```
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         FMTBAS EQU   1697                                                1697     GEN
146         LIMADR EQU   2015  USED IN DIMENSION PHASE 2                    2015     GEN
147         LGM    EQU   2031                                                2031     GEN
148               XT54C   STUFF IN PHASES 54B&C, G                                    MACRO
149         RELENT EQU   2132  ENTER HERE FROM RELOCATABLE FUNCTION TABLE    2132     GEN
150         AFMT1  EQU   4280                                                4280     GEN
```

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

151         AGM     EQU   4646                                                 4646            GEN
152         *
153         110     DCW   @DIMEN TWO@                                       9  0110                    1
154         094     DCW   000                                                3  0094                    2
155         096     DC    00                                                 2  0096                    2
156         *
157         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
158         )6J005  EQU   110  PHASE ID                                        0110            GEN
159         )6K005  EQU   700  LOAD NEXT PHASE                                 0700            GEN
160         )6L005  EQU   704  TAPE READ INSTRUCTION                           0704            GEN
161         )6M005  EQU   728  TAPE ERROR HANDLER                              0728            GEN
            *                                                                                   GEN
162                 ORG   201                                                        0201
163         PHAS12  BSS   )8J005,G                                           5  0201  B 257 G     GEN      3   257
164                 NOP     TO PATCH IN TRAPS FOR DEBUGGING                  1  0206  N           GEN      3
165         )0J005  EQU   *&1                                                  0207            GEN
166                 LCA   )9J005,)6J005                                      7  0207  L 281 110   GEN      3   281     110
167                 BCE   )1J005,)6K005,1    Q: LOADING FROM CARDS?          8  0214  B 250 700 1 GEN      3   250     700
168                 BCE   )1J005,)6L005&4,0  Q: LOADING FROM AUTOCODER TAPE?  8  0222  B 250 708 0 GEN      3   250     708
169                 RTW   1,BEGN12           READ THE BLOCK                  8  0230  L %U1 838 R GEN      3   %U1     838
170                 BER   )6M005             Q: TAPE ERROR?                  5  0238  B 728 L     GEN      4   728
171                 CS    BEGN12,)9R005      ENTER THE BLOCK                 7  0243  / 838 285   GEN      4   838     285
172         )1J005  CS    )6K005,)9R005      LOAD CARDS OR AUTOCODER TAPE    7  0250  / 700 285   GEN      4   700     285
173         )8J005  SW    )9R005                                           4  0257  , 285       GEN      4   285
174                 MU    %T0,)8K005,W                                     8  0261  M %T0 273 W GEN      4   %T0     273
175                 H     )0J005                                           4  0269  . 207       GEN      4   207
176         )8K005  EQU   *&1                                                  0273            GEN
177         )9J005  DCW   @DIMEN TWO@          PHASE ID                    9  0281            GEN      5
178                 DCW   #1                                                 1  0282            GEN      5
179                 DC    @12@          PHASE NUMBER                       2  0284            GEN      5
180         )9R005  DCW   @}@                                              1  0285            GEN      5
181                 XFR   PHAS12                                                   B 201               5   201
182         *
183                 ORG   BEGIN3                                                   0838
184     838 BEGN12  MCW   BASE3,DCIMAL                                       7  0838  M Z55 Z46           6  1955    1946
185                 BCE   ORD,FMTSW,     ORDINARY FORMATTING?              8  0845  B 890 696           6   890     696
186     846         MCW   BASE5A,DCIMAL                                     7  0853  M Z58 Z46           6  1958    1946
187     853         BCE   ORD,FMTSW,A    A-CONVERSION FORMATTING?           8  0860  B 890 696 A         6   890     696
188     861         MCW   BASE5L,DCIMAL                                     7  0868  M Z61 Z46           6  1961    1946
189     868         BCE   ORD,FMTSW,L    LIMITED FORMATTING?                8  0875  B 890 696 L         7   890     696
190     876         MCW   BASE5X,DCIMAL  FMTSW MUST BE X, NO FORMATTING     7  0883  M Z64 Z46           7  1964    1946
191         * CONVERT BASE? TO DCIMAL AND COPY TO BASE 5
192     891 ORD     B     CONV35  ADDRESS IN DCIMAL TO 5 DIGITS IN DCIMAL     4  0890  B Y86               7  1886
193                 A     *-6,DCIMAL                                         7  0894  A 894 Z46           7   894    1946
