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

101               JOB   FORTRAN COMPILER -- TAMROF PHASE ONE -- 23
102               CTL   6611
103         *
104         * EXTERNALLY REFERENCED SYMBOLS MARKED WITH ASTERISK IN COLUMN 1.
105         *
106         * FORMAT STATEMENTS ARE CHECKED TO ENSURE THAT THEY ARE
107         * REFERENCED BY INPUT-OUTPUT STATEMENTS
108         *
109         * ON ENTRY, 81-83 IS ONE BELOW THE NUMBER TABLE, WHICH IS THE
110         * GMWM ABOVE THE TOP STATEMENT IN HIGH CORE, X1 IS THE
111         * GMWM BELOW THE BOTTOM STATEMENT IN LOW CORE, X2 IS ONE BELOW
112         * THE GMWM BELOW THE BOTTOM STATEMENT IN HIGH CORE
113         *
114         * ON EXIT, X1 IS THE TOP OF STATEMENTS, X2 IS THE TOP OF
115         * FORMATTED I/O STATEMENTS, AND 81-83 IS ONE BELOW THE NUMBER
116         * TABLE
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         *
126               EXT00   SNAPSH, LOADNX, CDOVLY                                        MACRO
127         SNAPSH EQU   333                                                 0333       GEN
128         PHASLD EQU   381                                                 0381       GEN
129         SNAPEX EQU   564                                                 0564       GEN
130         LOADNX EQU   700   CARD OVERLAY UNLESS NOP                      0700       GEN
131         CDOVLY EQU   700   1 IF LOADING FROM CARDS, N IF FROM TAPE       0700       GEN
132         TPREAD EQU   704   LOAD OVERLAY FROM TAPE                       0704       GEN
133         TPERR  EQU   728                                                 0728       GEN
134         *
135               EXT03      START, TOP OF PHASE 3                                    MACRO
136         BEGIN3 EQU   838                                                 0838       GEN
137         TOP3   EQU   2600                                                2600       GEN
138         *
139         110    DCW   @TAMROF ONE@                                  10  0110                 1
140         089    DCW   000                                            3  0089                 2
141         091    DC    00                                             2  0091                 2
142         099    DCW   000                                            3  0099                 3
143         100    DC    0                                              1  0100                 3
144         *
145         PHAS23 LDPH  TAMROF ONE,LOADAD,BEGN23,,,23                            MACRO
            * PHAZ   LDPH [PHASID],LOADAD,ENTAD[,SKIPFG,SKIP],[NUMBER][,HALT]      GEN
            *        XFR  PHASZ     PROHIBITED IN A MACRO                         GEN
            *                                                                     GEN
            * LOAD A BLOCK                                                       GEN
            *                                                                     GEN
```

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

146         )6J003  EQU   110  PHASE ID                                          0110            GEN
147         )6K003  EQU   700  LOAD NEXT PHASE                                  0700            GEN
148         )6L003  EQU   704  TAPE READ INSTRUCTION                           0704            GEN
149         )6M003  EQU   728  TAPE ERROR HANDLER                              0728            GEN
            *                                                                                  GEN
150                 ORG   201                                                        0201
151         PHAS23  BSS   )8J003,G                                           5  0201  B 257 G     GEN      4   257
152                 NOP     TO PATCH IN TRAPS FOR DEBUGGING                  1  0206  N           GEN      4
153         )0J003  EQU   *&1                                                 0207            GEN
154                 LCA   )9J003,)6J003                                      7  0207  L 282 110   GEN      4   282     110
155                 BCE   )1J003,)6K003,1    Q: LOADING FROM CARDS?         8  0214  B 250 700 1 GEN      4   250     700
156                 BCE   )1J003,)6L003&4,0  Q: LOADING FROM AUTOCODER TAPE? 8  0222  B 250 708 0 GEN      4   250     708
157                 RTW   1,LOADAD           READ THE BLOCK                 8  0230  L %U1 838 R GEN      4   %U1     838
158                 BER   )6M003             Q: TAPE ERROR?                 5  0238  B 728 L     GEN      5   728
159                 CS    BEGN23,)9R003      ENTER THE BLOCK                7  0243  / 980 286   GEN      5   980     286
160         )1J003  CS    )6K003,)9R003      LOAD CARDS OR AUTOCODER TAPE   7  0250  / 700 286   GEN      5   700     286
161         )8J003  SW    )9R003                                           4  0257  , 286       GEN      5   286
162                 MU    %T0,)8K003,W                                     8  0261  M %T0 273 W GEN      5   %T0     273
163                 H     )0J003                                           4  0269  . 207       GEN      5   207
164         )8K003  EQU   *&1                                                0273            GEN
165         )9J003  DCW   @TAMROF ONE@          PHASE ID                  10  0282            GEN      6
166                 DCW   #1                                               1  0283            GEN      6
167                 DC    @23@          PHASE NUMBER                       2  0285            GEN      6
168         )9R003  DCW   @}@                                              1  0286            GEN      6
169                 XFR   PHAS23                                                   B 201               6   201
170         *
171                 ORG   BEGIN3                                                    0838
172         *
173         * THE TOOBIG AND MSG ROUTINES ARE NOT REFERENCED HERE.  WHY ARE
174         * NOT SIMPLY IN PHASE 24?
