```
                                                                                F4401080
                                                                                F4401090
                                SECTION 4 - PART 1 OF 6                         F4410010
                                                                                F4410020
                                FORTRAN EDITOR INFORMATION                      F4410030
                                   MASTER RECORD CARD = F0620000                F4410040
                                   ENTRY POINT = 112                            F4410050
                                   FIRST LOCATION = 30                          F4410060
                                   LAST LOCATION = 1327                         F4410070
                                                                                F4410080
                                                                                F4410090
                                                                                F4410100
                00030           ORG 24                                          F4410110
                                CONSTANTS AND VARIABLES (THE 1ST THREE REMAIN IN CORES F4410120
                                THROUGHOUT SECTION 4.)                          F4410130
00030 +000000000000     ERRBX   DEC 0           COUNTER FOR READING ERRORS      F4410140
00031 +000000000001     LA1     DEC 1                                           F4410150
00032 -000000000004     MINUS4  DEC -4                                          F4410160
00033 +000000000000     L0...=  DEC 0                                           F4410170
00034 +000000000005     L5...=  DEC 5                                           F4410180
00035 +000000000002     TIFLAB  DEC 2                                           F4410190
00036 +000000000003     TRALAB  DEC 3                                           F4410200
00037 +000000000007     FRELAB  DEC 7                                           F4410210
00040   0 00001 0 00000 LD1..=  HTR 0,0,1                                       F4410220
00041   0 00000 0 00310 LZTIF=      ZTIFRD                                      F4410230
00042   0 00000 0 00312 LZTF2=      ZTIFRD+2                                    F4410240
00043   0 00000 0 00372 LAZFT=      ZFRET=                                      F4410250
00044   0 00000 0 00374 LAFT2=      ZFRET=+2                                    F4410260
00045   0 00000 0 01300 LZTR4=      ZTRA+4                                      F4410270
00046   0 00000 0 01750 FRETY=      FRTADD      DRUM ADDRESS FOR FRET           F4410280
00047   0 00000 0 01750 Y           TIFADD      DRUM ADDRESS FOR TIFRD          F4410290
00050   0 01750 0 00000 LXFRT=      0,0,XFRET=                                  F4410300
00051 +170000000000     OCTAL   OCT 170000000000                                F4410310
00052 +377777777777     ENDMK=  OCT 377777777777                                F4410320
00053 +000000700000     TAGMRK  OCT 700000                                      F4410330
00054 +077777000000     OPMSK=  OCT 77777000000                                 F4410340
00055 +000060000000     PSEMK=  OCT 60000000                                    F4410350
00056 +000070000000     PSTMK=  OCT 70000000                                    F4410360
00057 +000000777777     TGMSK=  OCT 777777                                      F4410370
00060 -300000000000     NMASK=  OCT -300000000000                               F4410380
00061 -370000000000     1STLT=  OCT -370000000000                               F4410390
00062 -230000000000     1STT.=  OCT -230000000000                               F4410400
00063   0 76100 0 00000 LNOP.=  NOP             PROGRAM CONSTANT                F4410410
00064 +035121000000     LTRA.=  OCT 35121000000 TRA                             F4410420
00065 +001146000000             OCT 1146000000  TSX-TRA                         F4410430
00066 +000454000000             OCT 454000000   TXL-TSX                         F4410440
00067 +000162000000     LTROP=  OCT 162000000   TZE-TXL                         F4410450
00070 +042363000000             OCT 42363000000 DCT                             F4410460
00071 -024000000000             OCT -24000000000 RTT-DCT                        F4410470
00072 +027642000000             OCT 27642000000 MSE-RTT                         F4410480
00073 +030000000000     LPCOP=  OCT 30000000000 PSE-MSE                         F4410490
00074 +034743000000     LTPL.=  OCT 34743000000                                 F4410500
00075   0 02000 0 00135 LTRAA   TRA AA+1                                        F4410510
00076   0 02000 0 00435 LOUT    TRA STTIF=                                      F4410520
00077   0 02000 0 00125 LBEG    TRA BEGCLA
```

```
00100   0 02000 0 00135 LXRDN   TRA AA+1                                                                F4410530
00101   0 02000 0 01262 LMPY    TRA MPY                                                                 F4410540
00102   0 02000 0 01235 LSTQ    TRA STQDTG                                                              F4410550
00103 +002000000000     CONSTA  OCT 2000000000                                                          F4410560
00104   2 00000 1 00406 CNST2A  TIX CLAB,1,0                                                            F4410570
00105   0 00000 0 00000 ERAS1=                                                                          F4410580
00106   0 00000 0 00000 ERAS2=                                                                          F4410590
00107   0 00000 0 00000 ERAS3=                                                                          F4410600
                        00107 FRTBX= SYN ERAS3=                                                         F4410610
