```
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 BSS   )8J003,G                                              5  0201  B 257 G     GEN      1   257
143               NOP     TO PATCH IN TRAPS FOR DEBUGGING                      1  0206  N           GEN      1
144         )0J003 EQU   *&1                                                      0207            GEN
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SEQ PG LIN  LABEL   OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

145             LCA   )9J003,)6J003                                          7  0207  L 281 110   GEN     1   281     110
146             BCE   )1J003,)6K003,1    Q: LOADING FROM CARDS?             8  0214  B 250 700 1 GEN     1   250     700
147             BCE   )1J003,)6L003&4,0  Q: LOADING FROM AUTOCODER TAPE?     8  0222  B 250 708 0 GEN     1   250     708
148             RTW   1,LOADAD           READ THE BLOCK                     8  0230  L %U1 838 R GEN     1   %U1     838
149             BER   )6M003             Q: TAPE ERROR?                     5  0238  B 728 L     GEN     2   728
150             CS    BEGN51,)9R003      ENTER THE BLOCK                    7  0243  / 838 285   GEN     2   838     285
151         )1J003 CS   )6K003,)9R003     LOAD CARDS OR AUTOCODER TAPE       7  0250  / 700 285   GEN     2   700     285
152         )8J003 SW   )9R003                                              4  0257  , 285       GEN     2   285
153             MU    %T0,)8K003,W                                          8  0261  M %T0 273 W GEN     2   %T0     273
154             H     )0J003                                                4  0269  . 207       GEN     2   207
155         )8K003 EQU  *&1                                                   0273              GEN
156         )9J003 DCW  @REPLACE 1@          PHASE ID                       9  0281              GEN     3
157             DCW   #1                                                    1  0282              GEN     3
158             DC    @51@          PHASE NUMBER                          2  0284              GEN     3
159         )9R003 DCW  @}@                                                 1  0285              GEN     3
160             XFR   PHAS51                                                    B 201             4   201
161         *
162             ORG   BEGIN3                                                     0838
163         LOADAD EQU  *&1                                                   0838
164     838 BEGN51 MCW  X3,SX3                                              7  0838  M 099 S23         5   099    1223
165     845        MCW  SEQTAB,*&7                                          7  0845  M 148 858         5   148     858
166     852        MCW  KGREAT,0                                            7  0852  M S24 000         5  1224     000
167     859        MCW  BOTFMT,X2                                           7  0859  M 154 094         5   154     094
168     866        MCW  KGREAT,1600                                         7  0866  M S24 W00         5  1224    1600
169     873 GETSUB BCE  FIND,0&X2,$  WITHIN TEN OF TOP OF SUBSCRIPT?  V3M4  8  0873  B S35 0!0 $       6  1235     000+2
170     881        CHAIN 9                                                                MACRO
171             BCE                                                         1  0881  B           GEN     6
172             BCE                                                         1  0882  B           GEN     6
173             BCE                                                         1  0883  B           GEN     6
174             BCE                                                         1  0884  B           GEN     6
175             BCE                                                         1  0885  B           GEN     6
176             BCE                                                         1  0886  B           GEN     6
177             BCE                                                         1  0887  B           GEN     7
178             BCE                                                         1  0888  B           GEN     7
179             BCE                                                         1  0889  B           GEN     7
180     890 BOTEX  BCE  BOTTOM,0&X2,>  GREATER SIGN BELOW CODE?             8  0890  B |15 0!0 >       7  1015     000+2
181     898        CHAIN 9                                                                MACRO
182             BCE                                                         1  0898  B           GEN     7
183             BCE                                                         1  0899  B           GEN     7
184             BCE                                                         1  0900  B           GEN     7
185             BCE                                                         1  0901  B           GEN     8
186             BCE                                                         1  0902  B           GEN     8
187             BCE                                                         1  0903  B           GEN     8
188             BCE                                                         1  0904  B           GEN     8
189             BCE                                                         1  0905  B           GEN     8
190             BCE                                                         1  0906  B           GEN     8
191     907        SBR  X2                                                  4  0907  H 094             8   094
192     911        B    GETSUB                                              4  0911  B 873             9   873
193     915 GETSB2 BCE  SUBTOP,0&X2,$  TOP OF SUBSCRIPT?                    8  0915  B 931 0!0 $       9   931     000+2
194     923        SBR  X2                                                  4  0923  H 094             9   094
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SEQ PG LIN  LABEL   OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

195    927          B     GETSB2                                              4  0927  B 915               9   915
196    931  SUBTOP  MN    0&X2                                                4  0931  D 0!0               9   000+2
197    935          SAR   X2                                                4  0935  Q 094               9   094
198    939          BCE   SUBBOT,0&X2,$  WITHIN 16 OF BOTTOM OF SUBSCRIPT?  8  0939  B 966 0!0 $         9   966     000+2
199    947          CHAIN 15                                                        0947                MACRO
