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

101                JOB   FORTRAN COMPILER -- DIMENSION PHASE TWO -- 12
102                CTL   6611
103         *
104         * ARRAYS ARE ASSIGNED THEIR OBJECT-TIME ADDRESSES.
105         *
106         * ON ENTRY, X3 IS ONE BELOW THE GROUP MARK BELOW THE BOTTOM OF
107         * THE ARRAY TABLE, AND 86 IS THE ADDRESS OF THE LOW-ORDER DIGIT
108         * OF THE OFFSET FIELD OF THE TOPMOST (FIRST) ARRAY TABLE ENTRY
109         * IF THERE ARE ANY ARRAYS, OR BLANK IF THERE IS NO ARRAY TABLE.
110         *
111         * ON EXIT THE FIXED-WIDTH FIELDS OF THE ARRAY TABLE ELEMENTS ARE
112         * THE BASE ADDRESS AS FIVE DIGITS, THE TOP ADDRESS AS THREE
113         * CHARACTERS WITH A TYPE ZONE IN THE SECOND CHARACTER, THE
114         * ARRAY ELEMENT WIDTH (IMOD OR MANTIS&2) AND JUNK, AND THE
115         * ADDRESS OF THE LOW-ORDER DIGIT OF THE FIRST ARRAY ELEMENT
116         * AS THREE CHARACTERS WITH A TYPE ZONE IN THE SECOND CHARACTER.
117         *
118         X1     EQU   89                                                      0089
119         X2     EQU   94                                                      0094
120         X3     EQU   99                                                      0099
121         *
122         * STUFF IN THE RESIDENT AREA
123         *
124         GLOBER EQU   184  GLOBAL ERROR FLAG -- WM MEANS ERROR               0184
125         ARYTOP EQU   194  TOP OF ARRAYS IN OBJECT CODE                      0194
126         TOPCOR EQU   688  TOP CORE ADDRESS FROM PARAM CARD                  0688
127         IMOD   EQU   690  INTEGER MODULUS -- NUMBER OF DIGITS               0690
128         MANTIS EQU   692  FLOATING POINT MANTISSA DIGITS                    0692
129         FMTSW  EQU   696  X FOR NO FORMAT, L FOR LIMITED FORMAT             0696
130         *                BLANK FOR ORDINARY, A FOR A CONVERSION
131         *
132                EXT00   SNAPSH, LOADNX, CDOVLY                                          MACRO
133         SNAPSH EQU   333                                                     0333       GEN
134         PHASLD EQU   381                                                     0381       GEN
135         SNAPEX EQU   564                                                     0564       GEN
136         LOADNX EQU   700   CARD OVERLAY UNLESS NOP                          0700       GEN
137         CDOVLY EQU   700   1 IF LOADING FROM CARDS, N IF FROM TAPE          0700       GEN
138         TPREAD EQU   704   LOAD OVERLAY FROM TAPE                           0704       GEN
139         TPERR  EQU   728                                                     0728       GEN
140         *
141                EXT03   START, TOP OF PHASE 3                                    MACRO
142         BEGIN3 EQU   838                                                     0838       GEN
143         TOP3   EQU   2600                                                    2600       GEN
144                XT54B   STUFF IN PHASE 54B, LIMITED FORMAT RUNTIME            MACRO
145         LIMADR EQU   2015  USED IN DIMENSION PHASE 2                        2015       GEN
146         LGM    EQU   2022                                                    2022       GEN
147                XT54C   STUFF IN PHASES 54B&C, G                             MACRO
148         FMTBAS EQU   1697                                                    1697       GEN
149         RELENT EQU   2132  ENTER HERE FROM RELOCATABLE FUNCTION TABLE       2132       GEN
150         NOOVFL EQU   3138                                                    3138       GEN
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SEQ PG LIN  LABEL   OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

151         NGM     EQU   4279                                                  4279        GEN
152         AFMT1   EQU   4280                                                  4280        GEN
153         AGM     EQU   4616                                                  4616        GEN
154         *
155         110     DCW   @DIMEN TWO@                                       9  0110                 1
156         094     DCW   000                                               3  0094                 2
157         096     DC    00                                                2  0096                 2
158         *
159         PHAS12  LDPH  DIMEN TWO,BEGN12,BEGN12,,,12                                        MACRO
            * PHAZ   LDPH [PHASID],LOADAD,ENTAD[,SKIPFG,SKIP],[NUMBER][,HALT]                GEN
            *        XFR  PHASZ     PROHIBITED IN A MACRO                                    GEN
            *                                                                               GEN
            * LOAD A BLOCK                                                                  GEN
            *                                                                               GEN
160         )6J005  EQU   110  PHASE ID                                          0110        GEN
161         )6K005  EQU   700  LOAD NEXT PHASE                                   0700        GEN
162         )6L005  EQU   704  TAPE READ INSTRUCTION                             0704        GEN
163         )6M005  EQU   728  TAPE ERROR HANDLER                               0728        GEN
            *                                                                               GEN
164                 ORG   201                                                         0201
165         PHAS12  EQU   *&1                                                     0201        GEN
166                 LCA   )9J005,)6J005                                       7   0201  L 252 110   GEN      3   252     110
