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

101               JOB   FORTRAN COMPILER -- STMT NUMBERS TWO -- PHASE 28
102               CTL   6611
103         *
104         * SAME AS VARIABLES PHASE TWO (14).
105         *
106         * THE ENTIRE SOURCE PROGRAM IS SHIFTED TO THE TOP (LEFTMOST
107         * PART) OF AVAILABLE STORAGE, LEAVING ROOM FOR SUBSEQUENT
108         * COMPILER PHASES.  THE REMAINING STORAGE IS CLEARED FOR
109         * TABLES.
110         *
111         * ON ENTRY, 83 IS THE TOP OF CODE IN HIGH CORE AND X2 IS ONE
112         * BELOW THE BOTTOM OF CODE IN HIGH CORE.
113         *
114         * ON EXIT, 83 IS ONE BELOW THE TABLES IN HIGH CORE, AND X1 AND
115         * X2 ARE THE TOP OF CODE IN LOW CORE.
116         *
117         X1     EQU   89                                                  0089
118         X2     EQU   94                                                  0094
119         X3     EQU   99                                                  0099
120         *
121         * STUFF IN THE RESIDENT AREA
122         *
123                EXT00   SNAPSH, LOADNX, CDOVLY                                    MACRO
124         SNAPSH EQU   333                                                 0333      GEN
125         PHASLD EQU   381                                                 0381      GEN
126         SNAPEX EQU   564                                                 0564      GEN
127         LOADNX EQU   700   CARD OVERLAY UNLESS NOP                      0700      GEN
128         CDOVLY EQU   700   1 IF LOADING FROM CARDS, N IF FROM TAPE      0700      GEN
129         TPREAD EQU   704   LOAD OVERLAY FROM TAPE                       0704      GEN
130         TPERR  EQU   728                                                 0728      GEN
131         *
132                EXT03     START, TOP OF PHASE 3                                   MACRO
133         BEGIN3 EQU   838                                                 0838      GEN
134         TOP3   EQU   2600                                                2600      GEN
135                EXT36     STUFF IN PHASE 36 -- NDRITH                             MACRO
136         NDRITH EQU   3132                                                3132      GEN
137         *
138         110    DCW   @STNUM TWO@                                      9  0110                1
139         099    DCW   000                                              3  0099                2
140         100    DC    0                                                1  0100                2
141         *
142         PHAS28 LDPH  STNUM TWO,LOADAD,BEGN28,,,28                              MACRO
            * PHAZ   LDPH [PHASID],LOADAD,ENTAD[,SKIPFG,SKIP],[NUMBER][,HALT]     GEN
            *        XFR  PHASZ     PROHIBITED IN A MACRO                         GEN
            *                                                                     GEN
            * LOAD A BLOCK                                                       GEN
            *                                                                     GEN
143         )6J004 EQU   110  PHASE ID                                       0110      GEN
144         )6K004 EQU   700  LOAD NEXT PHASE                                0700      GEN
145         )6L004 EQU   704  TAPE READ INSTRUCTION                          0704      GEN
```

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

146         )6M004  EQU   728  TAPE ERROR HANDLER                             0728             GEN
            *                                                                                  GEN
147                 ORG   201                                                        0201
148         PHAS28  EQU   *&1                                                    0201             GEN
149                 LCA   )9J004,)6J004                                     7    0201  L 252 110  GEN      3   252     110
150                 BCE   )6K004,)6K004,1      Q: LOADING FROM CARDS?       8    0208  B 700 700 1 GEN      3   700     700
151                 BCE   )6K004,)6L004&4,0    Q: LOADING FROM AUTOCODER TAPE? 8 0216  B 700 708 0 GEN      3   700     708