194                 MCW   DCIMAL,BASE5                                       7  0901  M Z46 Z52           7  1946    1952
```

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

195                 MCW   X3,83                                              7  0908  M 099 083           8   099     083
196    898          A     KP2,MANTIS  ADD EXPONENT WIDTH TO MANTISSA WIDTH     7  0915  A !18 692           8  2018     692
197    905          SW    GM                                                 4  0922  , Z73               8  1973
198    909          LCA   GM,1&X3    PUT A GMWM BELOW BOTTOM OF ARRAY TABLE   7  0926  L Z73 0?1           8  1973     001+3
199    916          BCE   NOARY,86,  NO ARRAYS?                              8  0933  B V44 086           8  1544     086
200    924          MCW   86,X3      ADDRESS OF LOWEST ARRAY                 7  0941  M 086 099           9   086     099
201    931  AGAIN   S     W6                                                 4  0948  S !24               9  2024
202    935          MCW   6&X3,NEXT                                          7  0952  M 0?6 !27           9   006+3  2027
203    942          BCE   NOEQV,1&X3,   NO EQUIVALENCE CLASS LINK?           8  0959  B T60 0?1           9  1360     001+3
204    950          MCW   3&X3,X2     NEXT MEMBER OF EQUIVALENCE CLASS       7  0967  M 0?3 094           9   003+3   094
205    957          ZA    0&X3,W10-4  OFFSET                                 7  0974  ? 0?0 Z79          10   000+3  1979
206    964          M     5&X2,W10-1                                         7  0981  @ 0!5 Z82          10   005+2  1982
207    971          A     0&X2,W10-1  OFFSET OF NEXT IN EQUIVALENCE CLASS    7  0988  A 0!0 Z82          10   000+2  1982
208    978          MCW   W10-1,0&X3                                         7  0995  M Z82 0?0          10  1982     000+3
209    985  NOEQVR MCW   0&X3,W6                                            7  1002  M 0?0 !24          10   000+3  2024
210    992          SAR   X3                                                4  1009  Q 099              10   099
211    996          S     KP1,W6                                             7  1013  S !28 !24          11  2028    2024
212  1 003          MCW   X3,X2                                             7  1020  M 099 094          11   099     094
213  1 010  MORE    MCM   2&X2      GET X2 ABOVE THE GMWM                    4  1027  P 0!2              11   002+2
214  1 014          MN                 AND THEN                            1  1031  D                  11
215  1 015          MN                   BACK DOWN                         1  1032  D                  11
216  1 016          SAR   X2                BELOW IT                       4  1033  Q 094              11   094
217  1 020          BCE   MORE,1&X2,|                                       8  1037  B |27 0!1 |         11  1027     001+2
218  1 028          MCW   0&X2,CH   FIRST CHARACTER OF VARIABLE NAME         7  1045  M 0!0 !29          12   000+2  2029
219  1 035          MCW   CH,*&8                                            7  1052  M !29 |66          12  2029    1066
220  1 042          BCE   INTVAR,IJKLMN,0  INTEGER VARIABLE?                8  1059  B T49 !35 0        12  1349    2035
221  1 050          B                                                       1  1067  B                  12
222  1 051          B                                                       1  1068  B                  12
223  1 052          B                                                       1  1069  B                  12
224  1 053          B                                                       1  1070  B                  12
225  1 054          B                                                       1  1071  B                  13
226  1 055          A     MANTIS,W6    FLOATING POINT VARIABLE               7  1072  A 692 !24          13   692    2024
227  1 062  VAR     MCW   W6,14&X3     LOW-ORDER TO WHAT WAS PREV            7  1079  M !24 0A4          13  2024     014+3
228  1 069          MCW   W6-3,X2      THOUSANDS TO X2                       7  1086  M !21 094          13  2021     094
229  1 076          A     X2           DOUBLE IT                             4  1093  A 094              13   094
230  1 080          MZ    ZONES&X2,12&X3  THOUSANDS ZONES                   7  1097  Y ZQ6 0A2          13  1986+2   012+3
231  1 087          MZ    ZONES&1&X2,14&X3    TO VARIABLE ADDRESS           7  1104  Y ZQ7 0A4          14  1987+2   014+3
232  1 094          ZA    KZ1,W10-4    CLEAR                                 7  1111  ? !36 Z79          14  2036    1979
233  1 101          MCW   0&X3,W10-4   GET FIRST DIMENSION                   7  1118  M 0?0 Z79          14   000+3  1979
234  1 108          MCW   KB1            AND A BLANK                         4  1125  M Z84              14  1984
235  1 112          SBR   PREP&6                                             4  1129  H /56              14  1156
236  1 116          NOP   0&X3         GET X2                                4  1133  N 0?0              14   000+3
