  3 801         SBR   X1                                    V3M4    4  3801  H 089               74   089
726  3 807         DC    @_0J@                               V3M4    3  3807                      74
727  3 808         CW    FLAG1,FLAG2                                 7  3808  ) 26W 26X           74  4266    4267
728  3 815         CW    FLAG3                                       4  3815  ) 26Y               74  4268
729  3 819         S     W3A                                         4  3819  S 22T               74  4223
730  3 823         BCE   AFMT1,0&X2,A                               8  3823  B 28| 0!0 A         74  4280     000+2
731  3 831         B     CHKCH1                                      4  3831  B H81               75  3881
732         *
733  3 835  DOT     SBR   W3,0&X3                                    7  3835  H 23S 0?0           75  4232     000+3
734  3 842         SW    FLAG3                                       4  3842  , 26Y               75  4268
735  3 846         BW    *&8,FLAG1                                   8  3846  V H61 26W 1         75  3861    4266
736  3 854         SBR   W3,1&X3                                    7  3854  H 23S 0?1           75  4232     001+3
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SEQ PG LIN  LABEL   OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

737  3 861  NOTDOT BW    CKEFMT,1&X3                                        8  3861  V 04X 0?1 1         75  4047     001+3
738  3 869         BCE   CKEFMT,1&X3,                                      8  3869  B 04X 0?1           76  4047     001+3
739  3 877         B     INCX3                                              4  3877  B J37               76  2137
740  3 881  CHKCH1 BCE   DOT,0&X3,.                                        8  3881  B H35 0?0 .         76  3835     000+3
741  3 889         C     0&X3,KZ4-3  ONE ZERO DIGIT                         7  3889  C 0?0 B63           76   000+3  3263
742  3 896         BL    4163                                               5  3896  B 16T T             76  4163
743  3 901         BH    CHKCH2                                             5  3901  B I18 U             76  3918
744  3 906         BW    4163,FLAG1                                         8  3906  V 16T 26W 1         77  4163    4266
745  3 914         B     NOTDOT                                             4  3914  B H61               77  3861
746          *
747          * CHECK VALIDITY OF CHARACTER
748          *
749  3 918  CHKCH2 BCE   ER1121,0&X2,F  NO EXPONENT IF F FORMAT            8  3918  B I71 0!0 F         77  3971     000+2
750  3 926         SBR   W3B,4&X3                                           7  3926  H 22W 0?4           77  4226     004+3
751  3 933         MZ    ABZONE,ZAS                                         7  3933  Y I76 03W           77  3976    4036
752  3 940         BCE   EXP,0&X3,E                                        8  3940  B I80 0?0 E         78  3980     000+3
753  3 948  CKSIGN MZ    0&X3,ZAS                                           7  3948  Y 0?0 03W           78   000+3  4036
754  3 955         BCE   SIGN,0&X3,&                                       8  3955  B 01S 0?0 &         78  4012     000+3
755  3 963         BCE   SIGN,0&X3,-                                       8  3963  B 01S 0?0 -         78  4012     000+3
756          *
757          * DATA AND FORMAT SPECIFICATIONS DISAGREE IN MODE OR
758          * ACCEPTABLE CHARACTERS.