175         *
176         LOADAD  EQU   *&1          LOAD ADDRESS                             0838
177 *  838  TOOBIG  CS    332                                              4  0838  / 332               7   332
178    842          CS                                                     1  0842  /                   7
179    843          CC    1                                                2  0843  F 1                 7
180    845          MCW   ERROR2,270                                       7  0845  M 963 270           7   963     270
181    852          W                                                      1  0852  2                   7
182    853          CC    1                                                2  0853  F 1                 7
183    855          BCE   HALT,CDOVLY,1                                    8  0855  B 868 700 1         7   868     700
184    863          RWD   1                                                5  0863  U %U1 R             8   %U1
185    868  HALT    H     HALT                                             4  0868  . 868               8   868
186         *
187 *  872  SEMIC   DCW   @;@                                              1  0872                      8
188 *  875  SX3     DCW   #3  USED TO SAVE X3 EXACTLY ONCE                  3  0875                      8
189 *  879  SEQCOD  DCW   #4                                               4  0879                      8
190         *
191         * FILL IN ERROR MESSAGE BOILERPLATE
192         *
193 *  880  MSG     SBR   MSGX&3                                           4  0880  H 927               8   927
194    884          BCV   *&5                                              5  0884  B 893 @             8   893
```

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

195    889          B     *&3                                         4  0889  B 895               9   895
196    893          CC    1                                           2  0893  F 1                 9
197    895          CS    332                                         4  0895  / 332               9   332
198    899          CS                                                1  0899  /                   9
199    900          SW    GLOBER                                      4  0900  , 184               9   184
200    904          MN    SEQCOD,250                                  7  0904  D 879 250           9   879     250
201    911          MN                                                1  0911  D                   9
202    912          MN                                                1  0912  D                  10
203    913          MCW   STMT                                        4  0913  M 974              10   974
204    917          MCW   ERR,205                                     7  0917  M 979 205          10   979     205
205    924  MSGX    B     0                                           4  0924  B 000              10   000
206    963  ERROR2  DCW   @MESSAGE 2 - OBJECT PROGRAM TOO LARGE@     36  0963                     11
207    974  STMT    DCW   @STATEMENT  @                             11  0974                     12
208    979  ERR     DCW   @ERROR@                                     5  0979                     12
209         *
210 *  980  BEGN23  CS    1&X2                                        4  0980  / 0!1              12   001+2
211    984          SBR   X1                                          4  0984  H 089              12   089
212    988          SW    GMWM                                        4  0988  , U65              12  1465
213    992  CLRL    CS    0&X1                                        4  0992  / 0|0              12   000+1
214    996          SBR   X1                                          4  0996  H 089              12   089
215  1 000          C     X1,KBOT                                     7  1000  C 089 U06          13   089    1406
216  1 007          BU    CLRL                                        5  1007  B 992 /            13   992
217  1 012          LCA   GMWM,2601                                  7  1012  L U65 O01          13  1465    2601
218  1 019          SBR   X1,2602                                    7  1019  H 089 O02          13   089    2602
219  1 026          SBR   X2,2&X2                                    7  1026  H 094 0!2          13   094     002+2
220  1 033          MCW   DOT,96  NO FORMAT STATEMENT SEEN           7  1033  M U07 096          14  1407     096
221  1 040          SW    FLAG                                        4  1040  , U08              14  1408
222  1 044  LOOP    MCW   83,X3  TOP OF STATEMENTS IN TOP CORE       7  1044  M 083 099          14   083     099
223  1 051          SBR   X3,1&X3                                    7  1051  H 099 0?1          14   099     001+3
224  1 058          C     X3,X2  MOVED TOP STATEMENT UP?              7  1058  C 099 094          14   099     094
225  1 065          BE    DONE   YES                                 5  1065  B S16 S            14  1216
226  1 070          CW    FLAG2  MOVING BODY                          4  1070  ) U09              15  1409