237  1 120          MCW                  DOWN TO                             1  1137  M                  14
238  1 121          SAR   X2               SECOND DIMENSION                  4  1138  Q 094              15   094
239  1 125          BCE   NODIM2,0&X2,}  NO SECOND DIMENSION IF GM?          8  1142  B /64 0!0 } GMARK  15  1164     000+2
240  1 133  PREP    MCW   0&X2,0-0                                           7  1150  M 0!0 000          15   000+2   000
241  1 140          M     0&X3,W10-4                                         7  1157  @ 0?0 Z79          15   000+3  1979
242  1 147  NODIM2  LCA   KB3,8&X3     CLOBBER EQUIVALENCE LINK              7  1164  L !39 0?8          15  2039     008+3
243  1 154          MCW   X1,SX1       SAVE X1                               7  1171  M 089 !42          16   089    2042
244  1 161          MCW   14&X3,X1     ADDRESS TO X1                         7  1178  M 0A4 089          16   014+3   089
```

```
SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR
245  1 168         MCW   CH,*&8                                              7  1185  M !29 /99           16  2029    1199
246  1 175         BCE   INTVR2,IJKLM2,0  INTEGER VARIABLE?                  8  1192  B T82 !48 0         16  1382    2048
247  1 183         B                                                         1  1200  B                   16
248  1 184         B                                                         1  1201  B                   16
249  1 185         B                                                         1  1202  B                   16
250  1 186         B                                                         1  1203  B                   17
251  1 187         B                                                         1  1204  B                   17
252  1 188         M     MANTIS,W10-1  FIRST DIMENSION * WIDTH               7  1205  @ 692 Z82           17   692    1982
253  1 195         MZ    KZAB,7&X3     MARK FLOATING-POINT ZONE              7  1212  Y !49 0?7           17  2049     007+3
254  1 202         MCW   MANTIS,10&X3                                        7  1219  M 692 0A0           17   692     010+3
255  1 209  VAR2   MZ    7&X3,13&X3    COPY TYPE ZONE                        7  1226  Y 0?7 0A3           17   007+3   013+3
256  1 216         MCW   SX1,X1                                              7  1233  M !42 089           17  2042     089
257  1 223         S     10&X3,W6      SUBTRACT VARIABLE WIDTH               7  1240  S 0A0 !24           18   010+3  2024
258  1 230         A     W10-1,W6                                            7  1247  A Z82 !24           18  1982    2024
259  1 237         MN    W6,8&X3       LOW-ORDER DIGITS                      7  1254  D !24 0?8           18  2024     008+3
260  1 244         MN                    TO WHAT WAS THE                     1  1261  D                   18
261  1 245         MN                      EQUIVALENCE CLASS LINK            1  1262  D                   18
262  1 246         SAR   *&4                                                 4  1263  Q S70               18  1270
263  1 250         MCW   0-0,X2                                             7  1267  M 000 094           18   000     094
264  1 257         MCW   KZ1                                                 4  1274  M !36               19  2036
265  1 261         A     X2                                                  4  1278  A 094               19   094
266  1 265         MZ    ZONES&1&X2,8&X3                                     7  1282  Y ZQ7 0?8           19  1987+2   008+3
267  1 272         CW                  WHY NOT                               1  1289  )                   19
268  1 273         SBR   *&7             JUST                                4  1290  H T00               19  1300
269  1 277         MZ    ZONES&X2,0        MZ   ZONES&X2,6&X3 ?             7  1294  Y ZQ6 000           19  1986+2   000
270  1 284         A     KP1,W6                                              7  1301  A !28 !24           19  2028    2024
271  1 291         S     W6,BASE5    COMPUTE BASE5 = MAX(BASE5,W6)           7  1308  S !24 Z52           20  2024    1952
272  1 298         BM    NEGDIF,BASE5                                        8  1315  V T71 Z52 K         20  1371    1952
273  1 306         A     W6,BASE5                                            7  1323  A !24 Z52           20  2024    1952
274  1 313  TSTMOR BCE   NOMORE,NEXT,  NO MORE ARRAYS IF NEXT IS BLANK       8  1330  B U07 !27           20  1407    2027
275  1 321         MCW   NEXT,X3                                            7  1338  M !27 099           20  2027     099
276  1 328         B     AGAIN                                               4  1345  B 948               21   948
277         *
278  1 332  INTVAR A     IMOD,W6                                             7  1349  A 690 !24           21   690    2024
279  1 339         B     VAR                                                 4  1356  B |79               21  1079
280         *
281         * AT THE END OF AN EQUIVALENCE CLASS (MAYBE THE ONLY ONE
282         * IN IT).