759          *
760  3 971  ER1121 NOP   1121                                               4  3971  N /21               78  1121
761  3 975         H                                                        1  3975  .                   78
762  3 976  ABZONE B     ER1121                                             4  3976  B I71               79  3971
763          *
764  3 980  EXP    BWZ   *&9,1&X3,2                                        8  3980  V I96 0?1 2         79  3996     001+3
765  3 988         B     INCX3                                              4  3988  B J37               79  2137
766  3 992         B     CKSIGN                                             4  3992  B I48               79  3948
767  3 996         BCE   *&5,1&X3,                                        8  3996  B 00Y 0?1           79  4008     001+3
768  4 004         B     *&5                                                4  4004  B 01S               79  4012
769  4 008         B     INCX3                                              4  4008  B J37               79  2137
770  4 012  SIGN   SW    1&X3                                               4  4012  , 0?1               80   001+3
771  4 016         BW    ZAS,2&X3                                           8  4016  V 03W 0?2 1         80  4036     002+3
772  4 024         BCE   ZAS,2&X3,                                         8  4024  B 03W 0?2           80  4036     002+3
773  4 032         SBR   X3                                                 4  4032  H 099               80   099
774  4 036  ZAS    ZA    1&X3,W3A  SOMETIMES ZS                            7  4036  ? 0?1 22T           80   001+3  4223
775  4 043         B     *&16                                               4  4043  B 06S               80  4062
776  4 047  CKEFMT BCE   ER1121,0&X2,E  E FORMAT?                          8  4047  B I71 0!0 E         81  3971     000+2
777  4 055         SBR   W3B,1&X3                                          7  4055  H 22W 0?1           81  4226     001+3
778  4 062  ZAS2   ZA                                                      1  4062  ?                   81
779  4 065         DC    @;0K@                                              3  4065                      81
780  4 066         BW    *&5,FLAG1                                          8  4066  V 07Y 26W 1         81  4078    4266
781  4 074         B     4140                                               4  4074  B 14|               81  4140
782  4 078         BW    *&15,FLAG3                                         8  4078  V 10| 26Y 1        81  4100    4268
783  4 086         S     9&X2,W3B                                           7  4086  S 0!9 22W           82   009+2  4226
784  4 093         ZA    W3B,W3                                             7  4093  ? 22W 23S           82  4226    4232
785  4 100         S     W3,W3C                                             7  4100  S 23S 22Z           82  4232    4229
786  4 107         A     A12K,W3A                                           7  4107  A L27 22T           82  2327    4223
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SEQ PG LIN  LABEL   OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

787  4 114          ZS    W3C                                                  4  4114  ! 22Z              82  4229
788  4 118          A     W3C,W3A                                              7  4118  A 22Z 22T          82  4229    4223
789  4 125          ZA    W3A                                                  4  4125  ? 22T              83  4223
790  4 131          DC    @;00@                                                3  4131                     83
791  4 132          BCE   IFMT3,0&X2,I                                         8  4132  B B67 0!0 I        83  3267     000+2
792  4 140          MCW                                                        1  4140  M                  83
793  4 143          DC    @;00@                                                3  4143                     83
794  4 146          DC    000                                                  3  4146                     83
795  4 147          LCA                                                        1  4147  L                  83
796  4 148          MCW   *&4,X3                                               7  4148  M 15Y 099          83  4158     099
797  4 155  CW4     CW    0                                                    4  4155  ) 000              83   000
798  4 159          B     SW2                                                  4  4159  B A54              83  3154
799          *
800  4 163          BW    *&12,FLAG1                                           8  4163  V 18S 26W 1        84  4182    4266
801  4 171          SBR   W3C,0&X3                                             7  4171  H 22Z 0?0          84  4229     000+3
802  4 178          SW    FLAG1                                                4  4178  , 26W              84  4266