152                 RTW   1,LOADAD             READ THE BLOCK               8    0224  L %U1 838 R GEN      3   %U1     838
153                 BER   )6M004               Q: TAPE ERROR?               5    0232  B 728 L     GEN      3   728
154                 CS    BEGN28,)9R004        ENTER THE BLOCK              7    0237  / 937 256   GEN      4   937     256
155         )9J004  DCW   @STNUM TWO@          PHASE ID                     9    0252             GEN      4
156                 DC    #1                                                 1    0253             GEN      4
157                 DC    @28@          PHASE NUMBER                         2    0255             GEN      4
158         )9R004  DCW   @}@                                                1    0256             GEN      4
159                 XFR   PHAS28                                                    B 201            4   201
160         *
161                 ORG   BEGIN3                                                    0838
162         LOADAD  EQU   *&1          LOAD ADDRESS                          0838
163 *  840  TOPCD9  DCW   #3  TOP OF CODE & 5 & X00 - 1                      3    0840                  5
164 *  846  DIFF16  DCW   #6  16 * (BOTTAB - 1 - TOPCD9)                     6    0846                  5
165 *  849  BNDRY   DCW   #3  TOPCD9 + 0.48 * (BOTTAB - 1 - TOPCD9)          3    0849                  5
166 *  852  BOTTAB  DCW   #3  BOTTOM OF TABLES                               3    0852                  5
167         *
168         * MOVE DOWN
169         *
170 *  853  MOVEDN  SBR   MOVEDX&3                                          4    0853  H 936            5   936
171    857          MN    0&X1                                              4    0857  D 0|0            5   000+1
172    861          SAR   X1                                                4    0861  Q 089            5   089
173    865  MORE    MCM   0&X2                                              4    0865  P 0!0            6   000+2
174    869          SAR   NEWX2&6                                           4    0869  Q 891            6   891
175    873          MCM   0&X2,1&X1                                        7    0873  P 0!0 0|1        6   000+2   001+1
176    880          MN                                                      1    0880  D                6
177    881          SBR   X1                                                4    0881  H 089            6   089
178    885  NEWX2   SBR   X2,0                                             7    0885  H 094 000        6   094     000
179    892          BCE   MORE,0&X1,|                                      8    0892  B 865 0|0 |      6   865     000+1
180    900          MN    0&X2                                              4    0900  D 0!0            7   000+2
181    904          CW                                                      1    0904  )                7
182    905          SW    0&X1  UNDER THE GM                               4    0905  , 0|0            7   000+1
183    909          C     X2,BOTTAB                                         7    0909  C 094 852        7   094     852
184    916          BU    MORE                                              5    0916  B 865 /          7   865
185    921          MN    0&X1                                              4    0921  D 0|0            7   000+1
186    925          SAR   X1                                                4    0925  Q 089            7   089
187    929          SBR   X2  SEQNO OF TOP OF CODE IN LOW CORE              4    0929  H 094            8   094
188    933  MOVEDX  B     0-0                                               4    0933  B 000            8   000
189         *
190         * START PHASE 28 HERE
191         *
192 *  937  BEGN28  MCW   83,X3  TOP OF CODE                                7    0937  M 083 099        8   083     099
193    944          SBR   BOTTAB,1&X3  BOTTOM OF TABLES                     7    0944  H 852 0?1        8   852     001+3
194    951          MCW   X2,X3                                            7    0951  M 094 099        8   094     099
```