283         *
284  1 343  NOEQV  MCW   BASE5,0&X3                                          7  1360  M Z52 0?0           21  1952     000+3
285  1 350         B     NOEQVR                                              4  1367  B |02               21  1002
286         *
287  1 354  NEGDIF MCW   W6,BASE5                                           7  1371  M !24 Z52           21  2024    1952
288  1 361         B     TSTMOR                                              4  1378  B T30               21  1330
289         *
290  1 365  INTVR2 M     IMOD,W10-1   FIRST DIMENSION * WIDTH                7  1382  @ 690 Z82           22   690    1982
291  1 372         MZ    KZB,7&X3     MARK INTEGER ZONE                      7  1389  Y !50 0?7           22  2050     007+3
292  1 379         MCW   IMOD,10&X3                                          7  1396  M 690 0A0           22   690     010+3
293  1 386         B     VAR2                                                4  1403  B S26               22  1226
294         *
```

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

295         * NO MORE ARRAY TABLE ELEMENTS
296         *
297         * CONVERT TOPCOR TO FIVE DIGITS
298         *
299         NOMORE MCW   TOPCOR,DCIMAL                                    7  1407  M 688 Z46           22   688    1946
300                B     CONV35  ADRESS IN DCIMAL TO 5 DIGITS IN DCIMAL    4  1414  B Y86               22  1886
301                MCW   DCIMAL,TOP5                                       7  1418  M Z46 Z69           23  1946    1969
302         *
303         * TEST FOR TOO BIG PROGRAM
304         *
305  1 479          S     BASE5,TOP5  TOPCOR - TOP OF ARRAYS              7  1425  S Z52 Z69           23  1952    1969
306  1 486          S     KP1,TOP5                                        7  1432  S !28 Z69           23  2028    1969
307  1 493          BM    TOOBIG,TOP5                                     8  1439  V V12 Z69 K         23  1512    1969
308  1 501          MN    TOP5,TOP.3   LOW-ORDER                         7  1447  D Z69 Z72           23  1969    1972
309  1 508          MN                  DIGITS OF                        1  1454  D                   23
310  1 509          MN                    FREE SPACE                     1  1455  D                   23
311  1 510          SAR   *&4                                            4  1456  Q U63               24  1463
312  1 514          MCW   0-0,X2      THOUSANDS TO X2                   7  1460  M 000 094           24   000     094
313  1 521          MCW   KZ1           AND A ZERO                      4  1467  M !36               24  2036
314  1 525          A     X2          DOUBLE IT                         4  1471  A 094               24   094
315  1 529          MZ    ZONES&1&X2,TOP.3                              7  1475  Y ZQ7 Z72           24  1987+2  1972
316  1 536          CW                WHY NOT                           1  1482  )                   24
317  1 537          SBR   *&7           JUST                            4  1483  H U93               24  1493
318  1 541          MZ    ZONES&X2,0      MCW  ZONES&X2,TOP.3-2?        7  1487  Y ZQ6 000           25  1986+2   000
319  1 548          MCW   BASE3,ARYTOP                                  7  1494  M Z55 194           25  1955     194
320  1 555          MA    TOP.3,ARYTOP                                  7  1501  # Z72 194           25  1972     194
321  1 562          B     NOTBIG                                        4  1508  B V51               25  1551
322  1 566  TOOBIG  BW    NOTBIG,W10  DON'T REPEAT ERROR MESSAGE         8  1512  V V51 Z83 1         25  1551    1983
323  1 574          CS    332                                           4  1520  / 332               25   332
324  1 578          CS                                                  1  1524  /                   25
325  1 579          MCW   ERROR2,270                                    7  1525  M !86 270           26  2086     270
326  1 586          W                                                   1  1532  2                   26
327  1 587          SW    GLOBER,W10     SET GLOBAL AND DON'T REPEAT FLAGS 7  1533  , 184 Z83           26   184    1983
328  1 594          S     TOP5                                          4  1540  S Z69               26  1969
329  1 598  NOARY   MCW   TOPCOR,ARYTOP                                 7  1544  M 688 194           26   688     194
330  1 605  NOTBIG  MCW   BASE3,86                                      7  1551  M Z55 086           26  1955     086
331  1 612          CC    L                                             2  1558  F L                 26
332  1 614          BCV   *&5                                           5  1560  B V69 @             27  1569
333  1 619          B     *&3                                           4  1565  B V71               27  1571
334  1 623          CC    1                                             2  1569  F 1                 27
335  1 625          CS    332                                           4  1571  / 332               27   332
336  1 629          CS                                                  1  1575  /                   27
337  1 630          MCW   STORGE,247                                    7  1576  M J31 247           27  2131     247
338  1 637          W                                                   1  1583  2                   27