227  1 074          MN    0&X2                                        4  1074  D 0!0              15   000+2
228  1 078          SAR   X3                                          4  1078  Q 099              15   099
229  1 082          MCW   SEMIC                                       4  1082  M 872              15   872
230  1 086  MOVEDN  MN    0&X1                                        4  1086  D 0|0              15   000+1
231  1 090          SAR   X1                                          4  1090  Q 089              15   089
232  1 094  MORE    MCM   0&X2                                        4  1094  P 0!0              15   000+2
233  1 098          SAR   SX2&6                                       4  1098  Q /20              16  1120
234  1 102          MCM   0&X2,1&X1                                   7  1102  P 0!0 0|1          16   000+2   001+1
235  1 109          MN                                                1  1109  D                  16
236  1 110          SBR   X1                                          4  1110  H 089              16   089
237  1 114  SX2     SBR   X2,0                                       7  1114  H 094 000          16   094     000
238  1 121          BCE   MORE,0&X1,|                                 8  1121  B |94 0|0 |         16  1094     000+1
239  1 129          MN    0&X2                                        4  1129  D 0!0              16   000+2
240  1 133          CW                                                1  1133  )                  17
241  1 134          SW    0&X1                                        4  1134  , 0|0              17   000+1
242  1 138          SBR   X1,1&X1                                     7  1138  H 089 0|1          17   089     001+1
243  1 145          BW    PREFIX,FLAG2  PROCESSING PREFIX?            8  1145  V /61 U09 1        17  1161    1409
244  1 153          SW    FLAG2  MOVING PREFIX                       4  1153  , U09              17  1409
```

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

245  1 157         B     MOVEDN                                             4  1157  B |86              17  1086
246  1 161  PREFIX MN    0&X1                                               4  1161  D 0|0               17   000+1
247  1 165         MN                                                       1  1165  D                   18
248  1 166         SAR   X3                                                 4  1166  Q 099               18   099
249  1 170         SBR   SETZON&6                                           4  1170  H T67               18  1367
250  1 174         MCW   0&X3,SEQCOD                                        7  1174  M 0?0 879           18   000+3   879
251  1 181         SAR   X3                                                 4  1181  Q 099               18   099
252  1 185         BCE   FORMAT,SEQCOD-3,F  FORMAT STATEMENT?               8  1185  B S85 876 F         18  1285     876
253  1 193         MCW   SEQCOD-3,*&8                                       7  1193  M 876 S07           18   876    1207
254  1 200         BCE   FMTIO,STMTS,X  FORMATTED I/O STATEMENT?            8  1200  B S61 U14 X         19  1261    1414
255  1 208         CHAIN 4                                                                 MACRO
256               BCE                                                      1  1208  B           GEN     19
257               BCE                                                      1  1209  B           GEN     19
258               BCE                                                      1  1210  B           GEN     19
259               BCE                                                      1  1211  B           GEN     19
260  1 212         B     LOOP                                               4  1212  B |44              19  1044
261          *
262          * GOT TO BOTTOM OF STATEMENTS
263          *
264  1 216  DONE  MN    0&X1                                               4  1216  D 0|0               19   000+1
265  1 220         MN                                                       1  1220  D                   20
266  1 221         SAR   X1          TOP OF STATEMENTS                      4  1221  Q 089               20   089
267  1 225         MCW   SX1,X2      TOP OF TOP FORMATTED I/O STATEMENT     7  1225  M U19 094           20  1419     094
268  1 232         MCW   83,X3       ONE BELOW NUMBER TABLE                 7  1232  M 083 099           20   083     099
269  1 239         MCW   KB1,0&X3    CLEAR STATEMENTS                       7  1239  M U15 0?0           20  1415     000+3
270  1 246         MCW   0&X3          RECENTLY MOVED DOWN                  4  1246  M 0?0               20   000+3
271  1 250         MCW   SEMIC,0&X3  BELOW NUMBER TABLE                     7  1250  M 872 0?0           20   872     000+3
272  1 287         B     LOADNX                                             4  1257  B 700               21   700
273          *
274          * FOUND FORMATTED I/O STATEMENT
275          *