200                 BCE                                                       1  0947  B           GEN     10
201                 BCE                                                       1  0948  B           GEN     10
202                 BCE                                                       1  0949  B           GEN     10
203                 BCE                                                       1  0950  B           GEN     10
204                 BCE                                                       1  0951  B           GEN     10
205                 BCE                                                       1  0952  B           GEN     10
206                 BCE                                                       1  0953  B           GEN     10
207                 BCE                                                       1  0954  B           GEN     11
208                 BCE                                                       1  0955  B           GEN     11
209                 BCE                                                       1  0956  B           GEN     11
210                 BCE                                                       1  0957  B           GEN     11
211                 BCE                                                       1  0958  B           GEN     11
212                 BCE                                                       1  0959  B           GEN     11
213                 BCE                                                       1  0960  B           GEN     11
214                 BCE                                                       1  0961  B           GEN     12
215    962          B     GETSUB                                              4  0962  B 873               12   873
216    966  SUBBOT  CW    SUBSCR                                              4  0966  ) 116               12   116
217    970  DEC3    MN    0&X2                                                4  0970  D 0!0               12   000+2
218    974          MN                                                        1  0974  D                   12
219    975          MN                                                        1  0975  D                   12
220    976          SAR   X2                                                4  0976  Q 094               12   094
221    980          SW    1&X2                                                4  0980  , 0!1               13   001+2
222    984          BCE   DEC1,0&X2,$                                        8  0984  B |03 0!0 $         13  1003     000+2
223    992          MZ    *-4,2&X2                                            7  0992  Y 994 0!2           13   994     002+2
224    999          B     DEC3                                                4  0999  B 970               13   970
225  1 003  DEC1    MN    0&X2                                                4  1003  D 0!0               13   000+2
226  1 007          SAR   X2                                                4  1007  Q 094               13   094
227  1 011          B     GETSUB                                              4  1011  B 873               13   873
228  1 015  BOTTOM  MCW   APASS2,BOTEX&3                                     7  1015  M S27 893           14  1227     893
229  1 022          MCW   X3,X2                                               7  1022  M 099 094           14   099     094
230  1 029          B     GETSUB                                              4  1029  B 873               14   873
231  1 033  PASS2X  BCE   DONE,0&X3,                                         8  1033  B S10 0?0           14  1210     000+3
232  1 041          MCW   X3,LINK&6                                           7  1041  M 099 /37           14   099    1137
233  1 048          C     0&X3                                                4  1048  C 0?0               14   000+3
234  1 052          SBR   X2                                                4  1052  H 094               15   094
235  1 056          SBR   X3                                                4  1056  H 099               15   099
236  1 060          BCE   TARITF,1&X3,|  TOP OF ARITHMETIC ASSIGNMENT        8  1060  B /74 0?1 |         15  1174     001+3
237  1 068  TESTWM  BW    PASS2X,4&X2                                         8  1068  V |33 0!4 1         15  1033     004+2
238  1 076          BWZ                                                       1  1076  V                   15
239  1 077          BWZ                                                       1  1077  V                   15
240  1 078          BM    NOLINK,3&X2                                         8  1078  V /42 0!3 K         15  1142     003+2
241  1 086          C     4&X2,A277X3                                         7  1086  C 0!4 S30           16   004+2  1230
242  1 093          BE    PASS2X                                              5  1093  B |33 S             16  1033
243  1 098          BWZ   ADDLNK,3&X2,B                                       8  1098  V /17 0!3 B         16  1117     003+2
244  1 106  BUMPX2  SBR   X2,3&X2                                            7  1106  H 094 0!3           16   094     003+2
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SEQ PG LIN  LABEL  OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

245  1 113         B     TESTWM                                               4  1113  B |68               16  1068
246  1 117  ADDLNK MCW   4&X2,X1  WHY NOT JUST MA 4&X2,LINK&6 ???             7  1117  M 0!4 089           16   004+2   089
247  1 124         MZ    *-6,*&6  X1 TAG                                      7  1124  Y /24 /36           17  1124    1136
248  1 131  LINK   SBR   4&X2,0                                               7  1131  H 0!4 000           17   004+2   000
249  1 138         B     BUMPX2                                               4  1138  B /06               17  1106
250  1 142  NOLINK MCW   4&X2,X1                                              7  1142  M 0!4 089           17   004+2   089
251  1 149         MA    NEGARY,X1                                            7  1149  # 163 089           17   163     089
252  1 156         MCW   0&X1,X1                                              7  1156  M 0|0 089           17   000+1   089
253  1 163         MCW   X1,4&X2                                              7  1163  M 089 0!4           18   089     004+2
254  1 170         B     BUMPX2                                               4  1170  B /06               18  1106