339  1 638          CC    J                                             2  1584  F J                 28
340  1 640          MCW   83,X3                                         7  1586  M 083 099           28   083     099
341         *
342         * PRINT THE ARRAYS AND THEIR ADDRESSES
343         *
344  1 647  NOTHER  NOP   10&X3                                         4  1593  N 0A0               28   010+3
```

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

345  1 651          MCM                                                      1  1597  P                   28
346  1 652          SAR   X3                                                 4  1598  Q 099               28   099
347  1 656          CS    299                                                4  1602  / 299               28   299
348  1 660  MORE3    BCE   MORE2,0&X3,|                                      8  1606  B Y44 0?0 |         28  1844     000+3
349  1 668          B                                                        1  1614  B                   29
350  1 669          MN    0&X3                                               4  1615  D 0?0               29   000+3
351  1 673          MN                                                       1  1619  D                   29
352  1 674          SAR   X3                                                 4  1620  Q 099               29   099
353  1 678          BCE   NOARYS,0&X3,:   NO ARRAYS IF COLON                 8  1624  B Y56 0?0 :         29  1856     000+3
354  1 686          MN    201                                                4  1632  D 201               29   201
355  1 690          MN                                                       1  1636  D                   29
356  1 691          SAR   X2                                                 4  1637  Q 094               30   094
357  1 695          SBR   X3,0&X3                                           7  1641  H 099 0?0           30   099     000+3
358           *
359           * MOVE VARIABLE TO PRINT AREA -- NEED TO REVERSE IT
360           *
361  1 702  MOVE     MCW   0&X3,CH2                                           7  1648  M 0?0 J32           30   000+3  2132
362  1 709          SAR   X3                                                 4  1655  Q 099               30   099
363  1 713          MCW   CH2,2&X2                                           7  1659  M J32 0!2           30  2132     002+2
364  1 720          SBR   X2                                                 4  1666  H 094               30   094
365  1 724          BW    MOVFIN,1&X3                                        8  1670  V W82 0?1 1         31  1682     001+3
366  1 732          B     MOVE                                               4  1678  B W48               31  1648
367  1 736  MOVFIN   C     0&X3      SKIP                                     4  1682  C 0?0               31   000+3
368  1 740          C                 THE                                    1  1686  C                   31
369  1 741          C                   FIXED                                1  1687  C                   31
370  1 742          C                     WIDTH                              1  1688  C                   31
371  1 743          SAR   X2                FIELDS                           4  1689  Q 094               31   094
372  1 747          A     TOP5,5&X2                                          7  1693  A Z69 0!5           32  1969     005+2
373  1 754          MA    TOP.3,8&X2                                         7  1700  # Z72 0!8           32  1972     008+2
374  1 761          MA    TOP.3,14&X2                                        7  1707  # Z72 0J4           32  1972     014+2
375  1 768          MCS   5&X2,218                                           7  1714  Z 0!5 218           32   005+2   218
376  1 775          MCW   8&X2,234                                           7  1721  M 0!8 234           32   008+2   234
377  1 782          MZ    KB1,233                                            7  1728  Y Z84 233           33  1984     233
378  1 789          SW    220                                                4  1735  , 220               33   220
379           *
380           * CONVERT TOP ADDRESS OF ARRAY AT 8&X2 TO FIVE DIGITS IN DCIMAL
381           *
382                 MCW   234,DCIMAL  MACHINE ADDRESS SANS INDEX ZONE         7  1739  M 234 Z46           33   234    1946
383                 B     CONV35      ADRESS IN DCIMAL TO 5 DIGITS IN DCIMAL  4  1746  B Y86               33  1886
384  1 860          MCW   DCIMAL,224  FIVE DIGIT ADDRESS TO PRINT AREA        7  1750  M Z46 224           33  1946     224
385  1 882          MCW   HYPHEN                                             4  1757  M J33               33  2133
386  1 889          MN    5&X2,230                                           7  1761  D 0!5 230           34   005+2   230
387  1 896          MN                                                       1  1768  D                   34
388  1 897          MN                                                       1  1769  D                   34
389  1 898          SAR   *&4                                               4  1770  Q X77               34  1777
390  1 902          MCW   0,X2                                               7  1774  M 000 094           34   000     094
391  1 909          MCW   KZ1                                                4  1781  M !36               34  2036