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

195    958  CLEAR   CS    0&X3                                                4  0958  / 0?0               8   000+3
196    962          SBR   X3                                                  4  0962  H 099               8   099
197    966          C     X3,ABOT  DONE?                                      7  0966  C 099 S78           9   099    1278
198    973          BU    CLEAR     NO                                        5  0973  B 958 /             9   958
199    978          SBR   X1,BOTCOD                                           7  0978  H 089 A99           9   089    3199
200    985          B     MOVEDN                                              4  0985  B 853               9   853
201    989          SBR   TOPCD9,5&X1                                         7  0989  H 840 0|5           9   840     005+1
202    996          MN    K99,TOPCD9                                          7  0996  D S43 840           9  1243     840
203  1 003          MN                                                        1  1003  D                   9
204  1 004          MCW   83,X3                                               7  1004  M 083 099          10   083     099
205  1 011  CLEAR2  CS    0&X3                                                4  1011  / 0?0              10   000+3
206  1 015          SBR   X3                                                  4  1015  H 099              10   099
207  1 019          C     X3,TOPCD9                                           7  1019  C 099 840          10   099     840
208  1 026          BU    CLEAR2                                              5  1026  B |11 /            10  1011
209  1 031          MCW   KLESS,0&X3                                         7  1031  M S79 0?0          10  1279     000+3
210  1 038          MCW   83,TOCONV                                           7  1038  M 083 S41          11   083    1241
211  1 045          B     CONV                                                4  1045  B /68              11  1168
212  1 049          MCW   W5,DIFF16                                           7  1049  M S84 846          11  1284     846
213  1 056          MCW   TOPCD9,TOCONV                                       7  1056  M 840 S41          11   840    1241
214  1 063          B     CONV                                                4  1063  B /68              11  1168
215  1 067          S     W5,DIFF16                                           7  1067  S S84 846          11  1284     846
216  1 074          A     DIFF16                                              4  1074  A 846              12   846
217  1 078          A     DIFF16                                              4  1078  A 846              12   846
218  1 082          A     DIFF16                                              4  1082  A 846              12   846
219  1 086          A     DIFF16  16 * (BOTTAB - 1 - TOPCD9)                  4  1086  A 846              12   846
220  1 090          A     DIFF16-2,W6                                         7  1090  A 844 S90          12   844    1290
221  1 097          A     W6                                                  4  1097  A S90              12  1290
222  1 101          A     DIFF16-2,W6  0.48 * (BOTTAB - 1 - TOPCD9)           7  1101  A 844 S90          12   844    1290
223  1 108          A     W5,W6  TOPCD9 + 0.48 * (BOTTAB - 1 - TOPCD9)        7  1108  A S84 S90          13  1284    1290
224  1 115          MCW   W6-3,X3                                             7  1115  M S87 099          13  1287     099
225  1 122          A     X3                                                  4  1122  A 099              13   099
226  1 126          MZ    ZONES-1&X3,W6-2                                     7  1126  Y SD4 S88          13  1244+3  1288
227  1 133          MZ    ZONES&X3,W6                                         7  1133  Y SD5 S90          13  1245+3  1290
228  1 140          MCW   W6,X3                                               7  1140  M S90 099          13  1290     099
229  1 147          SW    2&X3                                                4  1147  , 0?2              14   002+3
230  1 151          MCW   KLESS                                              4  1151  M S79              14  1279
231  1 155          SBR   BNDRY                                               4  1155  H 849              14   849
232  1 159          BSS   SNAPSH,C                                            5  1159  B 333 C            14   333
233  1 196          B     LOADNX                                              4  1164  B 700              14   700
234          *
235          * CONVERT TOCONV TO DECIMAL IN W5
236          *
237  1 200  CONV    SBR   CONVX&3                                             4  1168  H S36              14  1236
238  1 204          MN    TOCONV,W5                                           7  1172  D S41 S84          14  1241    1284
239  1 211          MN                                                        1  1179  D                  15
240  1 212          MN                                                        1  1180  D                  15
241  1 213          MCW                                                       1  1181  M                  15
242  1 214          MZ    TOCONV,K99                                          7  1182  Y S41 S43          15  1241    1243
243  1 221          MZ    TOCONV-2,K99-1                                      7  1189  Y S39 S42          15  1239    1242
244  1 228          SBR   X3,ZONES-4                                          7  1196  H 099 S41          15   099    1241
```