803  4 182          BW    NOTDOT,FLAG2                                         8  4182  V H61 26X 1        84  3861    4267
804  4 190          MN    0&X3,2&X1                                            7  4190  D 0?0 0|2          84   000+3   002+1
805  4 197          SBR   X1                                                 4  4197  H 089              84   089
806  4 201          SW    FLAG2                                                4  4201  , 26X              85  4267
807  4 205          BCE   NOTDOT,4&X1,}  GM                                   8  4205  B H61 0|4 } GMARK  85  3861     004+1
808  4 213          CW    FLAG2                                                4  4213  ) 26X              85  4267
809  4 217          B     NOTDOT                                               4  4217  B H61              85  3861
810          *
811  4 223  W3A     DCW   #3                                                   3  4223                     85
812  4 226  W3B     DCW   #3                                                   3  4226                     85
813  4 229  W3C     DCW   #3                                                   3  4229                     85
814  4 232  W3      DCW   #3                                                   3  4232                     86
815  4 233  K5      DCW   @5@                                                  1  4233                     86
816  4 234  FLAG    DC    #1                                                   1  4234                     86
817  4 235  RDFLAG  DCW   #1  READ IF WM, WRITE IF NO WM                       1  4235                     86
818  4 238  ENDREC  DCW   #3  ADDRESS OF END OF RECORD, EITHER 334 OR 281      3  4238                     86
819  4 241  RECPOS  DCW   #3                                                   3  4241                     86
820  4 242  CH      DCW   #1                                                   1  4242                     86
821  4 243  WMFLAG  DCW   #1  WM IF CHAR BEING COPIED HAS A WM                1  4243                     86
822  4 246  COUNT   DCW   #3                                                   3  4246                     87
823  4 249  SX1     DCW   #3                                                   3  4249                     87
824  4 252  COUNT2  DCW   #3                                                   3  4252                     87
825  4 255  K0DOT0  DCW   @0.0@                                               3  4255                     87
826  4 258  KX      DCW   @ X @                                               3  4258                     87
827  4 259  KR      DCW   @R@                                                 1  4259                     87
828  4 260  KW      DCW   @W@                                                 1  4260                     87
829  4 262  KP41    DCW   &41                                                 2  4262                     88
830  4 265  A281    DSA   281                                                  3  4265  281                88   281
831  4 266  FLAG1   DCW   #1                                                   1  4266                     88
832  4 267  FLAG2   DCW   #1                                                   1  4267                     88
833  4 268  FLAG3   DCW   #1                                                   1  4268                     88
834  4 269          CW    1&X1                                          V3M4   4  4269  ) 0|1              88   001+1
835  4 273          B     NOOVFL                                        V3M4   4  4273  B A38              88  3138
836  4 278  K10     DCW   10                                            V3M4   2  4278                     89
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SEQ PG LIN  LABEL   OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR
837  4 279  GMWM    DCW   @}@  END OF NORMAL FORMAT ROUTINE          V3M4    1  4279              GMARK   89
838         NGM     EQU   GMWM                                               4279
839                 XFR   LOADNX                                                  B 700             90   700
840         *
841         * THIS WOULD NORMALLY BE AT THE END OF PHASE 54C, BUT IT LANDS
842         * WHERE THE FIRST STATEMENT OF THE CODE IS LOADED.
843         *
844                 ORG   201                                                      0201
845         LD54C   BW    LD54X,SKIPC  NOTHING TO DO IF 54C SKIPPED           8  0201  V 213 935 1        91   213     935
846                 CW    NGM                                                 4  0209  ) 27Z              91  4279
847         LD54X   CS    LOADNX,LD54GM   LOAD OR SKIP PHASE 54D              7  0213  / 700 226          91   700     226
848                 DCW   @ LD54C@                                            6  0225                    91
849         LD54GM  DCW   @}@                                                 1  0226              GMARK   91