167                 BCE   )6K005,)6K005,1      Q: LOADING FROM CARDS?         8   0208  B 700 700 1 GEN      3   700     700
168                 BCE   )6K005,)6L005&4,0    Q: LOADING FROM AUTOCODER TAPE? 8   0216  B 700 708 0 GEN      3   700     708
169                 RTW   1,BEGN12             READ THE BLOCK                 8   0224  L %U1 838 R GEN      3   %U1     838
170                 BER   )6M005               Q: TAPE ERROR?                 5   0232  B 728 L     GEN      3   728
171                 CS    BEGN12,)9R005        ENTER THE BLOCK                7   0237  / 838 256   GEN      4   838     256
172         )9J005  DCW   @DIMEN TWO@          PHASE ID                       9   0252              GEN      4
173                 DC    #1                                                1   0253              GEN      4
174                 DC    @12@          PHASE NUMBER                        2   0255              GEN      4
175         )9R005  DCW   @}@                                               1   0256              GEN      4
176                 XFR   PHAS12                                                   B 201                4   201
177         *
178                 ORG   BEGIN3                                                   0838
179    838  BEGN12  MCW   BASE3,DCIMAL                                       7   0838  M Z70 Z61           5  1970    1961
180                 BCE   ORD,FMTSW,     ORDINARY FORMATTING?               8   0845  B 890 696           5   890     696
181    846          MCW   BASE5A,DCIMAL                                     7   0853  M Z73 Z61           5  1973    1961
182    853          BCE   ORD,FMTSW,A    A-CONVERSION FORMATTING?           8   0860  B 890 696 A         5   890     696
183    861          MCW   BASE5L,DCIMAL                                     7   0868  M Z76 Z61           5  1976    1961
184    868          BCE   ORD,FMTSW,L    LIMITED FORMATTING?                8   0875  B 890 696 L         6   890     696
185    876          MCW   BASE5X,DCIMAL  FMTSW MUST BE X, NO FORMATTING     7   0883  M Z79 Z61           6  1979    1961
186         * CONVERT BASE? TO DCIMAL AND COPY TO BASE 5
187    891  ORD     B     CONV35  ADDRESS IN DCIMAL DO 5 DIGITS IN DCIMAL     4   0890  B Z09               6  1909
188                 A     *-6,DCIMAL                                        7   0894  A 894 Z61           6   894    1961
189                 MCW   DCIMAL,BASE5                                      7   0901  M Z61 Z67           6  1961    1967
190                 MCW   X3,83                                             7   0908  M 099 083           7   099     083
191    898          A     KP2,MANTIS  ADD EXPONENT WIDTH TO MANTISSA WIDTH  7   0915  A !33 692           7  2033     692
192    905          SW    GM                                                4   0922  , Z88               7  1988
193    909          LCA   GM,1&X3    PUT A GMWM BELOW BOTTOM OF ARRAY TABLE 7   0926  L Z88 0?1           7  1988     001+3
194    916          BCE   NOARY,86,  NO ARRAYS?                            8   0933  B V44 086           7  1544     086
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SEQ PG LIN  LABEL   OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

195    924          MCW   86,X3      ADDRESS OF LOWEST ARRAY                7  0941  M 086 099            8   086     099
196    931  AGAIN   S     W6                                                4  0948  S !39                8  2039
197    935          MCW   6&X3,NEXT                                        7  0952  M 0?6 !42            8   006+3  2042
198    942          BCE   NOEQV,1&X3,   NO EQUIVALENCE CLASS LINK?         8  0959  B T60 0?1            8  1360     001+3
199    950          MCW   3&X3,X2     NEXT MEMBER OF EQUIVALENCE CLASS     7  0967  M 0?3 094            8   003+3   094
200    957          ZA    0&X3,W10-4  OFFSET                               7  0974  ? 0?0 Z94            9   000+3  1994
201    964          M     5&X2,W10-1                                        7  0981  @ 0!5 Z97            9   005+2  1997
202    971          A     0&X2,W10-1  OFFSET OF NEXT IN EQUIVALENCE CLASS   7  0988  A 0!0 Z97            9   000+2  1997
203    978          MCW   W10-1,0&X3                                       7  0995  M Z97 0?0            9  1997     000+3
204    985  NOEQVR MCW   0&X3,W6                                           7  1002  M 0?0 !39            9   000+3  2039
205    992          SAR   X3                                              4  1009  Q 099                9   099
206    996          S     KP1,W6                                           7  1013  S !43 !39           10  2043    2039
207  1 003          MCW   X3,X2                                           7  1020  M 099 094           10   099     094
208  1 010  MORE    MCM   2&X2      GET X2 ABOVE THE GMWM                  4  1027  P 0!2               10   002+2
209  1 014          MN              AND THEN                               1  1031  D                   10
210  1 015          MN                BACK DOWN                            1  1032  D                   10
211  1 016          SAR   X2                BELOW IT                       4  1033  Q 094               10   094
212  1 020          BCE   MORE,1&X2,|                                      8  1037  B |27 0!1 |          10  1027     001+2
213  1 028          MCW   0&X2,CH   FIRST CHARACTER OF VARIABLE NAME       7  1045  M 0!0 !44           10   000+2  2044
214  1 035          MCW   CH,*&8                                          7  1052  M !44 |66           11  2044    1066
215  1 042          BCE   INTVAR,IJKLMN,0  INTEGER VARIABLE?              8  1059  B T49 !50 0         11  1349    2050
216  1 050          B                                                      1  1067  B                   11