276  1 291  FMTIO MZ    ABZONE,3&X3  BOTTOM OF SEQUENCE NUMBER             7  1261  Y U16 0?3           21  1416     003+3
277  1 298         CW    FLAG                                               4  1268  ) U08               21  1408
278  1 302         MN    0&X1                                               4  1272  D 0|0               21   000+1
279  1 306         MN                                                       1  1276  D                   21
280  1 307         SAR   SX1  TOP OF SEQUENCE NUMBER                       4  1277  Q U19               21  1419
281  1 311         B     LOOP                                               4  1281  B |44              21  1044
282          *
283          * FOUND A FORMAT STATEMENT
284          *
285  1 315  FORMAT MCW   KB1,96  SAW A FORMAT STATEMENT                     7  1285  M U15 096           22  1415     096
286  1 322         BW    UNREF,FLAG    NO FORMATTED I/O SEEN                8  1292  V T31 U08 1         22  1331    1408
287  1 330         BCE   UNREF,0&X3,}  CAN'T BE REFERENCED WITH NO LABEL    8  1300  B T31 0?0 } GMARK   22  1331     000+3
288  1 338         MCW   0&X3,FMTLAB                                        7  1308  M 0?0 U22           22   000+3  1422
289  1 345         MCW   SX1,X3  SEQ NO OF TOP FORMATTED I/O STATEMENT      7  1315  M U19 099           22  1419     099
290  1 352  CHKREF BWZ   CHKLAB,0&X3,B                                      8  1322  V T72 0?0 B         23  1372     000+3
291  1 360         BWZ                                                      1  1330  V                   23
292  1 361  UNREF  CS    332                                                4  1331  / 332               23   332
293  1 365         CS                                                       1  1335  /                   23
294  1 366         MN    SEQCOD,245                                         7  1336  D 879 245           23   879     245
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR
295  1 373         MN                                                       1  1343  D                   23
296  1 374         MN                                                       1  1344  D                   23
297  1 375         MCW   ERR14  UNREFERENCED                                4  1345  M U64               24  1464
298  1 379         W                                                        1  1349  2                   24
299  1 380         BCV   *&5                                                5  1350  B T59 @             24  1359
300  1 385         B     *&3                                                4  1355  B T61               24  1361
301  1 389         CC    1                                                  2  1359  F 1                 24
302  1 391  SETZON MZ    ABZONE,0-0  LOW-ORDER DIGIT OF SEQUENCE NUMBER     7  1361  Y U16 000           24  1416     000
303  1 398         B     LOOP                                               4  1368  B |44               24  1044
304         *
305         * CHECK WHETHER FORMAT LABEL APPEARS IN FORMATTED I/O
306         * STATEMENT.  THE FORMATTED I/O STATEMENTS ARE ALL BELOW
307         * (PROCESSED BEFORE IN THIS PHASE) THE FORMAT STATEMENTS.
308         *
309  1 402  CHKLAB C     0&X3  SKIP                                         4  1372  C 0?0               25   000+3
310  1 406         SAR   X3      PREFIX                                     4  1376  Q 099               25   099
311  1 410         C     0&X3,FMTLAB  LABEL IN STMT SAME AS THE FORMAT?     7  1380  C 0?0 U22           25   000+3  1422
312  1 417         BE    LOOP         YES, GO DO NEXT STATEMENT             5  1387  B |44 S            25  1044
313  1 422         C     0&X3  SKIP                                         4  1392  C 0?0               25   000+3
314  1 426         SAR   X3      BODY                                       4  1396  Q 099               25   099
315  1 430         B     CHKREF                                             4  1400  B T22               25  1322
316         *
317  1 436  KBOT   DSA   BOT  BOTTOM OF CORE CLEARING                       3  1406  U99                 26  1499
318  1 437  DOT    DCW   @.@                                                1  1407                      26
319  1 438  FLAG   DCW   #1  INITIALLY SET, CLEARED WHEN FORMATTED I/O SEEN  1  1408                      26
320  1 439  FLAG2  DCW   #1  SET FOR PREFIX, CLEARED FOR BODY                1  1409                      26
321  1 444  STMTS  DCW   @56ULP@  FORMATTED I/O STATEMENTS CODES            5  1414                      26
322  1 445  KB1    DCW   #1                                                 1  1415                      26
323  1 454  ABZONE DCW   @A@                                                1  1416                      26
324  1 457  SX1    DCW   #3  TOP OF SEQUENCE NUMBER OF TOP FORMATTED I/O     3  1419                      27
325  1 460  FMTLAB DCW   #3  LABEL FROM FORMAT STATEMENT                     3  1422                      27
326  1 502  ERR14  DCW   @ERROR 14 - UNREFERENCED FORMAT, STATEMENT @       42  1464                      29