850                 XFR   LD54C  CLEAN UP, THEN LOAD OR SKIP 54D                   B 201             92   201
851         *
852         * TAPE BLOCK IS TOO BIG FOR CHM TAU EMULATOR
853         *
854         PART3   LDPH  ,AFMT1,LD54D,SKIPD,SKIP54,54D  LOAD OR SKIP 54D                           MACRO
            * PHAZ   LDPH [PHASID],LOADAD,ENTAD[,SKIPFG,SKIP],[NUMBER][,HALT]                      GEN
            *        XFR  PHASZ     PROHIBITED IN A MACRO                                         GEN
            *                                                                                     GEN
            * LOAD THE BLOCK IF NO WM IN SKIPD, ELSE SKIP IT                                      GEN
            *                                                                                     GEN
855         )6K008  EQU   700  LOAD NEXT PHASE                                 0700              GEN
856         )6L008  EQU   704  TAPE READ INSTRUCTION                           0704              GEN
857         )6M008  EQU   728  TAPE ERROR HANDLER                              0728              GEN
            *                                                                                     GEN
858                 ORG   201                                                      0201
859         PART3   BSS   )8J008,G                                            5  0201  B 265 G     GEN     93   265
860                 NOP     TO PATCH IN TRAPS FOR DEBUGGING                   1  0206  N           GEN     93
861         )0J008  EQU   *&1                                                    0207              GEN
862                 BW    )2J008,SKIPD      Q: SKIP THE BLOCK?              8  0207  V 258 936 1 GEN     93   258     936
863                 BCE   )1J008,)6K008,1    Q: LOADING FROM CARDS?          8  0215  B 251 700 1 GEN     93   251     700
864                 BCE   )1J008,)6L008&4,0  Q: LOADING FROM AUTOCODER TAPE?  8  0223  B 251 708 0 GEN     93   251     708
865                 RTW   1,AFMT1           READ THE BLOCK                  8  0231  L %U1 28| R GEN     93   %U1    4280
866                 BER   )6M008             Q: TAPE ERROR?                 5  0239  B 728 L     GEN     94   728
867                 CS    LD54D,)9R008      ENTER THE BLOCK                 7  0244  / 61W 285   GEN     94  4616     285
868         )1J008  CS    )6K008,)9R008      LOAD CARDS OR AUTOCODER TAPE   7  0251  / 700 285   GEN     94   700     285
            * SKIP THE BLOCK                                                                      GEN
869         )2J008  CS    SKIP54,)9R008                                     7  0258  / 995 285   GEN     94   995     285
870         )8J008  SW    )9R008                                            4  0265  , 285       GEN     94   285
871                 MU    %T0,)8K008,W                                      8  0269  M %T0 281 W GEN     94   %T0     281
872                 H     )0J008                                            4  0277  . 207       GEN     95   207
873         )8K008  EQU   *&1                                                    0281              GEN
874                 DCW   #1                                                1  0281              GEN     95
875                 DC    @54D@          PHASE NUMBER                       3  0284              GEN     95
876         )9R008  DCW   @}@                                               1  0285              GEN     95
877                 XFR   PART3                                                    B 201             96   201
878                 ORG   NGM                                                     4279
879         *
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SEQ PG LIN  LABEL  OP    OPERANDS                                  SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

880            JOB   FORTRAN COMPILER -- A CONVERSION -- PHASE 54D
881         *
882         IMOD   EQU   690  INTEGER MODULUS -- NUMBER OF DIGITS          0690
883         *
884            ORG   4280                                                  4280
885 *4 280  AFMT1  BW    *&12,FLAG1                                 8  4280  V 29Z 26W 1         97  4299    4266
886  4 288         SBR   W3C,0&X3                                   7  4288  H 22Z 0?0           97  4229     000+3
887  4 295         SW    FLAG1                                      4  4295  , 26W               97  4266
888  4 299         BW    ATEST,FLAG2                                8  4299  V 34/ 26X 1         97  4341    4267
889  4 307         MN    0&X3,2&X1                                  7  4307  D 0?0 0|2           97   000+3   002+1
890  4 314         MZ    0&X3,2&X1                                  7  4314  Y 0?0 0|2           98   000+3   002+1
891  4 321         SBR   X1                                         4  4321  H 089               98   089
892  4 325         SW    FLAG2                                      4  4325  , 26X               98  4267