255  1 174  TARITF BW    *&5,2&X3  NEED TO LOOK FOR BRANCH TO ARITF?          8  1174  V /86 0?2 1         18  1186    002+3
256  1 182         B     PASS2X                                               4  1182  B |33               18  1033
257  1 186  FARITF C     0&X3  FIND THE BRANCH TO ARITF                       4  1186  C 0?0               18   000+3
258  1 190         SBR   X3                                                   4  1190  H 099               18   099
259  1 194         C     4&X3,BARITF&3  BRANCH TO ARITHMETIC INTERPRETER?     7  1194  C 0?4 S34           18   004+3  1234
260  1 201         BE    PASS2X         YES                                   5  1201  B |33 S             19  1033
261  1 206         B     FARITF         NO, LOOK AGAIN                        4  1206  B /86               19  1186
262  1 210  DONE   MCW   SX3,X3                                               7  1210  M S23 099           19  1223    099
263  1 243         B     LOADNX                                               4  1217  B 700               19   700
264  1 249  SX3    DCW   #3                                                   3  1223                      19
265  1 250  KGREAT DCW   @>@  GREATER THAN SIGN                               1  1224                      19
266  1 253  APASS2 DSA   PASS2X                                               3  1227  |33                 19  1033
267  1 256  A277X3 DSA   277&X3                                               3  1230  2G7                 20   277
268  1 257  BARITF B     ARITF                                                4  1231  B 700               20   700
269         * PATCHES IN V3M4
270  1 271  FIND   BCE   BOTEX,0&X2,>    GREATER SIGN BELOW CODE?       V3M4    8  1235  B 890 0!0 >         20   890     000+2
271  1 279         BCE   SUBTOP,0&X2,$   TOP OF SUBSCRIPT?              V3M4    8  1243  B 931 0!0 $         20   931     000+2
272  1 287         SBR   X2                                             V3M4    4  1251  H 094               20   094
273  1 291         BIN   FIND,                                          V3M4    5  1255  B S35               20  1235
274  1 296  GMWM   DCW   @}@                                                  1  1260             GMARK    20
275                XFR   BEGN51                                                        B 838               21   838
276         CLRME  CLRA  BEGN51,GMWM,C                                                          MACRO
            *      CLRA  CLRBOT,CLRTOP[,SS,HERE,GWMAD]                                          GEN
            *                                                                                   GEN
            * CLEAR CORE AFTER A PHASE USING THE CLRTOP ADDRESS                                 GEN
            *                                                                                   GEN
277                ORG   201                                                            0201
            *                                                                                   GEN
            * CLEAR DOWN TO CLRBOT & X00 THE EASY WAY                                           GEN
            *                                                                                   GEN
278         CLRME  EQU   *&1                                                     0201           GEN
279                BSS   SNAPSH,C                                             5  0201  B 333 C      GEN      22   333
280         )0J004 CS    GMWM         CLEAR FROM CLRTOP                       4  0206  / S60        GEN      22  1260
281                SBR   )0J004&3                                             4  0210  H 209        GEN      22   209
282                SBR   )0L004&6                                             4  0214  H 255        GEN      22   255
283                C     )0J004&3,)0M004   DOWN TO CLRBOT & X00?              7  0218  C 209 266    GEN      22   209     266
284                BU    )0J004                                               5  0225  B 206 /      GEN      22   206
            *                                                                                   GEN
            * NOW CLEAR DOWN TO CLRBOT THE HARD WAY                                             GEN
            *                                                                                   GEN
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SEQ PG LIN  LABEL   OP    OPERANDS                                        SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

285         )0K004  C     )0L004&6,)0N004                                   7  0230  C 255 269   GEN     22   255     269
286                 BU    )0L004                                            5  0237  B 249 /     GEN     23   249
287                 CS    LOADNX,)0Q004  LOAD THE NEXT BLOCK AT 1          7  0242  / 700 276   GEN     23   700     276
288         )0L004  LCA   )0P004,0-0     CLEAR WITH BLANK AND WORD MARK    7  0249  L 270 000   GEN     23   270     000
289                 SBR   )0L004&6                                          4  0256  H 255       GEN     23   255
290                 B     )0K004                                            4  0260  B 230       GEN     23   230
291         )0M004  DSA   )0R004         CLRBOT & X00 - 1                  3  0266  899         GEN     23   899
292         )0N004  DSA   BEGN51         CLRBOT                            3  0269  838         GEN     23   838
293         )0P004  DCW   #1                                              1  0270              GEN     24
294                 DC    @CLRA @     IDENTIFY IN A DECK, TAPE, OR DUMP     5  0275              GEN     24
295         )0Q004  DCW   @}@                                             1  0276              GEN     24
296                 ORG   BEGN51&X00                                                 0900
297         )0R004  EQU   *           CLRBOT & X00 - 1                        0899              GEN
298                 XFR   CLRME                                                     B 201               25   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	0899: 0	)1J003	0250: 0	)6J003	0110: 0	)6K003	0700: 0
)6L003	0704: 0	)6M003	0728: 0	)8J003	0257: 0	)8K003	0273: 0	)9J003	0281: 0	)9R003	0285: 0
A277X3	1230: 0	ADDLNK	1117: 0	APASS2	1227: 0	ARITF	0700: 0	BARITF	1231: 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	1235: 0
GETSB2	0915: 0	GETSUB	0873: 0	GMWM	1260: 0	KGREAT	1224: 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	1223: 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