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

101               JOB   FORTRAN COMPILER -- REPLACE PHASE ONE -- PHASE 51
102               CTL   6611
103         *
104         * OBJECT-TIME INSTRUCTIONS WHICH REFERENCE STATEMENT NUMBERS
105         * ARE CORRECTED TO THE OBJECT-TIME ADDRESSES OF THE
106         * STATEMENT.  SUBSCRIPT STRINGS ARE CLEANED UP.
107         *
108         X1     EQU   89                                                      0089
109         X2     EQU   94                                                      0094
110         X3     EQU   99                                                      0099
111         *
112         * STUFF IN THE RESIDENT AREA
113         *
114         SUBSCR EQU   116  WM CLEARED IF SUBSCRIPT CODE NEEDED              0116
115         SEQTAB EQU   148  BOTTOM OF SEQUENCE NUMBER TABLE - 2              0148
116         BOTFMT EQU   154  BOTTOM OF FORMAT STRINGS OR NUMBER TABLE - 1     0154
117         NEGARY EQU   163  16000 - ARYSIZ                                   0163
118         *
119               EXT00   SNAPSH, LOADNX, CDOVLY                                          MACRO
120         SNAPSH EQU   333                                                   0333       GEN
121         PHASLD EQU   381                                                   0381       GEN
122         SNAPEX EQU   564                                                   0564       GEN
123         LOADNX EQU   700   CARD OVERLAY UNLESS NOP                        0700       GEN
124         CDOVLY EQU   700   1 IF LOADING FROM CARDS, N IF FROM TAPE        0700       GEN
125         TPREAD EQU   704   LOAD OVERLAY FROM TAPE                         0704       GEN
126         TPERR  EQU   728                                                   0728       GEN
127         *
128               EXT03   START, TOP OF PHASE 3                                        MACRO
129         BEGIN3 EQU   838                                                   0838       GEN
130         TOP3   EQU   2600                                                  2600       GEN
131         *
132         * RUNTIME ROUTINES
133         *
134         ARITF  EQU   700  ARITHMETIC INTERPRETER                           0700
135         *
136         PHAS51 LDPH  REPLACE 1,LOADAD,BEGN51,,,51                                    MACRO
            * PHAZ   LDPH [PHASID],LOADAD,ENTAD[,SKIPFG,SKIP],[NUMBER][,HALT]         GEN
            *        XFR  PHASZ     PROHIBITED IN A MACRO                            GEN
            *                                                                        GEN
            * LOAD A BLOCK                                                          GEN
            *                                                                       GEN
137         )6J003 EQU   110  PHASE ID                                         0110       GEN
138         )6K003 EQU   700  LOAD NEXT PHASE                                  0700       GEN
139         )6L003 EQU   704  TAPE READ INSTRUCTION                            0704       GEN
140         )6M003 EQU   728  TAPE ERROR HANDLER                               0728       GEN
            *                                                                       GEN
141               ORG   201                                                          0201
142         PHAS51 EQU   *&1                                                   0201       GEN
143               LCA   )9J003,)6J003                                       7  0201  L 252 110   GEN      1   252     110
144               BCE   )6K003,)6K003,1      Q: LOADING FROM CARDS?         8  0208  B 700 700 1 GEN      1   700     700
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SEQ PG LIN  LABEL   OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

145             BCE   )6K003,)6L003&4,0    Q: LOADING FROM AUTOCODER TAPE?     8  0216  B 700 708 0 GEN     1   700     708
146             RTW   1,LOADAD             READ THE BLOCK                      8  0224  L %U1 838 R GEN     1   %U1     838
147             BER   )6M003               Q: TAPE ERROR?                      5  0232  B 728 L     GEN     1   728
148             CS    BEGN51,)9R003        ENTER THE BLOCK                     7  0237  / 838 256   GEN     2   838     256
149         )9J003 DCW   @REPLACE 1@          PHASE ID                         9  0252              GEN     2
150             DC    #1                                                       1  0253              GEN     2
151             DC    @51@          PHASE NUMBER                               2  0255              GEN     2
152         )9R003 DCW   @}@                                                   1  0256              GEN     2
153             XFR   PHAS51                                                        B 201             3   201
154         *
155             ORG   BEGIN3                                                      0838
156         LOADAD EQU   *&1                                                    0838
157    838  BEGN51 MCW   X3,SX3                                                 7  0838  M 099 S28         4   099    1228
158    845         MCW   SEQTAB,*&7                                            7  0845  M 148 858         4   148     858
159    852         MCW   KGREAT,0                                              7  0852  M S29 000         4  1229     000
160    859         MCW   BOTFMT,X2                                            7  0859  M 154 094         4   154     094
161    866         MCW   KGREAT,1600                                          7  0866  M S29 W00         4  1229    1600
162    873  GETSUB BCE   FIND,0&X2,$  WITHIN TEN OF TOP OF SUBSCRIPT?   V3M4  8  0873  B S40 0!0 $       5  1240     000+2