392  1 913          A     X2                                                 4  1785  A 094               34   094
393  1 917          MZ    ZONES&1&X2,230                                     7  1789  Y ZQ7 230           35  1987+2   230
394  1 924          CW                                                       1  1796  )                   35
```

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

395  1 925          SBR   *&7                                               4  1797  H Y07               35  1807
396  1 929          MZ    ZONES&X2,0                                        7  1801  Y ZQ6 000           35  1986+2   000
397  1 936          BCV   *&5                                              5  1808  B Y17 @             35  1817
398  1 941          B     *&3                                               4  1813  B Y19               35  1819
399  1 945          CC    1                                                 2  1817  F 1                 35
400  1 947          W                                                       1  1819  2                   36
401  1 948          CS    299                                               4  1820  / 299               36   299
402  1 952          MCM   1&X3                                             4  1824  P 0?1               36   001+3
403  1 956          SAR   X3                                                4  1828  Q 099               36   099
404  1 960          BCE   DONE,0&X3,                                        8  1832  B Y80 0?0           36  1880     000+3
405  1 968          B     NOTHER  DO ANOTHER ONE                            4  1840  B V93               36  1593
406          *
407  1 972  MORE2   MCM   0&X3                                             4  1844  P 0?0               36   000+3
408  1 976          SBR   X3                                                4  1848  H 099               37   099
409  1 980          B     MORE3                                             4  1852  B W06               37  1606
410          *
411          * PRINT NO ARRAYS MESSAGE
412          *
413  1 984  NOARYS  CS    332                                               4  1856  / 332               37   332
414  1 988          CS                                                      1  1860  /                   37
415  1 989          MCW   NOARYM,209                                        7  1861  M J42 209           37  2142     209
416  1 996          W                                                       1  1868  2                   37
417  1 997          BCV   *&5                                              5  1869  B Y78 @             37  1878
418  2 002          B     DONE                                              4  1874  B Y80               38  1880
419  2 006          CC    1                                                 2  1878  F 1                 38
420          *
421          * DONE
422          *
423  2 008  DONE    CC    L                                                 2  1880  F L                 38
424  2 029          B     LOADNX                                            4  1882  B 700               38   700
425          *
426          * CONVERT ADDRESS IN DCIMAL TO DECIMAL WITH RESULT IN DCIMAL
427          *
428          *         MCW  ADDR,DCIMAL
429          *         B    CONV35
430          *
431          CONV35  SBR   C3EXIT&3       SAVE EXIT                          4  1886  H Z15               38  1915
432                  MN    AM1000,DCIMAL-3                                   7  1890  D Z41 Z43           38  1941    1943
433                  MN                                                      1  1897  D                   38
434          C3LOOP  ZA    DCIMAL&1,C3TEST&1  COPY DIGITS ONLY               7  1898  ? Z47 Z38           39  1947    1938
435                  C     DCIMAL,C3TEST      Q: ZONES ALL GONE?             7  1905  C Z46 Z37           39  1946    1937
436          C3EXIT  BE    0-0            YES, ALL DONE                      5  1912  B 000 S             39   000
437                  MA    AM1000,DCIMAL  SUBRACT 1000 FROM ADDRESS          7  1917  # Z41 Z46           39  1941    1946
438                  A     *-6,DCIMAL-3   ADD 1000 TO DECIMAL ADDRESS        7  1924  A Z24 Z43           39  1924    1943
439                  B     C3LOOP                                            4  1931  B Y98               39  1898
440          C3TEST  DCW   #3                                                3  1937                      40
441                  DC    #1                                                1  1938                      40
442          AM1000  DSA   15000         -1000                               3  1941  ?0?                 40 15000
443          DCIMAL  DCW   #5                                                5  1946                      40
444                  DC    #1                                                1  1947                      40
```

```
SEQ PG LIN  LABEL   OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR
445         *
446         * DATA
447         *
448  2 049  BASE5   DCW   #5   DECIMAL EQUIVALENT OF BASE*, FORMAT BASE        5  1952                      40
449         *                   ADDRESS FOR ARRAYS EVENTUALLY, 1 ABOVE TOP
450         *                   OF ARRAYS
451         *
452         * CHANGE VALUES FROM HERE TO BASE5X IF 54B OR 54CD REASSEMBLED.
