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

101                JOB   FORTRAN COMPILER -- SORT TWO PHASE -- PHASE 05
102                CTL   6611
103         *
104         * SORT TWO PHASE: ADD THREE CHARACTERS TO EACH STATEMENT AND
105         * CHAIN STATEMENTS OF THE SAME TYPE TOGETHER, LEAVING THE
106         * ADDRESS OF THE FIRST STATEMENT OF EACH TYPE IN TYPTAB,
107         * WHICH STARTS AT 838.
108         * X1 HAS THE ADDRESS OF THE GROUP MARK WORD MARK AFTER (LOWER
109         * ADDRESS) THE LAST (LOWEST ADDRESS) STATEMENT.
110         *
111         X1     EQU   89                                                 0089
112         X2     EQU   94                                                 0094
113         X3     EQU   99                                                 0099
114         *
115         * STUFF IN THE RESIDENT AREA PHASE 0
116         *
117         PHASID EQU   110  PHASE ID, FOR SNAPSHOT DUMPS                  0110
118         SNAPSH EQU   333  CORE DUMP SNAPSHOT                            0333
119         TOPCOR EQU   688  TOP CORE ADDRESS FROM PARAM CARD              0688
120         LOADNX EQU   700  LOAD NEXT OVERLAY                             0700
121         *
122         * IN PHASE 4
123         *
124         TYPTAB EQU   759  TYPE TABLE (WORD MARKS SET IN PHASE 4)        0759
125         *                 INDEXED BY 30*(ZONE OF STATEMENT CODE) +
126         *                 3*(NUMERIC PART OF STATEMENT CODE).  EACH
127         *                 ENTRY IS THE ADDRESS OF THE EARLIEST (HIGHEST
128         *                 ADDRESS) STATEMENT OF A TYPE.  EACH STATEMENT
129         *                 HAS A POINTER TO THE NEXT ONE (LOWER IN CORE)
130         *                 OF THE SAME TYPE AS ITS FIRST THREE (HIGHEST
131         *                 ADDRESS) CHARACTERS.
132         *
133         * GENERATE THE BLOCK TO LOAD PHASE 5
134         * IT ORIGINALLY STARTED BY EXECUTING SOME CLEAR-CORE CODE AT
135         * BEGINN-12 IN PHASE 4 THAT WASN'T OVERLAID. IT'S NOT
136         * CLEAR WHY THAT'S NEEDED AT ALL BECAUSE THE SAME AREA WAS
137         * CLEARED AT THE ENDS OF PHASES 3 AND 4.
138         *
139         PHAS5  NEWPH  @SORTER TWO@,LOADAD,BEGINN                                   MACRO
            *                                                                          GEN
            * LOAD A NEW PHASE                                                         GEN
            *                                                                          GEN
140                ORG   201                                                     0201
141         PHAS5  LCA   )9N001,PHASID    PHASID                            7  0201  L 288 110   GEN      1   288     110
142                BCE   LOADNX,LOADNX,1  Q: FROM CARDS?                    8  0208  B 700 700 1 GEN      1   700     700
143                BCE   LOADNX,LOADNX,,  Q: FROM AUTOCODER TAPE?           8  0216  B 700 700 , GEN      1   700     700
144         )0J001 ZA    )9J001           CLEAR ERROR COUNTER               4  0224  ? 278       GEN      1   278
145         )0K001 RTW   %U1,LOADAD       LOAD THE OVERLAY                  8  0228  L %U1 |22 R GEN      1   %U1    1022
146                BER   )0L001           Q: ERROR?                         5  0236  B 248 L     GEN      2   248
147                CS    BEGINN,)9P001       NO: ENTER THIS BLOCK            7  0241  / |22 296   GEN      2  1022     296
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

148         )0L001 BSP   1                                                     5  0248  U %U1 B     GEN      2   %U1
149                A     *-6,)9J001       BUMP ERROR COUNT                    7  0253  A 253 278   GEN      2   253     278
150                BCE   )0K001,)9J001-1,0   Q: NOT TEN YET?                  8  0260  B 228 277 0 GEN      2   228     277
151                NOP   3333                                                4  0268  N C33       GEN      2  3333
152                H                                                         1  0272  .           GEN      2
153                B     )0J001                                              4  0273  B 224       GEN      3   224
154         )9J001 DCW   #2            ERROR COUNTER                        2  0278              GEN      3
155         )9N001 DCW   @SORTER TWO@           PHASE ID FROM PARAMETER 1  10  0288              GEN      3
156                DC    @ NEWPH @     IDENTIFY IN A DECK, TAPE, OR DUMP    7  0295              GEN      3
157         )9P001 DCW   @}@                                                1  0296              GEN      3
            * 108     DSA  PHAS5     NEWP   LOAD ADDRESS FOR COMPILER-GEN                        GEN
158                XFR   PHAS5  PROHIBITED IN A MACRO                              B 201                3   201
159         *
160         110    DCW   @SORTER TWO@                                      10  0110                     4
161         *
162         * X1 IS THE ADDRESS AT THE BOTTOM OF THE LAST STATEMENT
163         * X2 IS X1 - 3*(NUMBER OF STATEMENTS)
164         *
165                ORG   910          BEGINN IN PHASE 4                             0910