217  1 051          B                                                      1  1068  B                   11
218  1 052          B                                                      1  1069  B                   11
219  1 053          B                                                      1  1070  B                   11
220  1 054          B                                                      1  1071  B                   11
221  1 055          A     MANTIS,W6    FLOATING POINT VARIABLE             7  1072  A 692 !39           11   692    2039
222  1 062  VAR     MCW   W6,14&X3     LOW-ORDER TO WHAT WAS PREV          7  1079  M !39 0A4           11  2039     014+3
223  1 069          MCW   W6-3,X2      THOUSANDS TO X2                     7  1086  M !36 094           12  2036     094
224  1 076          A     X2           DOUBLE IT                           4  1093  A 094               12   094
225  1 080          MZ    ZONES&X2,12&X3  THOUSANDS ZONES                 7  1097  Y !!1 0A2           12  2001+2   012+3
226  1 087          MZ    ZONES&1&X2,14&X3    TO VARIABLE ADDRESS         7  1104  Y !!2 0A4           12  2002+2   014+3
227  1 094          ZA    KZ1,W10-4    CLEAR                               7  1111  ? !51 Z94           12  2051    1994
228  1 101          MCW   0&X3,W10-4   GET FIRST DIMENSION                 7  1118  M 0?0 Z94           12   000+3  1994
229  1 108          MCW   KB1            AND A BLANK                       4  1125  M Z99               13  1999
230  1 112          SBR   PREP&6                                           4  1129  H /56               13  1156
231  1 116          NOP   0&X3         GET X2                              4  1133  N 0?0               13   000+3
232  1 120          MCW                  DOWN TO                           1  1137  M                   13
233  1 121          SAR   X2               SECOND DIMENSION                4  1138  Q 094               13   094
234  1 125          BCE   NODIM2,0&X2,}  NO SECOND DIMENSION IF GM?        8  1142  B /64 0!0 } GMARK   13  1164     000+2
235  1 133  PREP    MCW   0&X2,0-0                                         7  1150  M 0!0 000           13   000+2   000
236  1 140          M     0&X3,W10-4                                       7  1157  @ 0?0 Z94           13   000+3  1994
237  1 147  NODIM2  LCA   KB3,8&X3     CLOBBER EQUIVALENCE LINK            7  1164  L !54 0?8           14  2054     008+3
238  1 154          MCW   X1,SX1       SAVE X1                             7  1171  M 089 !57           14   089    2057
239  1 161          MCW   14&X3,X1     ADDRESS TO X1                       7  1178  M 0A4 089           14   014+3   089
240  1 168          MCW   CH,*&8                                          7  1185  M !44 /99           14  2044    1199
241  1 175          BCE   INTVR2,IJKLM2,0  INTEGER VARIABLE?              8  1192  B T82 !63 0         14  1382    2063
242  1 183          B                                                      1  1200  B                   14
243  1 184          B                                                      1  1201  B                   14
244  1 185          B                                                      1  1202  B                   14
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SEQ PG LIN  LABEL   OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

245  1 186          B                                                      1  1203  B                  15
246  1 187          B                                                      1  1204  B                  15
247  1 188          M     MANTIS,W10-1  FIRST DIMENSION * WIDTH            7  1205  @ 692 Z97          15   692    1997
248  1 195          MZ    KZAB,7&X3     MARK FLOATING-POINT ZONE         7  1212  Y !64 0?7          15  2064     007+3
249  1 202          MCW   MANTIS,10&X3                                    7  1219  M 692 0A0          15   692     010+3
250  1 209  VAR2    MZ    7&X3,13&X3    COPY TYPE ZONE                   7  1226  Y 0?7 0A3          15   007+3   013+3
251  1 216          MCW   SX1,X1                                         7  1233  M !57 089          15  2057     089
252  1 223          S     10&X3,W6      SUBTRACT VARIABLE WIDTH          7  1240  S 0A0 !39          16   010+3  2039
253  1 230          A     W10-1,W6                                       7  1247  A Z97 !39          16  1997    2039
254  1 237          MN    W6,8&X3       LOW-ORDER DIGITS                 7  1254  D !39 0?8          16  2039     008+3
255  1 244          MN                    TO WHAT WAS THE                1  1261  D                  16
256  1 245          MN                      EQUIVALENCE CLASS LINK       1  1262  D                  16
257  1 246          SAR   *&4                                            4  1263  Q S70              16  1270
258  1 250          MCW   0-0,X2                                         7  1267  M 000 094          16   000     094
259  1 257          MCW   KZ1                                            4  1274  M !51              16  2051
260  1 261          A     X2                                             4  1278  A 094              17   094
261  1 265          MZ    ZONES&1&X2,8&X3                                7  1282  Y !!2 0?8          17  2002+2   008+3
262  1 272          CW                  WHY NOT                          1  1289  )                  17
263  1 273          SBR   *&7             JUST                           4  1290  H T00              17  1300
264  1 277          MZ    ZONES&X2,0        MZ   ZONES&X2,6&X3 ?         7  1294  Y !!1 000          17  2001+2   000
265  1 284          A     KP1,W6                                         7  1301  A !43 !39          17  2043    2039