893  4 329         BCE   ATEST,4&X1,}  GM                          8  4329  B 34/ 0|4 } GMARK   98  4341     004+1
894  4 337         CW    FLAG2                                      4  4337  ) 26X               98  4267
895  4 341  ATEST  BW    *&9,1&X3  END OF SOURCE FIELD?             8  4341  V 35X 0?1 1         98  4357     001+3
896  4 349         B     INCX3                                      4  4349  B J37               98  2137
897  4 353         B     AFMT1                                      4  4353  B 28|               99  4280
898  4 357         SBR   W3B,1&X3                                   7  4357  H 22W 0?1           99  4226     001+3
899  4 364         MCW   4146,*&7                                   7  4364  M 14W 37X           99  4146    4377
900  4 371         MCW   0,0                                        7  4371  M 000 000           99   000     000
901  4 378         LCA                                              1  4378  L                   99
902  4 379         MCW   CW4&3,X3                                   7  4379  M 15Y 099           99  4158     099
903  4 386         B     SW2                                        4  4386  B A54               99  3154
904  4 390  AFMT2  MCW   K3B                                        4  4390  M 57X              100  4577
905  4 396         DC    @;00@                                      3  4396                     100
906  4 397         MCW   W20                                        4  4397  M 59X              100  4597
907  4 403         DC    @;0K@                                      3  4403                     100
908  4 404         SW    0&X1                                       4  4404  , 0|0              100   000+1
909  4 408         SBR   CW4&3,0&X1                                 7  4408  H 15Y 0|0          100  4158     000+1
910  4 415         B     3793                                V3M4   4  4415  B G93              100  3793
911         *
912         * MOVE DATA TO A FORMAT FIELD
913         *
914  4 419  AFMT3  MCW   2501,*&7                                   7  4419  M N01 43S          100  2501    4432
915  4 426  AMCW   MCW   0,0                                        7  4426  M 000 000          101   000     000
916  4 433         MCW                                              1  4433  M                  101
917  4 434         SBR   X1                                         4  4434  H 089              101   089
918  4 438         SBR   SRC,1&X1                                   7  4438  H 60T 0|1          101  4603     001+1
919  4 445         SBR   TRGEND,0&X3                                7  4445  H 60W 0?0          101  4606     000+3
920  4 452         MA    6&X2,TRGEND                                7  4452  # 0!6 60W          101   006+2  4606
921  4 459         SBR   TARGET,1&X3                                7  4459  H 60| 0?1          102  4600     001+3
922  4 466         MCW   AMCW&6,SRCEND                              7  4466  M 43S 60Z          102  4432    4609
923  4 473         MA    AM2,SRCEND                                 7  4473  # 61S 60Z          102  4612    4609
924  4 480  ALOOP  MN    1&X1,2&X3                                  7  4480  D 0|1 0?2          102   001+1   002+3
925  4 487         MZ    1&X1,2&X3                                  7  4487  Y 0|1 0?2          102   001+1   002+3
926  4 494         C     TARGET,TRGEND                              7  4494  C 60| 60W          103  4600    4606
927  4 501         BE    AEND                                       5  4501  B 55| S            103  4550
928  4 506         C     SRC,SRCEND                                 7  4506  C 60T 60Z          103  4603    4609
929  4 513         BE    AEND                                       5  4513  B 55| S            103  4550
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SEQ PG LIN  LABEL   OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

930  4 518          MA    A001,SRC                                          7  4518  # 61V 60T          103  4615    4603
931  4 525          MA    A001,TARGET                                       7  4525  # 61V 60|          103  4615    4600
932  4 532          SBR   X1,1&X1                                          7  4532  H 089 0|1          104   089     001+1
933  4 539          SBR   X3,1&X3                                          7  4539  H 099 0?1          104   099     001+3
934  4 546          B     ALOOP                                             4  4546  B 48|              104  4480
935  4 550  AEND    SBR   CW3&3,0&X3                                       7  4550  H A53 0?0          104  3153     000+3
936  4 557          MCW   TRGEND,X3                                         7  4557  M 60W 099          104  4606     099
937  4 564          SBR   X3,2&X3                                          7  4564  H 099 0?2          104   099     002+3