166                ORG   1022   TEMP  SAME AS MOKOTOFF V3M0 LINE 960                1022
167         LOADAD EQU   *&1          LOAD ADDRESS                          1022
168         BEGINN MCW   X1,X3                                                 7  1022  M 089 099           5   089     099
169                SW    GM                                                    4  1029  , S19              5  1219
170                MCM   0&X1  ADDRESS AT BOTTOM OF NEXT STATEMENT            4  1033  P 0|0              5   000+1
171                MN          ADDRESS OF GM BELOW NEXT STATEMENT             1  1037  D                   5
172                MN          ADDRESS AT TOP OF THIS STATEMENT               1  1038  D                   5
173                SAR   X1                                                   4  1039  Q 089              5   089
174                LCA   0&X1,STMT  SAVE THIS STATEMENT                       7  1043  L 0|0 Z19          5   000+1  1919
175                MCM   0&X1  ADDRESS AT BOTTOM OF NEXT STATEMENT            4  1050  P 0|0              6   000+1
176                SAR   X1                                                   4  1054  Q 089              6   089
177                MCM   0&X3,0&X2  MOVE DOWN BY 3*(STATEMENT NUMBER)         7  1058  P 0?0 0!0          6   000+3   000+2
178                SBR   X2                                                   4  1065  H 094              6   094
179                LCA   STMT&3,1&X2  MOVE AGAIN, THIS TIME WITH ITS GM       7  1069  L Z22 0!1          6  1922     001+2
180                S     X3&1         CLEAR X3                              4  1076  S 100              6   100
181                MCW   0&X2,WORK6   COPY STATEMENT NUMBER AND STMT CODE     7  1080  M 0!0 !05          6   000+2  2005
182                MN    WORK6-5,X3   NUMERIC PART OF STATEMENT CODE          7  1087  D !00 099          7  2000     099
183                MCW   X3,WORK6-2                                           7  1094  M 099 !03          7   099    2003
184                A     X3                                                   4  1101  A 099              7   099
185                A     WORK6-2,X3   X3 = 3*(NUMERIC PART OF STMT CODE)      7  1105  A !03 099          7  2003     099
186                BWZ   OVER,WORK6-5,2  STMT TYPE HAS NO ZONE                8  1112  V /57 !00 2        7  1157    2000
187                A     KP30,X3                                              7  1120  A !07 099          8  2007     099
188                BWZ   OVER,WORK6-5,S  STMT TYPE HAS A ZONE                 8  1127  V /57 !00 S        8  1157    2000
189                A     KP30,X3                                              7  1135  A !07 099          8  2007     099
190                BM    OVER,WORK6-5    STMT TYPE HAS B ZONE                 8  1142  V /57 !00 K        8  1157    2000
191                A     KP30,X3                                              7  1150  A !07 099          8  2007     099
192         *
193         * HERE X3 IS 30*(ZONE OF STMT CODE) + 3*(NUMERIC PART OF STMT CODE)
194         * WORK IS INITIALLY AN ARRAY OF 3-CHARACTER EMPTY FIELDS, BUT
195         * WE STORE THE ADDRESS OF EACH RECORD IN TYPTAB&X3, RESULTING IN
196         * STATEMENTS OF THE SAME TYPE CODE BEING CHAINED TOGETHER
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

197         *
198         OVER   MCW   TYPTAB&X3,1&X2  LINK STATEMENT TO NEXT STATEMENT        7  1157  M 7E9 0!1            9   759+3   001+2
199                LCA   GM,2&X2  MARK BOTTOM OF NEXT STATEMENT                  7  1164  L S19 0!2            9  1219     002+2
200                SBR   TYPTAB&X3  SAVE STATEMENT ADDRESS IN TYPTAB             4  1171  H 7E9                9   759+3
201                MCM   2&X2     MOVE X2 ABOVE NEW STATEMENT BOTTOM             4  1175  P 0!2                9   002+2
202                SAR   X2                                                     4  1179  Q 094                9   094
203                C     X2,TOPCOR  DONE?                                       7  1183  C 094 688            9   094     688
204                BU    BEGINN   NO, DO ANOTHER ONE                            5  1190  B |22 /              9  1022
205         *
206         * DONE -- LOAD NEXT OVERLAY
207         *
208                BSS   SNAPSH,C                                               5  1195  B 333 C             10   333
209                B     LOADNX                                                 4  1200  B 700               10   700
210                DCW   #1                                                     1  1204                      10
211         *
212         * DATA
213         *
214                ORG   1219   TEMP SAME AS MOKOTOFF V3M0 LINE 998                     1219
215         GM     DC    @}@                                                   1  1219              GMARK   11
216                ORG   *&700  TEMP SAME AS MOKOTOFF V3M0 LINE 999                     1920
217                ORG   *-3    BECAUSE MOKOTOFF LOADS TO STMT-3                        1917
218         STMT   DC    #3    SAVE AREA FOR STATEMENT                               3  1919                      12