163    881         CHAIN 9                                                                               MACRO
164             BCE                                                          1  0881  B                 GEN     5
165             BCE                                                          1  0882  B                 GEN     5
166             BCE                                                          1  0883  B                 GEN     5
167             BCE                                                          1  0884  B                 GEN     5
168             BCE                                                          1  0885  B                 GEN     5
169             BCE                                                          1  0886  B                 GEN     5
170             BCE                                                          1  0887  B                 GEN     6
171             BCE                                                          1  0888  B                 GEN     6
172             BCE                                                          1  0889  B                 GEN     6
173    890  BOTEX  BCE   BOTTOM,0&X2,>  GREATER SIGN BELOW CODE?              8  0890  B |15 0!0 >       6  1015     000+2
174    898         CHAIN 9                                                                               MACRO
175             BCE                                                          1  0898  B                 GEN     6
176             BCE                                                          1  0899  B                 GEN     6
177             BCE                                                          1  0900  B                 GEN     6
178             BCE                                                          1  0901  B                 GEN     7
179             BCE                                                          1  0902  B                 GEN     7
180             BCE                                                          1  0903  B                 GEN     7
181             BCE                                                          1  0904  B                 GEN     7
182             BCE                                                          1  0905  B                 GEN     7
183             BCE                                                          1  0906  B                 GEN     7
184    907         SBR   X2                                                  4  0907  H 094             7   094
185    911         B     GETSUB                                               4  0911  B 873             8   873
186    915  GETSB2 BCE   SUBTOP,0&X2,$  TOP OF SUBSCRIPT?                     8  0915  B 931 0!0 $       8   931     000+2
187    923         SBR   X2                                                  4  0923  H 094             8   094
188    927         B     GETSB2                                               4  0927  B 915             8   915
189    931  SUBTOP MN    0&X2                                                 4  0931  D 0!0             8   000+2
190    935         SAR   X2                                                  4  0935  Q 094             8   094
191    939         BCE   SUBBOT,0&X2,$  WITHIN 16 OF BOTTOM OF SUBSCRIPT?    8  0939  B 966 0!0 $       8   966     000+2
192    947         CHAIN 15                                                                              MACRO
193             BCE                                                          1  0947  B                 GEN     9
194             BCE                                                          1  0948  B                 GEN     9
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SEQ PG LIN  LABEL   OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

195                 BCE                                                     1  0949  B           GEN      9
196                 BCE                                                     1  0950  B           GEN      9
197                 BCE                                                     1  0951  B           GEN      9
198                 BCE                                                     1  0952  B           GEN      9
199                 BCE                                                     1  0953  B           GEN      9
200                 BCE                                                     1  0954  B           GEN     10
201                 BCE                                                     1  0955  B           GEN     10
202                 BCE                                                     1  0956  B           GEN     10
203                 BCE                                                     1  0957  B           GEN     10
204                 BCE                                                     1  0958  B           GEN     10
205                 BCE                                                     1  0959  B           GEN     10
206                 BCE                                                     1  0960  B           GEN     10
207                 BCE                                                     1  0961  B           GEN     11
208    962          B     GETSUB                                            4  0962  B 873               11   873
209    966  SUBBOT  CW    SUBSCR                                            4  0966  ) 116               11   116
210    970  DEC3    MN    0&X2                                              4  0970  D 0!0               11   000+2
211    974          MN                                                      1  0974  D                   11
212    975          MN                                                      1  0975  D                   11
213    976          SAR   X2                                                4  0976  Q 094               11   094