938  4 571          B     CW2                                               4  4571  B A46              105  3146
939         *
940  4 577  K3B     DCW   #3                                                3  4577                     105
941  4 597  W20     DCW   #20                                              20  4597                     105
942  4 600  TARGET  DCW   #3                                                3  4600                     105
943  4 603  SRC     DCW   #3                                                3  4603                     105
944  4 606  TRGEND  DCW   #3                                                3  4606                     105
945  4 609  SRCEND  DCW   #3                                                3  4609                     105
946  4 612  AM2     DSA   15998  -2 = 16000 - 2 = 15998                      3  4612  I9H                106 15998
947  4 615  A001    DSA   1                                                 3  4615  001                106   001
948         LD54D   CW    AGM                                               4  4616  ) 64W              106  4646
949                 C     IMOD,K01        Q: INTEGER MODULUS 01?            7  4620  C 690 64U          106   690    4644
950                 BU    LOADNX                                            5  4627  B 700 /            106   700
951                 LCA   NOP,NOOVFL                                        7  4632  L 64V A38          106  4645    3138
952                 B     LOADNX   LOAD PHASE 55                            4  4639  B 700              106   700
953         K01     DCW   01                                              2  4644                     107
954         NOP     NOP                                                   1  4645  N                  107
955  4 616  GMWMA   DCW   @}@  AT END OF A FORMAT ROUTINE                  1  4646              GMARK  107
956 *       AGM     EQU   GMWMA                                              4646
957                 XFR   LD54D                                                   B 61W              108  4616
```

SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS
)0J006	0207: 0	)0J007	0207: 0	)0J008	0207: 0	)1J006	0251: 0	)1J007	0251: 0	)1J008	0251: 0
)2J006	0258: 0	)2J007	0258: 0	)2J008	0258: 0	)6K006	0700: 0	)6K007	0700: 0	)6K008	0700: 0
)6L006	0704: 0	)6L007	0704: 0	)6L008	0704: 0	)6M006	0728: 0	)6M007	0728: 0	)6M008	0728: 0
)8J006	0265: 0	)8J007	0265: 0	)8J008	0265: 0	)8K006	0281: 0	)8K007	0281: 0	)8K008	0281: 0
)9R006	0287: 0	)9R007	0287: 0	)9R008	0285: 0	A001	4615: 0	A12K	2327: 0	A281	4265: 0
ABZ2	3789: 0	ABZONE	3976: 0	AEND	4550: 0	AFMT1	4280: 0	AFMT2	4390: 0	AFMT3	4419: 0
AGM	4646: 0	AGMWM	1696: 0	ALOOP	4480: 0	AM2	4612: 0	AMCW	4426: 0	ARITF	0700: 0
ARITI	1530: 0	ARYBOT	0933: 0	ATEST	4341: 0	BEG52A	0934: 0	BSP	3605: 0	BZONE	3781: 0
CDOVLY	0700: 0	CH	4242: 0	CHARS	1855: 0	CHKCH1	3881: 0	CHKCH2	3918: 0	CHKLEN	2808: 0
CHKLEX	2829: 0	CKEFMT	4047: 0	CKSIGN	3948: 0	CLEARP	3471: 0	CLEARR	3316: 0	CLEARW	3375: 0
CONBOT	0930: 0	COUNT	4246: 0	COUNT2	4252: 0	CPARGL	2332: 0	CW1	3142: 0	CW2	3146: 0
CW3	3150: 0	CW4	4155: 0	DBLE	3520: 0	DEC2	2396: 0	DOIO	3427: 0	DOSUB	1206: 0
DOT	3835: 0	EFMT	2568: 0	END1	3267: 0	ENDRD	3325: 0	ENDREC	4238: 0	EOFRD	3307: 0
EOFWR	3358: 0	ER1121	3971: 0	EXLINK	0840: 0	EXP	3980: 0	FFMT1	2704: 0	FFMT2	2993: 0
FFMT3	3133: 0	FINDGM	3044: 0	FLAG	4234: 0	FLAG1	4266: 0	FLAG2	4267: 0	FLAG3	4268: 0
FMTBA2	1697: 0	FMTBAS	1697: 0	GETB	2910: 0	GETWM	1916: 0	GETWML	1912: 0	GMWM	4279: 0
GMWM54	1070: 0	GMWMA	4646: 0	GOTB	2934: 0	GOTWM	1897: 0	IFMT	2833: 0	IFMT2	2865: 0
IFMT3	3267: 0	IFMT4	3699: 0	IMOD	0690: 0	INCX3	2137: 0	INCX3X	2148: 0	K01	4644: 0
K0DOT0	4255: 0	K1	3574: 0	K10	4278: 0	K2	3505: 0	K3B	4577: 0	K5	4233: 0
KP41	4262: 0	KP5	3647: 0	KR	4259: 0	KW	4260: 0	KX	4258: 0	KZ4	3266: 0
LCA	2079: 0	LD54C	0201: 0	LD54D	4616: 0	LD54GM	0226: 0	LD54X	0213: 0	LGM	2031: 0
LIMADR	2015: 0	LISTP2	2271: 0	LOAD54	0934: 0	LOADNX	0700: 0	LSTPOS	1968: 0	MANWID	0837: 0
MCS	3187: 0	MORE	2431: 0	MYSX2	1996: 0	NGM	4279: 0	NOOVFL	3138: 0	NOP	4645: 0
NOTDOT	3861: 0	NOZONE	3262: 0	OBLIST	0912: 0	OVFL	3166: 0	OVR9S	3195: 0	PART2	0201: 0
PART3	0201: 0	PHASLD	0381: 0	PHS54C	0201: 0	PUNCH	3525: 0	QFUNCT	1327: 0	RDFLAG	4235: 0
RDTAPE	3312: 0	READCD	3556: 0	RECPOS	4241: 0	REDOIO	3384: 0	RELENT	2132: 0	SAVZON	3648: 0
SBR	2637: 0	SETFP	0831: 0	SIGN	4012: 0	SKIP54	0995: 0	SKIPB	0934: 0	SKIPC	0935: 0
SKIPD	0936: 0	SKP	3618: 0	SNAPEX	0564: 0	SNAPSH	0333: 0	SRC	4603: 0	SRCEND	4609: 0
SUBSC	0909: 0	SW1	2894: 0	SW2	3154: 0	SX1	4249: 0	SX2	0927: 0	SX3	2952: 0
SX3A	3082: 0	TAPE	3434: 0	TAPERR	3591: 0	TARGET	4600: 0	TPERR	0728: 0	TPREAD	0704: 0
TRGEND	4606: 0	UNIT	2136: 0	USER1	0876: 0	W2	3650: 0	W20	4597: 0	W3	4232: 0
W3A	4223: 0	W3B	4226: 0	W3C	4229: 0	WMFLAG	4243: 0	X1	0089: 0	X2	0094: 0
X3	0099: 0	XXFLD	3240: 0	ZAS	4036: 0	ZAS2	4062: 0				

UNREFERENCED SYMBOLS

AGMWM ARITF ARITI ARYBOT BEG52A CDOVLY CONBOT DOSUB EXLINK GMWM54 LGM LIMADR LOAD54 PHASLD QFUNCT SKIPB SNAPEX
SUBSC SX2 TPERR TPREAD USER1