219                ORG   *&X00                                                          2000
220         EOTWO  EQU   *&1                                                       2000
221         WORK6  DCW   #6                                                      6  2005                      13
222         KP30   DCW   &30                                                     2  2007                      13
223         GMWM   DCW   @}@                                                     1  2008              GMARK   13
224                ORG   201                                                            0201
225         *         DSA  LOADAD    LOAD ADDRESS FOR CARD-TO-TAPE PROGRAM
226                XFR   BEGINN                                                         B |22               13  1022
227         *
228         * CLEAR CORE AFTER THE PHASE USING MY CLRTOP ADDRESS
229         *
230         CLRME  CLRA  BEGINN,EOTWO                                                   MACRO
            *                                                                           GEN
            * CLEAR CORE AFTER A PHASE USING THE CLRTOP ADDRESS                         GEN
            *                                                                           GEN
231                ORG   BEGINN&X00                                                     1100
232         )0R002 EQU   *           CLRBOT & X00 - 1                            1099              GEN
233                ORG   201                                                            0201
            *                                                                           GEN
            * CLEAR DOWN TO CLRBOT & X00 THE EASY WAY                                   GEN
            *                                                                           GEN
234         CLRME  EQU   *&1                                                       0201              GEN
235         )0J002 CS    EOTWO         CLEAR FROM CLRTOP                         4  0201  / !00       GEN     14  2000
236                SBR   )0J002&3                                               4  0205  H 204       GEN     14   204
237                SBR   )0L002&6                                               4  0209  H 250       GEN     14   250
238                C     )0J002&3,)0M002   DOWN TO CLRBOT & X00?                7  0213  C 204 261   GEN     14   204     261
239                BU    )0J002                                                 5  0220  B 201 /     GEN     14   201
            *                                                                           GEN
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SEQ PG LIN  LABEL  OP    OPERANDS                                          SFX CT  LOCN  INSTRUCTION TYPE  CARD A-ADDR  B-ADDR

            * NOW CLEAR DOWN TO CLRBOT THE HARD WAY                                                   GEN
            *                                                                                         GEN
240         )0K002 C     )0L002&6,)0N002                                     7  0225  C 250 264   GEN     14   250     264
241                BU    )0L002                                              5  0232  B 244 /     GEN     14   244
242                CS    LOADNX,)0Q002  LOAD THE NEXT BLOCK AT 1             7  0237  / 700 271   GEN     15   700     271
243         )0L002 LCA   )0P002,0-0     CLEAR WITH BLANK AND WORD MARK      7  0244  L 265 000   GEN     15   265     000
244                SBR   )0L002&6                                            4  0251  H 250       GEN     15   250
245                B     )0K002                                              4  0255  B 225       GEN     15   225
246         )0M002 DSA   )0R002         CLRBOT & X00 - 1                    3  0261  |99         GEN     15  1099
247         )0N002 DSA   BEGINN         CLRBOT                              3  0264  |22         GEN     15  1022
248         )0P002 DCW   #1                                                 1  0265              GEN     15
249                DC    @CLRA @     IDENTIFY IN A DECK, TAPE, OR DUMP     5  0270              GEN     15
250         )0Q002 DCW   @}@                                                1  0271              GEN     16
251                ORG   *&1         START NEW CARD FOR COMPILER-GEN                   0273
            *         DSA  CLRME     CLRA                                                           GEN
252                XFR   CLRME     PROHIBITED IN THE MACRO                         B 201              16   201
```

SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS
)0J001	0224: 0	)0J002	0201: 0	)0K001	0228: 0	)0K002	0225: 0	)0L001	0248: 0	)0L002	0244: 0
)0M002	0261: 0	)0N002	0264: 0	)0P002	0265: 0	)0Q002	0271: 0	)0R002	1099: 0	)9J001	0278: 0
)9N001	0288: 0	)9P001	0296: 0	BEGINN	1022: 0	CLRME	0201: 0	EOTWO	2000: 0	GM	1219: 0
GMWM	2008: 0	KP30	2007: 0	LOADAD	1022: 0	LOADNX	0700: 0	OVER	1157: 0	PHAS5	0201: 0
PHASID	0110: 0	SNAPSH	0333: 0	STMT	1919: 0	TOPCOR	0688: 0	TYPTAB	0759: 0	WORK6	2005: 0
X1	0089: 0	X2	0094: 0	X3	0099: 0						

UNREFERENCED SYMBOLS

GMWM