266  1 291          S     W6,BASE5    COMPUTE BASE5 = MAX(BASE5,W6)      7  1308  S !39 Z67          17  2039    1967
267  1 298          BM    NEGDIF,BASE5                                   8  1315  V T71 Z67 K        18  1371    1967
268  1 306          A     W6,BASE5                                       7  1323  A !39 Z67          18  2039    1967
269  1 313  TSTMOR  BCE   NOMORE,NEXT,  NO MORE ARRAYS IF NEXT IS BLANK  8  1330  B U07 !42          18  1407    2042
270  1 321          MCW   NEXT,X3                                        7  1338  M !42 099          18  2042     099
271  1 328          B     AGAIN                                          4  1345  B 948              18   948
272          *
273  1 332  INTVAR  A     IMOD,W6                                        7  1349  A 690 !39          19   690    2039
274  1 339          B     VAR                                            4  1356  B |79              19  1079
275          *
276          * AT THE END OF AN EQUIVALENCE CLASS (MAYBE THE ONLY ONE
277          * IN IT).
278          *
279  1 343  NOEQV   MCW   BASE5,0&X3                                      7  1360  M Z67 0?0          19  1967     000+3
280  1 350          B     NOEQVR                                         4  1367  B |02              19  1002
281          *
282  1 354  NEGDIF  MCW   W6,BASE5                                       7  1371  M !39 Z67          19  2039    1967
283  1 361          B     TSTMOR                                         4  1378  B T30              19  1330
284          *
285  1 365  INTVR2  M     IMOD,W10-1   FIRST DIMENSION * WIDTH           7  1382  @ 690 Z97          20   690    1997
286  1 372          MZ    KZB,7&X3     MARK INTEGER ZONE                 7  1389  Y !65 0?7          20  2065     007+3
287  1 379          MCW   IMOD,10&X3                                     7  1396  M 690 0A0          20   690     010+3
288  1 386          B     VAR2                                           4  1403  B S26              20  1226
289          *
290          * NO MORE ARRAY TABLE ELEMENTS
291          *
292          * CONVERT TOPCOR TO FIVE DIGITS
293          *
294          NOMORE MCW   TOPCOR,DCIMAL                                  7  1407  M 688 Z61          20   688    1961
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SEQ PG LIN  LABEL   OP    OPERANDS                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

295            B     CONV35  ADRESS IN DCIMAL TO 5 DIGITS IN DCIMAL      4  1414  B Z09             20  1909
296            MCW   DCIMAL,TOP5                                       7  1418  M Z61 Z84         21  1961    1984
297         *
298         * TEST FOR TOO BIG PROGRAM
299         *
300  1 479     S     BASE5,TOP5  TOPCOR - TOP OF ARRAYS                7  1425  S Z67 Z84         21  1967    1984
301  1 486     S     KP1,TOP5                                          7  1432  S !43 Z84         21  2043    1984
302  1 493     BM    TOOBIG,TOP5                                       8  1439  V V12 Z84 K       21  1512    1984
303  1 501     MN    TOP5,TOP.3   LOW-ORDER                           7  1447  D Z84 Z87         21  1984    1987
304  1 508     MN                   DIGITS OF                        1  1454  D                 21
305  1 509     MN                     FREE SPACE                     1  1455  D                 21
306  1 510     SAR   *&4                                             4  1456  Q U63             22  1463
307  1 514     MCW   0-0,X2      THOUSANDS TO X2                      7  1460  M 000 094         22   000     094
308  1 521     MCW   KZ1           AND A ZERO                         4  1467  M !51             22  2051
309  1 525     A     X2          DOUBLE IT                            4  1471  A 094             22   094
310  1 529     MZ    ZONES&1&X2,TOP.3                                 7  1475  Y !!2 Z87         22  2002+2  1987
311  1 536     CW                WHY NOT                              1  1482  )                 22
312  1 537     SBR   *&7           JUST                               4  1483  H U93             22  1493
313  1 541     MZ    ZONES&X2,0      MCW  ZONES&X2,TOP.3-2?           7  1487  Y !!1 000         22  2001+2   000
314  1 548     MCW   BASE3,ARYTOP                                     7  1494  M Z70 194         23  1970     194
315  1 555     MA    TOP.3,ARYTOP                                     7  1501  # Z87 194         23  1987     194
316  1 562     B     NOTBIG                                           4  1508  B V51             23  1551
317  1 566  TOOBIG BW  NOTBIG,W10  DON'T REPEAT ERROR MESSAGE         8  1512  V V51 Z98 1       23  1551    1998
318  1 574     CS    332                                              4  1520  / 332             23   332
319  1 578     CS                                                     1  1524  /                 23
320  1 579     MCW   ERROR2,270                                       7  1525  M J01 270         23  2101     270
321  1 586     W                                                      1  1532  2                 23
322  1 587     SW    GLOBER,W10     SET GLOBAL AND DON'T REPEAT FLAGS   7  1533  , 184 Z98         24   184    1998
323  1 594     S     TOP5                                             4  1540  S Z84             24  1984
324  1 598  NOARY  MCW   TOPCOR,ARYTOP                                7  1544  M 688 194         24   688     194
325  1 605  NOTBIG MCW   BASE3,86                                     7  1551  M Z70 086         24  1970     086
326  1 612     CC    L                                                2  1558  F L               24
327  1 614     BCV   *&5                                             5  1560  B V69 @           24  1569