214    980          SW    1&X2                                              4  0980  , 0!1               12   001+2
215    984          BCE   DEC1,0&X2,$                                       8  0984  B |03 0!0 $         12  1003     000+2
216    992          MZ    *-4,2&X2                                          7  0992  Y 994 0!2           12   994     002+2
217    999          B     DEC3                                              4  0999  B 970               12   970
218  1 003  DEC1    MN    0&X2                                              4  1003  D 0!0               12   000+2
219  1 007          SAR   X2                                                4  1007  Q 094               12   094
220  1 011          B     GETSUB                                            4  1011  B 873               12   873
221  1 015  BOTTOM  MCW   APASS2,BOTEX&3                                    7  1015  M S32 893           13  1232     893
222  1 022          MCW   X3,X2                                             7  1022  M 099 094           13   099     094
223  1 029          B     GETSUB                                            4  1029  B 873               13   873
224  1 033  PASS2X  BCE   DONE,0&X3,                                       8  1033  B S10 0?0           13  1210     000+3
225  1 041          MCW   X3,LINK&6                                         7  1041  M 099 /37           13   099    1137
226  1 048          C     0&X3                                              4  1048  C 0?0               13   000+3
227  1 052          SBR   X2                                                4  1052  H 094               14   094
228  1 056          SBR   X3                                                4  1056  H 099               14   099
229  1 060          BCE   TARITF,1&X3,|  TOP OF ARITHMETIC ASSIGNMENT       8  1060  B /74 0?1 |         14  1174     001+3
230  1 068  TESTWM  BW    PASS2X,4&X2                                       8  1068  V |33 0!4 1         14  1033     004+2
231  1 076          BWZ                                                     1  1076  V                   14
232  1 077          BWZ                                                     1  1077  V                   14
233  1 078          BM    NOLINK,3&X2                                       8  1078  V /42 0!3 K         14  1142     003+2
234  1 086          C     4&X2,A277X3                                       7  1086  C 0!4 S35           15   004+2  1235
235  1 093          BE    PASS2X                                            5  1093  B |33 S             15  1033
236  1 098          BWZ   ADDLNK,3&X2,B                                     8  1098  V /17 0!3 B         15  1117     003+2
237  1 106  BUMPX2  SBR   X2,3&X2                                           7  1106  H 094 0!3           15   094     003+2
238  1 113          B     TESTWM                                            4  1113  B |68               15  1068
239  1 117  ADDLNK  MCW   4&X2,X1  WHY NOT JUST MA 4&X2,LINK&6 ???          7  1117  M 0!4 089           15   004+2   089
240  1 124          MZ    *-6,*&6  X1 TAG                                   7  1124  Y /24 /36           16  1124    1136
241  1 131  LINK    SBR   4&X2,0                                            7  1131  H 0!4 000           16   004+2   000
242  1 138          B     BUMPX2                                            4  1138  B /06               16  1106
243  1 142  NOLINK  MCW   4&X2,X1                                          7  1142  M 0!4 089           16   004+2   089
244  1 149          MA    NEGARY,X1                                         7  1149  # 163 089           16   163     089
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SEQ PG LIN  LABEL   OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

245  1 156          MCW   0&X1,X1                                             7  1156  M 0|0 089          16   000+1   089
246  1 163          MCW   X1,4&X2                                            7  1163  M 089 0!4          17   089     004+2
247  1 170          B     BUMPX2                                              4  1170  B /06              17  1106
248  1 174  TARITF  BW    *&5,2&X3  NEED TO LOOK FOR BRANCH TO ARITF?         8  1174  V /86 0?2 1        17  1186     002+3
249  1 182          B     PASS2X                                              4  1182  B |33              17  1033
250  1 186  FARITF  C     0&X3  FIND THE BRANCH TO ARITF                      4  1186  C 0?0              17   000+3
251  1 190          SBR   X3                                                  4  1190  H 099              17   099
252  1 194          C     4&X3,BARITF&3  BRANCH TO ARITHMETIC INTERPRETER?    7  1194  C 0?4 S39          17   004+3  1239
253  1 201          BE    PASS2X         YES                                  5  1201  B |33 S            18  1033
254  1 206          B     FARITF         NO, LOOK AGAIN                       4  1206  B /86              18  1186
255  1 210  DONE    MCW   SX3,X3                                             7  1210  M S28 099          18  1228     099
256  1 217          BSS   SNAPSH,B       ??? CHANGE BACK TO C LATER           5  1217  B 333 B            18   333
257  1 243          B     LOADNX                                              4  1222  B 700              18   700
258  1 249  SX3     DCW   #3                                                  3  1228                     18
259  1 250  KGREAT  DCW   @>@  GREATER THAN SIGN                             1  1229                     18
260  1 253  APASS2  DSA   PASS2X                                             3  1232  |33                19  1033
261  1 256  A277X3  DSA   277&X3                                            3  1235  2G7                19   277