```
SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR
245  1 235  CONVL  C     4&X3,K99                                          7  1203  C 0?4 S43          15   004+3  1243
246  1 242         SAR   X3                                              4  1210  Q 099              16   099
247  1 246         A     KP1,W5-3                                        7  1214  A S91 S81          16  1291    1281
248  1 253         BU    CONVL                                           5  1221  B S03 /            16  1203
249  1 258         MZ    KB,W5-3                                         7  1226  Y S92 S81          16  1292    1281
250  1 265  CONVX  B     0-0                                             4  1233  B 000              16   000
251         *
252         * DATA
253         *
254  1 273  TOCONV DCW   @0J   @                                        5  1241                     16
255  1 275  K99    DCW   @99@                                          2  1243                     16
256         ZONES  EQU   *&2                                             1245
257  1 307         DC    @99Z9R9I99ZZZRZIZ9RZRRRIR9IZIRIII@           32  1275                     17
258  1 310  ABOT   DSA   BOTCOD                                         3  1278  A99                17  3199
259  1 311  KLESS  DCW   @<@                                           1  1279                     17
260  1 316  W5     DCW   #5                                            5  1284                     18
261  1 322  W6     DCW   #6                                            6  1290                     18
262  1 332  KP1    DCW   &1                                            1  1291                     18
263  1 333  KB     DCW   #1                                            1  1292                     18
264  1 334  GMWM   DCW   @}@                                          1  1293              GMARK  18
265                ORG   NDRITH&X00                                          3200
266         BOTCOD EQU   *                                                3199
267                XFR   BEGN28                                                B 937              18   937
268         CLRME  CLRA  BEGN28,BOTCOD                                                             MACRO
            *      CLRA  CLRBOT,CLRTOP[,ORG,GMWMAD]                                                GEN
            *                                                                                      GEN
            * CLEAR CORE AFTER A PHASE USING THE CLRTOP ADDRESS                                     GEN
            *                                                                                      GEN
269                ORG   201                                                    0201
            *                                                                                      GEN
            * CLEAR DOWN TO CLRBOT & X00 THE EASY WAY                                              GEN
            *                                                                                      GEN
270         CLRME  EQU   *&1                                                    0201               GEN
271         )0J005 CS    BOTCOD         CLEAR FROM CLRTOP                 4  0201  / A99          GEN     19  3199
272                SBR   )0J005&3                                          4  0205  H 204          GEN     19   204
273                SBR   )0L005&6                                          4  0209  H 250          GEN     19   250
274                C     )0J005&3,)0M005   DOWN TO CLRBOT & X00?           7  0213  C 204 261      GEN     19   204     261
275                BU    )0J005                                            5  0220  B 201 /        GEN     19   201
            *                                                                                      GEN
            * NOW CLEAR DOWN TO CLRBOT THE HARD WAY                                               GEN
            *                                                                                      GEN
276         )0K005 C     )0L005&6,)0N005                                   7  0225  C 250 264      GEN     19   250     264
277                BU    )0L005                                            5  0232  B 244 /        GEN     19   244
278                CS    LOADNX,)0Q005  LOAD THE NEXT BLOCK AT 1           7  0237  / 700 271      GEN     20   700     271
279         )0L005 LCA   )0P005,0-0     CLEAR WITH BLANK AND WORD MARK    7  0244  L 265 000      GEN     20   265     000
280                SBR   )0L005&6                                          4  0251  H 250          GEN     20   250
281                B     )0K005                                            4  0255  B 225          GEN     20   225
282         )0M005 DSA   )0R005         CLRBOT & X00 - 1                  3  0261  999            GEN     20   999
283         )0N005 DSA   BEGN28         CLRBOT                            3  0264  937            GEN     20   937
284         )0P005 DCW   #1                                                1  0265                 GEN     20
```

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

285               DC    @CLRA @     IDENTIFY IN A DECK, TAPE, OR DUMP        5  0270              GEN     20
286         )0Q005 DCW    @}@                                              1  0271              GEN     21
287               ORG   BEGN28&X00                                                  1000
288         )0R005 EQU   *           CLRBOT & X00 - 1                         0999              GEN
289               XFR   CLRME                                                     B 201               21   201
```

SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS
)0J005	0201: 0	)0K005	0225: 0	)0L005	0244: 0	)0M005	0261: 0	)0N005	0264: 0	)0P005	0265: 0
)0Q005	0271: 0	)0R005	0999: 0	)6J004	0110: 0	)6K004	0700: 0	)6L004	0704: 0	)6M004	0728: 0
)9J004	0252: 0	)9R004	0256: 0	ABOT	1278: 0	BEGIN3	0838: 0	BEGN28	0937: 0	BNDRY	0849: 0
BOTCOD	3199: 0	BOTTAB	0852: 0	CDOVLY	0700: 0	CLEAR	0958: 0	CLEAR2	1011: 0	CLRME	0201: 0
CONV	1168: 0	CONVL	1203: 0	CONVX	1233: 0	DIFF16	0846: 0	GMWM	1293: 0	K99	1243: 0
KB	1292: 0	KLESS	1279: 0	KP1	1291: 0	LOADAD	0838: 0	LOADNX	0700: 0	MORE	0865: 0
MOVEDN	0853: 0	MOVEDX	0933: 0	NDRITH	3132: 0	NEWX2	0885: 0	PHAS28	0201: 0	PHASLD	0381: 0
SNAPEX	0564: 0	SNAPSH	0333: 0	TOCONV	1241: 0	TOP3	2600: 0	TOPCD9	0840: 0	TPERR	0728: 0
TPREAD	0704: 0	W5	1284: 0	W6	1290: 0	X1	0089: 0	X2	0094: 0	X3	0099: 0
ZONES	1245: 0										

UNREFERENCED SYMBOLS

CDOVLY GMWM PHASLD SNAPEX TOP3 TPERR TPREAD