328  1 619     B     *&3                                              4  1565  B V71             24  1571
329  1 623     CC    1                                                2  1569  F 1               24
330  1 625     CS    332                                              4  1571  / 332             25   332
331  1 629     CS                                                     1  1575  /                 25
332  1 630     MCW   STORGE,247                                       7  1576  M J46 247         25  2146     247
333  1 637     W                                                      1  1583  2                 25
334  1 638     CC    J                                                2  1584  F J               25
335  1 640     MCW   83,X3                                            7  1586  M 083 099         25   083     099
336         *
337         * PRINT THE ARRAYS AND THEIR ADDRESSES
338         *
339  1 647  NOTHER NOP   10&X3                                        4  1593  N 0A0             25   010+3
340  1 651     MCM                                                    1  1597  P                 25
341  1 652     SAR   X3                                               4  1598  Q 099             25   099
342  1 656     CS    299                                              4  1602  / 299             25   299
343  1 660  MORE3  BCE   MORE2,0&X3,|                                 8  1606  B Y62 0?0 |       26  1862     000+3
344  1 668     B                                                      1  1614  B                 26
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

345  1 669         MN    0&X3                                                 4  1615  D 0?0              26   000+3
346  1 673         MN                                                         1  1619  D                  26
347  1 674         SAR   X3                                                   4  1620  Q 099              26   099
348  1 678         BCE   NOARYS,0&X3,:   NO ARRAYS IF COLON                  8  1624  B Y74 0?0 :        26  1874     000+3
349  1 686         MN    201                                                  4  1632  D 201              26   201
350  1 690         MN                                                         1  1636  D                  26
351  1 691         SAR   X2                                                   4  1637  Q 094              26   094
352  1 695         SBR   X3,0&X3                                             7  1641  H 099 0?0          27   099     000+3
353         *
354         * MOVE VARIABLE TO PRINT AREA -- NEED TO REVERSE IT
355         *
356  1 702  MOVE   MCW   0&X3,CH2                                            7  1648  M 0?0 J47          27   000+3  2147
357  1 709         SAR   X3                                                   4  1655  Q 099              27   099
358  1 713         MCW   CH2,2&X2                                           7  1659  M J47 0!2          27  2147     002+2
359  1 720         SBR   X2                                                   4  1666  H 094              27   094
360  1 724         BW    MOVFIN,1&X3                                        8  1670  V W82 0?1 1        27  1682     001+3
361  1 732         B     MOVE                                               4  1678  B W48              28  1648
362  1 736  MOVFIN C     0&X3      SKIP                                     4  1682  C 0?0              28   000+3
363  1 740         C                 THE                                    1  1686  C                  28
364  1 741         C                   FIXED                                1  1687  C                  28
365  1 742         C                     WIDTH                              1  1688  C                  28
366  1 743         SAR   X2                FIELDS                           4  1689  Q 094              28   094
367  1 747         A     TOP5,5&X2                                          7  1693  A Z84 0!5          28  1984     005+2
368  1 754         MA    TOP.3,8&X2                                         7  1700  # Z87 0!8          28  1987     008+2
369  1 761         MA    TOP.3,14&X2                                        7  1707  # Z87 0J4          28  1987     014+2
370  1 768         MCS   5&X2,218                                           7  1714  Z 0!5 218          29   005+2   218
371  1 775         MCW   8&X2,234                                           7  1721  M 0!8 234          29   008+2   234
372  1 782         MZ    KB1,233                                            7  1728  Y Z99 233          29  1999     233
373  1 789         SW    220                                                4  1735  , 220              29   220
374         *
375         * CONVERT TOP ADDRESS OF ARRAY AT 8&X2 TO FIVE DIGITS IN DCIMAL
376         *
377               MCW   8&X2,DCIMAL                                          7  1739  M 0!8 Z61          29   008+2  1961
378               B     CONV35    ADRESS IN DCIMAL TO 5 DIGITS IN DCIMAL     4  1746  B Z09              29  1909
379  1 860        MCW   8&X2,224  MACHINE ADDRESS TO PRINT AREA              7  1750  M 0!8 224          30   008+2   224
380  1 867        MCW   DCIMAL    FIVE DIGIT ADDRESS TO PRINT AREA           4  1757  M Z61              30  1961
381  1 871        ZA    224                                                  4  1761  ? 224              30   224
382  1 875        MZ    *-4,224                                            7  1765  Y X67 224          30  1767     224
383  1 882        MCW   HYPHEN,219                                          7  1772  M J48 219          30  2148     219
384  1 889        MN    5&X2,230                                           7  1779  D 0!5 230          30   005+2   230