262  1 257  BARITF  B     ARITF                                               4  1236  B 700              19   700
263          * PATCHES IN V3M4
264  1 271  FIND    BCE   BOTEX,0&X2,>    GREATER SIGN BELOW CODE?      V3M4  8  1240  B 890 0!0 >        19   890     000+2
265  1 279          BCE   SUBTOP,0&X2,$   TOP OF SUBSCRIPT?             V3M4  8  1248  B 931 0!0 $        19   931     000+2
266  1 287          SBR   X2                                            V3M4  4  1256  H 094             19   094
267  1 291          BIN   FIND,                                         V3M4  5  1260  B S40             19  1240
268  1 296  GMWM    DCW   @}@                                                 1  1265              GMARK  20
269                 XFR   BEGN51                                                    B 838              21   838
270          CLRME  CLRA  BEGN51,GMWM                                                              MACRO
             *      CLRA  CLRBOT,CLRTOP[,ORG,GMWMAD]                                               GEN
             *                                                                                     GEN
             * CLEAR CORE AFTER A PHASE USING THE CLRTOP ADDRESS                                   GEN
             *                                                                                     GEN
271                 ORG   201                                                        0201
             *                                                                                     GEN
             * CLEAR DOWN TO CLRBOT & X00 THE EASY WAY                             GEN
             *                                                                     GEN
272          CLRME  EQU   *&1                                                0201                 GEN
273          )0J004 CS    GMWM         CLEAR FROM CLRTOP                     4  0201  / S65        GEN     22  1265
274                 SBR   )0J004&3                                           4  0205  H 204        GEN     22   204
275                 SBR   )0L004&6                                           4  0209  H 250        GEN     22   250
276                 C     )0J004&3,)0M004   DOWN TO CLRBOT & X00?            7  0213  C 204 261    GEN     22   204     261
277                 BU    )0J004                                             5  0220  B 201 /      GEN     22   201
             *                                                                                     GEN
             * NOW CLEAR DOWN TO CLRBOT THE HARD WAY                                               GEN
             *                                                                                     GEN
278          )0K004 C     )0L004&6,)0N004                                    7  0225  C 250 264    GEN     22   250     264
279                 BU    )0L004                                             5  0232  B 244 /      GEN     22   244
280                 CS    LOADNX,)0Q004  LOAD THE NEXT BLOCK AT 1            7  0237  / 700 271    GEN     23   700     271
281          )0L004 LCA   )0P004,0-0     CLEAR WITH BLANK AND WORD MARK     7  0244  L 265 000    GEN     23   265     000
282                 SBR   )0L004&6                                           4  0251  H 250        GEN     23   250
283                 B     )0K004                                             4  0255  B 225        GEN     23   225
284          )0M004 DSA   )0R004         CLRBOT & X00 - 1                   3  0261  899          GEN     23   899
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SEQ PG LIN  LABEL   OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

285         )0N004 DSA   BEGN51         CLRBOT                             3  0264  838         GEN     23   838
286         )0P004 DCW   #1                                                1  0265              GEN     23
287                DC    @CLRA @     IDENTIFY IN A DECK, TAPE, OR DUMP      5  0270              GEN     23
288         )0Q004 DCW   @}@                                               1  0271              GEN     24
289                ORG   BEGN51&X00                                                0900
290         )0R004 EQU   *           CLRBOT & X00 - 1                         0899              GEN
291                XFR   CLRME                                                    B 201               25   201
```

| SYMBOL | ADDRESS | SYMBOL | ADDRESS | SYMBOL | ADDRESS | SYMBOL | ADDRESS | SYMBOL | ADDRESS | SYMBOL | ADDRESS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| )0J004 | 0201: 0 | )0K004 | 0225: 0 | )0L004 | 0244: 0 | )0M004 | 0261: 0 | )0N004 | 0264: 0 | )0P004 | 0265: 0 |
| )0Q004 | 0271: 0 | )0R004 | 0899: 0 | )6J003 | 0110: 0 | )6K003 | 0700: 0 | )6L003 | 0704: 0 | )6M003 | 0728: 0 |
| )9J003 | 0252: 0 | )9R003 | 0256: 0 | A277X3 | 1235: 0 | ADDLNK | 1117: 0 | APASS2 | 1232: 0 | ARITF | 0700: 0 |
| BARITF | 1236: 0 | BEGIN3 | 0838: 0 | BEGN51 | 0838: 0 | BOTEX | 0890: 0 | BOTFMT | 0154: 0 | BOTTOM | 1015: 0 |
| BUMPX2 | 1106: 0 | CDOVLY | 0700: 0 | CLRME | 0201: 0 | DEC1 | 1003: 0 | DEC3 | 0970: 0 | DONE | 1210: 0 |
| FARITF | 1186: 0 | FIND | 1240: 0 | GETSB2 | 0915: 0 | GETSUB | 0873: 0 | GMWM | 1265: 0 | KGREAT | 1229: 0 |
| LINK | 1131: 0 | LOADAD | 0838: 0 | LOADNX | 0700: 0 | NEGARY | 0163: 0 | NOLINK | 1142: 0 | PASS2X | 1033: 0 |
| PHAS51 | 0201: 0 | PHASLD | 0381: 0 | SEQTAB | 0148: 0 | SNAPEX | 0564: 0 | SNAPSH | 0333: 0 | SUBBOT | 0966: 0 |
| SUBSCR | 0116: 0 | SUBTOP | 0931: 0 | SX3 | 1228: 0 | TARITF | 1174: 0 | TESTWM | 1068: 0 | TOP3 | 2600: 0 |
| TPERR | 0728: 0 | TPREAD | 0704: 0 | X1 | 0089: 0 | X2 | 0094: 0 | X3 | 0099: 0 | | |

UNREFERENCED SYMBOLS

CDOVLY PHASLD SNAPEX TOP3 TPERR TPREAD