327  1 503  GMWM   DCW   @}@                                                1  1465          GMARK       29
328               ORG   *&X00                                                     1500
329         BOT    EQU   *                                                     1499
330               XFR   BEGN23                                                    B 980               29   980
331         CLRME  CLRA  BEGN23,TOP3,C                                                    MACRO
            *      CLRA  CLRBOT,CLRTOP[,SS,HERE,GWMAD]                                    GEN
            *                                                                            GEN
            * CLEAR CORE AFTER A PHASE USING THE CLRTOP ADDRESS                          GEN
            *                                                                            GEN
332               ORG   201                                                       0201
            *                                                                          GEN
            * CLEAR DOWN TO CLRBOT & X00 THE EASY WAY                                  GEN
            *                                                                          GEN
333         CLRME  EQU   *&1                                                  0201     GEN
334               BSS   SNAPSH,C                                             5  0201  B 333 C     GEN     30   333
335         )0J004 CS    TOP3         CLEAR FROM CLRTOP                     4  0206  / O00       GEN     30  2600
336               SBR   )0J004&3                                             4  0210  H 209       GEN     30   209
337               SBR   )0L004&6                                             4  0214  H 255       GEN     30   255
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SEQ PG LIN  LABEL   OP    OPERANDS                                    SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

338                 C     )0J004&3,)0M004   DOWN TO CLRBOT & X00?        7  0218  C 209 266   GEN     30   209     266
339                 BU    )0J004                                        5  0225  B 206 /     GEN     30   206
            *                                                                                 GEN
            * NOW CLEAR DOWN TO CLRBOT THE HARD WAY                                          GEN
            *                                                                                 GEN
340         )0K004  C     )0L004&6,)0N004                               7  0230  C 255 269   GEN     30   255     269
341                 BU    )0L004                                        5  0237  B 249 /     GEN     31   249
342                 CS    LOADNX,)0Q004  LOAD THE NEXT BLOCK AT 1       7  0242  / 700 276   GEN     31   700     276
343         )0L004  LCA   )0P004,0-0     CLEAR WITH BLANK AND WORD MARK 7  0249  L 270 000   GEN     31   270     000
344                 SBR   )0L004&6                                      4  0256  H 255       GEN     31   255
345                 B     )0K004                                        4  0260  B 230       GEN     31   230
346         )0M004  DSA   )0R004         CLRBOT & X00 - 1              3  0266  999         GEN     31   999
347         )0N004  DSA   BEGN23         CLRBOT                        3  0269  980         GEN     31   980
348         )0P004  DCW   #1                                           1  0270              GEN     32
349                 DC    @CLRA @     IDENTIFY IN A DECK, TAPE, OR DUMP 5  0275              GEN     32
350         )0Q004  DCW   @}@                                          1  0276              GEN     32
351                 ORG   BEGN23&X00                                          1000
352         )0R004  EQU   *           CLRBOT & X00 - 1                    0999              GEN
353                 XFR   CLRME                                                 B 201               32   201
```

SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS
)0J003	0207: 0	)0J004	0206: 0	)0K004	0230: 0	)0L004	0249: 0	)0M004	0266: 0	)0N004	0269: 0
)0P004	0270: 0	)0Q004	0276: 0	)0R004	0999: 0	)1J003	0250: 0	)6J003	0110: 0	)6K003	0700: 0
)6L003	0704: 0	)6M003	0728: 0	)8J003	0257: 0	)8K003	0273: 0	)9J003	0282: 0	)9R003	0286: 0
ABZONE	1416: 0	BEGIN3	0838: 0	BEGN23	0980: 0	BOT	1499: 0	CDOVLY	0700: 0	CHKLAB	1372: 0
CHKREF	1322: 0	CLRL	0992: 0	CLRME	0201: 0	DONE	1216: 0	DOT	1407: 0	ERR	0979: 0
ERR14	1464: 0	ERROR2	0963: 0	FLAG	1408: 0	FLAG2	1409: 0	FMTIO	1261: 0	FMTLAB	1422: 0
FORMAT	1285: 0	GLOBER	0184: 0	GMWM	1465: 0	HALT	0868: 0	KB1	1415: 0	KBOT	1406: 0
LOADAD	0838: 0	LOADNX	0700: 0	LOOP	1044: 0	MORE	1094: 0	MOVEDN	1086: 0	MSG	0880: 0
MSGX	0924: 0	PHAS23	0201: 0	PHASLD	0381: 0	PREFIX	1161: 0	SEMIC	0872: 0	SEQCOD	0879: 0
SETZON	1361: 0	SNAPEX	0564: 0	SNAPSH	0333: 0	STMT	0974: 0	STMTS	1414: 0	SX1	1419: 0
SX2	1114: 0	SX3	0875: 0	TOOBIG	0838: 0	TOP3	2600: 0	TPERR	0728: 0	TPREAD	0704: 0
UNREF	1331: 0	X1	0089: 0	X2	0094: 0	X3	0099: 0				

UNREFERENCED SYMBOLS

MSG PHASLD SNAPEX SX3 TOOBIG TPERR TPREAD