385  1 896        MN                                                         1  1786  D                  30
386  1 897        MN                                                         1  1787  D                  30
387  1 898        SAR   *&4                                                 4  1788  Q X95              31  1795
388  1 902        MCW   0,X2                                               7  1792  M 000 094          31   000     094
389  1 909        MCW   KZ1                                                4  1799  M !51              31  2051
390  1 913        A     X2                                                   4  1803  A 094              31   094
391  1 917        MZ    ZONES&1&X2,230                                     7  1807  Y !!2 230          31  2002+2   230
392  1 924        CW                                                         1  1814  )                  31
393  1 925        SBR   *&7                                                 4  1815  H Y25              31  1825
394  1 929        MZ    ZONES&X2,0                                         7  1819  Y !!1 000          31  2001+2   000
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SEQ PG LIN  LABEL   OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

395  1 936          BCV   *&5                                               5  1826  B Y35 @             32  1835
396  1 941          B     *&3                                               4  1831  B Y37               32  1837
397  1 945          CC    1                                                 2  1835  F 1                 32
398  1 947          W                                                       1  1837  2                   32
399  1 948          CS    299                                               4  1838  / 299               32   299
400  1 952          MCM   1&X3                                            4  1842  P 0?1               32   001+3
401  1 956          SAR   X3                                              4  1846  Q 099               32   099
402  1 960          BCE   DONE,0&X3,                                      8  1850  B Y98 0?0           32  1898     000+3
403  1 968          B     NOTHER  DO ANOTHER ONE                          4  1858  B V93               32  1593
404          *
405  1 972  MORE2   MCM   0&X3                                            4  1862  P 0?0               33   000+3
406  1 976          SBR   X3                                              4  1866  H 099               33   099
407  1 980          B     MORE3                                           4  1870  B W06               33  1606
408          *
409          * PRINT NO ARRAYS MESSAGE
410          *
411  1 984  NOARYS  CS    332                                             4  1874  / 332               33   332
412  1 988          CS                                                    1  1878  /                   33
413  1 989          MCW   NOARYM,209                                      7  1879  M J57 209           33  2157     209
414  1 996          W                                                     1  1886  2                   33
415  1 997          BCV   *&5                                             5  1887  B Y96 @             33  1896
416  2 002          B     DONE                                            4  1892  B Y98               33  1898
417  2 006          CC    1                                               2  1896  F 1                 33
418          *
419          * DONE
420          *
421  2 008  DONE    CC    L                                               2  1898  F L                 33
422  2 010          BSS   SNAPSH,E                                        5  1900  B 333 E             34   333
423  2 029          B     LOADNX                                          4  1905  B 700               34   700
424          *
425          * CONVERT ADDRESS IN DCIMAL TO DECIMAL WITH RESULT IN DCIMAL
426          *
427          *         MCW  ADDR,DCIMAL
428          *         B    CONV35
429          *
430          CONV35 SBR   C3EXIT&3       SAVE EXIT                       4  1909  H Z30               34  1930
431          C3LOOP ZA    DCIMAL&1,C3TEST&1  COPY DIGITS ONLY            7  1913  ? Z62 Z53           34  1962    1953
432                 C     DCIMAL,C3TEST      Q: ZONES ALL GONE?          7  1920  C Z61 Z52           34  1961    1952
433          C3EXIT BE    0-0            YES, ALL DONE                   5  1927  B 000 S             34   000
434                 MA    AM1000,DCIMAL  SUBRACT 1000 FROM ADDRESS       7  1932  # Z56 Z61           34  1956    1961
435                 A     *-6,DCIMAL-3   ADD 1000 TO DECIMAL ADDRESS     7  1939  A Z39 Z58           35  1939    1958
436                 B     C3LOOP                                          4  1946  B Z13               35  1913
437          C3TEST DCW   #3                                              3  1952                      35
438                 DC    #1                                              1  1953                      35
439          AM1000 DSA   15000         -1000                           3  1956  ?0?                 35 15000
440          DCIMAL DCW   #5                                              5  1961                      35
441                 DC    #1                                              1  1962                      35
442          *
443          * DATA
444          *
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

445  2 049  BASE5  DCW   #5   DECIMAL EQUIVALENT OF BASE*, FORMAT BASE          5  1967                      35
446         *                  ADDRESS FOR ARRAYS EVENTUALLY, 1 ABOVE TOP
447         *                  OF ARRAYS
448         *
449         * CHANGE VALUES FROM HERE TO BASE5X IF 54B OR 54CD REASSEMBLED.