453         *
454  2 052  BASE3   DSA   AFMT1-1   BASE5 - 1 IN MACHINE ADDRESS FORMAT      3  1955  27Z                 40  4279
455  2 060  BASE5A DSA   AGM       A FORMAT BASE ADDRESS FOR ARRAYS          3  1958  64W                 40  4646
456  2 068  BASE5L DSA   LGM       L FORMAT BASE ADDRESS FOR ARRAYS          3  1961  !31                 40  2031
457  2 076  BASE5X DSA   FMTBAS-1  X (NO) FORMAT BASE ADDRESS FOR ARRAYS    3  1964  W96                 41  1696
458  2 081  TOP5   DCW   00000  TOPCOR AS FIVE DIGITS                        5  1969                      41
459  2 084  TOP.3  DCW   000    TOPCOR LESS ARRAYS AS 3 CHARACTERS           3  1972                      41
460  2 085  GM     DC    @}@                                               1  1973             GMARK    41
461  2 095  W10    DCW   #10                                              10  1983                      41
462  2 096  KB1    DCW   #1                                                1  1984                      41
463  2 098  ZONES  DCW   @ 9@                                              2  1986                      41
464  2 129         DCW   @9Z9R9I99ZZZRZIZ9RZRRRIR9IZIRIII@                31  2017                      42
465  2 130  KP2    DCW   &2                                                1  2018                      42
466  2 136  W6     DCW   #6                                                6  2024                      42
467  2 139  NEXT   DCW   #3                                                3  2027                      43
468  2 140  KP1    DCW   &1                                                1  2028                      43
469  2 141  CH     DCW   #1                                                1  2029                      43
470  2 147  IJKLMN DCW   @IJKLMN@                                          6  2035                      43
471  2 148  KZ1    DCW   0                                                 1  2036                      43
472  2 151  KB3    DCW   #3                                                3  2039                      43
473  2 154  SX1    DCW   #3  SAVE AREA FOR X1                              3  2042                      43
474  2 160  IJKLM2 DCW   @IJKLMN@                                          6  2048                      44
475  2 161  KZAB   DCW   &1  A AND B ZONES                                 1  2049                      44
476  2 162  KZB    DCW   -1  B ZONE                                        1  2050                      44
477  2 206  ERROR2 DCW   @MESSAGE 2 - OBJECT PROGRAM TOO LARGE@           36  2086                      45
478  2 251  STORGE DCW   @STORAGE ASSIGNMENT-ARRAYS & EQUATED VARIABLES@  45  2131                      47
479  2 252  CH2    DCW   #1                                                1  2132                      47
480  2 257  HYPHEN DCW   @-@                                               1  2133                      47
481  2 266  NOARYM DCW   @NO ARRAYS@                                       9  2142                      47
482  2 273  GMWM   DCW   @}@                                               1  2143             GMARK    47
483                XFR   BEGN12                                                  B 838                  47   838
484         CLRME  CLRA  BEGN12,GMWM,E                                                    MACRO
            *      CLRA  CLRBOT,CLRTOP[,SS,HERE,GWMAD]                                    GEN
            *                                                                            GEN
            * CLEAR CORE AFTER A PHASE USING THE CLRTOP ADDRESS                          GEN
            *                                                                            GEN
485                ORG   201                                                     0201
            *                                                                            GEN
            * CLEAR DOWN TO CLRBOT & X00 THE EASY WAY                                    GEN
            *                                                                            GEN