450         *
451  2 052  BASE3  DSA   AFMT1-1   BASE5 - 1 IN MACHINE ADDRESS FORMAT      3  1970  27Z                 35  4279
452  2 060  BASE5A DSA   AGM       A FORMAT BASE ADDRESS FOR ARRAYS         3  1973  61W                 35  4616
453  2 068  BASE5L DSA   LGM       L FORMAT BASE ADDRESS FOR ARRAYS         3  1976  !22                 35  2022
454  2 076  BASE5X DSA   FMTBAS-1  X (NO) FORMAT BASE ADDRESS FOR ARRAYS   3  1979  W96                  36  1696
455  2 081  TOP5   DCW   00000  TOPCOR AS FIVE DIGITS                       5  1984                      36
456  2 084  TOP.3  DCW   000    TOPCOR LESS ARRAYS AS 3 CHARACTERS          3  1987                      36
457  2 085  GM     DC    @}@                                               1  1988             GMARK    36
458  2 095  W10    DCW   #10                                              10  1998                      36
459  2 096  KB1    DCW   #1                                                1  1999                      36
460  2 098  ZONES  DCW   @ 9@                                              2  2001                      36
461  2 129         DCW   @9Z9R9I99ZZZRZIZ9RZRRRIR9IZIRIII@                31  2032                      37
462  2 130  KP2    DCW   &2                                                1  2033                      37
463  2 136  W6     DCW   #6                                                6  2039                      37
464  2 139  NEXT   DCW   #3                                                3  2042                      38
465  2 140  KP1    DCW   &1                                                1  2043                      38
466  2 141  CH     DCW   #1                                                1  2044                      38
467  2 147  IJKLMN DCW   @IJKLMN@                                          6  2050                      38
468  2 148  KZ1    DCW   0                                                 1  2051                      38
469  2 151  KB3    DCW   #3                                                3  2054                      38
470  2 154  SX1    DCW   #3  SAVE AREA FOR X1                              3  2057                      38
471  2 160  IJKLM2 DCW   @IJKLMN@                                          6  2063                      38
472  2 161  KZAB   DCW   &1  A AND B ZONES                                 1  2064                      38
473  2 162  KZB    DCW   -1  B ZONE                                        1  2065                      38
474  2 206  ERROR2 DCW   @MESSAGE 2 - OBJECT PROGRAM TOO LARGE@           36  2101                      39
475  2 251  STORGE DCW   @STORAGE ASSIGNMENT-ARRAYS & EQUATED VARIABLES@  45  2146                      41
476  2 252  CH2    DCW   #1                                                1  2147                      41
477  2 257  HYPHEN DCW   @-@                                               1  2148                      41
478  2 266  NOARYM DCW   @NO ARRAYS@                                       9  2157                      41
479  2 273  GMWM   DCW   @}@                                               1  2158             GMARK    41
480                XFR   BEGN12                                                  B 838                  42   838
481         CLRME  CLRA  BEGN12,GMWM                                                          MACRO
            *      CLRA  CLRBOT,CLRTOP[,ORG,GMWMAD]                                           GEN
            *                                                                                 GEN
            * CLEAR CORE AFTER A PHASE USING THE CLRTOP ADDRESS                               GEN
            *                                                                                 GEN
482                ORG   201                                                      0201
            *                                                                               GEN
            * CLEAR DOWN TO CLRBOT & X00 THE EASY WAY                                       GEN
            *                                                                               GEN
483         CLRME  EQU   *&1                                                    0201        GEN