486         CLRME  EQU   *&1                                                  0201       GEN
487                BSS   SNAPSH,E                                           5  0201  B 333 E     GEN     48   333
```

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

488         )0J006 CS    GMWM         CLEAR FROM CLRTOP                 4  0206  / J43       GEN     48  2143
489                SBR   )0J006&3                                       4  0210  H 209       GEN     48   209
490                SBR   )0L006&6                                       4  0214  H 255       GEN     48   255
491                C     )0J006&3,)0M006   DOWN TO CLRBOT & X00?        7  0218  C 209 266   GEN     48   209     266
492                BU    )0J006                                        5  0225  B 206 /     GEN     48   206
           *                                                                                  GEN
           * NOW CLEAR DOWN TO CLRBOT THE HARD WAY                                           GEN
           *                                                                                  GEN
493         )0K006 C     )0L006&6,)0N006                               7  0230  C 255 269   GEN     48   255     269
494                BU    )0L006                                        5  0237  B 249 /     GEN     49   249
495                CS    LOADNX,)0Q006  LOAD THE NEXT BLOCK AT 1       7  0242  / 700 276   GEN     49   700     276
496         )0L006 LCA   )0P006,0-0     CLEAR WITH BLANK AND WORD MARK  7  0249  L 270 000   GEN     49   270     000
497                SBR   )0L006&6                                       4  0256  H 255       GEN     49   255
498                B     )0K006                                        4  0260  B 230       GEN     49   230
499         )0M006 DSA   )0R006         CLRBOT & X00 - 1              3  0266  899         GEN     49   899
500         )0N006 DSA   BEGN12         CLRBOT                        3  0269  838         GEN     49   838
501         )0P006 DCW   #1                                            1  0270              GEN     50
502                DC    @CLRA @     IDENTIFY IN A DECK, TAPE, OR DUMP 5  0275              GEN     50
503         )0Q006 DCW   @}@                                           1  0276              GEN     50
504                ORG   BEGN12&X00                                                0900
505         )0R006 EQU   *           CLRBOT & X00 - 1                     0899              GEN
506                XFR   CLRME                                                    B 201               50   201
```

SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS
)0J005	0207: 0	)0J006	0206: 0	)0K006	0230: 0	)0L006	0249: 0	)0M006	0266: 0	)0N006	0269: 0
)0P006	0270: 0	)0Q006	0276: 0	)0R006	0899: 0	)1J005	0250: 0	)6J005	0110: 0	)6K005	0700: 0
)6L005	0704: 0	)6M005	0728: 0	)8J005	0257: 0	)8K005	0273: 0	)9J005	0281: 0	)9R005	0285: 0
AFMT1	4280: 0	AGAIN	0948: 0	AGM	4646: 0	AM1000	1941: 0	ARYTOP	0194: 0	BASE3	1955: 0
BASE5	1952: 0	BASE5A	1958: 0	BASE5L	1961: 0	BASE5X	1964: 0	BEGIN3	0838: 0	BEGN12	0838: 0
C3EXIT	1912: 0	C3LOOP	1898: 0	C3TEST	1937: 0	CDOVLY	0700: 0	CH	2029: 0	CH2	2132: 0
CLRME	0201: 0	CONV35	1886: 0	DCIMAL	1946: 0	DONE	1880: 0	ERROR2	2086: 0	FMTBAS	1697: 0
FMTSW	0696: 0	GLOBER	0184: 0	GM	1973: 0	GMWM	2143: 0	HYPHEN	2133: 0	IJKLM2	2048: 0
IJKLMN	2035: 0	IMOD	0690: 0	INTVAR	1349: 0	INTVR2	1382: 0	KB1	1984: 0	KB3	2039: 0
KP1	2028: 0	KP2	2018: 0	KZ1	2036: 0	KZAB	2049: 0	KZB	2050: 0	LGM	2031: 0
LIMADR	2015: 0	LOADNX	0700: 0	MANTIS	0692: 0	MORE	1027: 0	MORE2	1844: 0	MORE3	1606: 0
MOVE	1648: 0	MOVFIN	1682: 0	NEGDIF	1371: 0	NEXT	2027: 0	NOARY	1544: 0	NOARYM	2142: 0
NOARYS	1856: 0	NODIM2	1164: 0	NOEQV	1360: 0	NOEQVR	1002: 0	NOMORE	1407: 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	2131: 0	SX1	2042: 0	TOOBIG	1512: 0	TOP.3	1972: 0
TOP3	2600: 0	TOP5	1969: 0	TOPCOR	0688: 0	TPERR	0728: 0	TPREAD	0704: 0	TSTMOR	1330: 0
VAR	1079: 0	VAR2	1226: 0	W10	1983: 0	W6	2024: 0	X1	0089: 0	X2	0094: 0
X3	0099: 0	ZONES	1986: 0								

UNREFERENCED SYMBOLS

CDOVLY LIMADR PHASLD RELENT SNAPEX TOP3 TPERR TPREAD