484         )0J006 CS    GMWM         CLEAR FROM CLRTOP                     4  0201  / J58       GEN     43  2158
485                SBR   )0J006&3                                            4  0205  H 204       GEN     43   204
486                SBR   )0L006&6                                            4  0209  H 250       GEN     43   250
487                C     )0J006&3,)0M006   DOWN TO CLRBOT & X00?            7  0213  C 204 261   GEN     43   204     261
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```
SEQ PG LIN  LABEL   OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

488                 BU    )0J006                                            5  0220  B 201 /     GEN     43   201
            *                                                                                     GEN
            * NOW CLEAR DOWN TO CLRBOT THE HARD WAY                                              GEN
            *                                                                                     GEN
489         )0K006  C     )0L006&6,)0N006                                   7  0225  C 250 264   GEN     43   250     264
490                 BU    )0L006                                            5  0232  B 244 /     GEN     43   244
491                 CS    LOADNX,)0Q006  LOAD THE NEXT BLOCK AT 1           7  0237  / 700 271   GEN     44   700     271
492         )0L006  LCA   )0P006,0-0     CLEAR WITH BLANK AND WORD MARK    7  0244  L 265 000   GEN     44   265     000
493                 SBR   )0L006&6                                          4  0251  H 250       GEN     44   250
494                 B     )0K006                                            4  0255  B 225       GEN     44   225
495         )0M006  DSA   )0R006         CLRBOT & X00 - 1                  3  0261  899         GEN     44   899
496         )0N006  DSA   BEGN12         CLRBOT                            3  0264  838         GEN     44   838
497         )0P006  DCW   #1                                               1  0265              GEN     44
498                 DC    @CLRA @     IDENTIFY IN A DECK, TAPE, OR DUMP     5  0270              GEN     44
499         )0Q006  DCW   @}@                                              1  0271              GEN     44
500                 ORG   BEGN12&X00                                                 0900
501         )0R006  EQU   *           CLRBOT & X00 - 1                        0899              GEN
502                 XFR   CLRME                                                     B 201               45   201
```

SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS
)0J006	0201: 0	)0K006	0225: 0	)0L006	0244: 0	)0M006	0261: 0	)0N006	0264: 0	)0P006	0265: 0
)0Q006	0271: 0	)0R006	0899: 0	)6J005	0110: 0	)6K005	0700: 0	)6L005	0704: 0	)6M005	0728: 0
)9J005	0252: 0	)9R005	0256: 0	AFMT1	4280: 0	AGAIN	0948: 0	AGM	4616: 0	AM1000	1956: 0
ARYTOP	0194: 0	BASE3	1970: 0	BASE5	1967: 0	BASE5A	1973: 0	BASE5L	1976: 0	BASE5X	1979: 0
BEGIN3	0838: 0	BEGN12	0838: 0	C3EXIT	1927: 0	C3LOOP	1913: 0	C3TEST	1952: 0	CDOVLY	0700: 0
CH	2044: 0	CH2	2147: 0	CLRME	0201: 0	CONV35	1909: 0	DCIMAL	1961: 0	DONE	1898: 0
ERROR2	2101: 0	FMTBAS	1697: 0	FMTSW	0696: 0	GLOBER	0184: 0	GM	1988: 0	GMWM	2158: 0
HYPHEN	2148: 0	IJKLM2	2063: 0	IJKLMN	2050: 0	IMOD	0690: 0	INTVAR	1349: 0	INTVR2	1382: 0
KB1	1999: 0	KB3	2054: 0	KP1	2043: 0	KP2	2033: 0	KZ1	2051: 0	KZAB	2064: 0
KZB	2065: 0	LGM	2022: 0	LIMADR	2015: 0	LOADNX	0700: 0	MANTIS	0692: 0	MORE	1027: 0
MORE2	1862: 0	MORE3	1606: 0	MOVE	1648: 0	MOVFIN	1682: 0	NEGDIF	1371: 0	NEXT	2042: 0
NGM	4279: 0	NOARY	1544: 0	NOARYM	2157: 0	NOARYS	1874: 0	NODIM2	1164: 0	NOEQV	1360: 0
NOEQVR	1002: 0	NOMORE	1407: 0	NOOVFL	3138: 0	NOTBIG	1551: 0	NOTHER	1593: 0	ORD	0890: 0
PHAS12	0201: 0	PHASLD	0381: 0	PREP	1150: 0	RELENT	2132: 0	SNAPEX	0564: 0	SNAPSH	0333: 0
STORGE	2146: 0	SX1	2057: 0	TOOBIG	1512: 0	TOP.3	1987: 0	TOP3	2600: 0	TOP5	1984: 0
TOPCOR	0688: 0	TPERR	0728: 0	TPREAD	0704: 0	TSTMOR	1330: 0	VAR	1079: 0	VAR2	1226: 0
W10	1998: 0	W6	2039: 0	X1	0089: 0	X2	0094: 0	X3	0099: 0	ZONES	2001: 0

UNREFERENCED SYMBOLS

CDOVLY LIMADR NGM NOOVFL PHASLD RELENT SNAPEX TOP3 TPERR TPREAD