00110   0 00000 0 00000 OPCD                                                                            F4410620
00111   0 00001 0 00000 DVFQB=  HTR 0,0,1                                                               F4410630
                                                                                                        F4410640
                                THIS SCANS THE COMPILED INSTRUCTIONS AND COMPILES A LIST                F4410650
                                KNOWN AS BBLIST OF THE COMPILED INSTRUCTION NUMBER OF THE               F4410660
                                FIRST INSTRUCTION OF EACH BASIC BLOCK OF THE OBJECT PROGRAM.            F4410670
00112   0 77200 0 00224 PASS1   REW INSTTP                                                               F4410680
00113   0 50000 0 00052         CLA ENDMK=                                                              F4410690
00114   0 60100 0 07773         STO BBLIST              STORE MARK FOR END OF B B LIST                  F4410700
T 00115 -0 75400 0 00000        PXD                                                                     F4410710
00116   0 60100 0 07774         STO BBOX.=                                                              F4410720
00117   0 60100 0 07775         STO DOBOX=                                                              F4410730
00120   0 60100 0 07776         STO SSBOX=                                                              F4410740
00121   0 60100 0 07777         STO TTBOX=                                                              F4410750
00122   0 50000 0 00077         CLA LBEG                                                                F4410760
00123   0 62100 0 00342         STA XRDIN               SET EXIT ADDRESS                                F4410770
00124   0 02000 0 00310         TRA RDINSA              TRANSFER TO ROUTINE TO READ IN 1ST              F4410780
                                                          BLOCK OF COMPILED INSTRUCTIONS                F4410790
00125   0 50000 0 00100 BEGCLA  CLA LXRDN               RESTORE USUAL EXIT ADDRESS                      F4410800
00126   0 62100 0 00342         STA XRDIN                                                               F4410810
00127   0 53400 2 00031         LXA LA1,2               INITIALIZE INDEX REGISTERS                      F4410820
00130   0 53400 1 00031         LXA LA1,1                                                               F4410830
00131   1 00014 1 00132 LD12.=  TXI LD12.=+1,1,12                                                       F4410840
00132   0 50000 1 06024         CLA INST.A,1            PUT INSTRUCTION NUMBER OF FIRST                 F4410850
00133   0 07400 4 00356         TSX STB,4                  INSTRUCTION IN BBLIST                        F4410860
00134   2 04230 1 00310 AA      TIX RDINSA,1,NOINS      TEST FOR END OF INSTRUCTION BLOCK               F4410870
00135   0 50000 1 06024         CLA INST.A,1            IF THERE IS NO LOCATION SYMBOL,                 F4410880
00136   0 10000 0 00153         TZE OTHER                 THIS INST. NEED NOT BE CONSIDERED             F4410890
00137 -0 50000 1 06023          CAL INST.A-1,1                                                          F4410900
00140   0 62200 0 00110         STD OPCD                                                                F4410910
00141 -0 32000 0 00061          ANA 1STLT=              IF FIRST LETTER IS A T,GO TO TRCS               F4410920
00142   0 60200 0 00105         SLW ERAS1=                                                              F4410930
00143   0 50000 0 00105         CLA ERAS1=                                                              F4410940
00144   0 40200 0 00062         SUB 1STT.=                                                              F4410950
00145   0 10000 0 00160         TZE TRCS                                                                F4410960
00146   0 50000 0 00110         CLA OPCD                                                                F4410970
00147 -0 53400 4 00220          LXD LD4..=,4            FOUR INTO INDEX REGISTER C                      F4410980
00150   0 40200 4 00074 PSUB    SUB LPCOP=+1,4          LOOK FOR A TEST INSTRUCTION                     F4410990
00151   0 10000 4 00160         TZE PTRA+1,4            THIS IS A TEST                                  F4411000
00152   2 00001 4 00150         TIX PSUB,4,1                                                            F4411010
00153   1 00004 1 00134 OTHER   TXI AA,1,4              NO TRANSFER EXISTS                              F4411020
00154   0 02000 0 00266         TRA TSTCS               DCT                                             F4411030
00155   0 02000 0 00266         TRA TSTCS               RTT                                             F4411040
00156   0 02000 0 00266         TRA TSTCS               MSE                                             F4411050
00157   0 02000 0 00262 PTRA    TRA PSECS               PSE                                             F4411060
```

```
00160   0 50000 0 00110 TRCS    CLA OPCD
00161  -0 53400 4 00220         LXD LD4••=,4
00162   0 40200 4 00070 P2SUB   SUB LTROP=+1,4
00163   0 10000 4 00204         TZE P2TRA+1,4
00164   2 00001 4 00162         TIX P2SUB,4,1
00165   0 50000 1 06022         CLA INST•A-2,1
00166   0 40200 0 00051         SUB OCTAL
00167   0 10000 0 00153         TZE OTHER
00170   0 50000 1 06024         CLA INST•A,1
00171   0 40200 1 06022         SUB INST•A-2,1
00172   0 10000 0 00153         TZE OTHER
00173   0 50000 1 06022 2WYTR   CLA INSTA-2,1
00174   0 07400 4 00356         TSX STB,4
00175   0 50000 1 06016         CLA INST•A-6,1
00176   0 07400 4 00356         TSX STB,4
00177   1 00010 1 00134         TXI AA,1,8
00200   0 02000 0 00204         TRA TRACSA
00201   0 02000 0 00153         TRA OTHER
00202   0 02000 0 00230         TRA DOCSA
00203   0 02000 0 00243 P2TRA   TRA IF3CSA
00204   0 50000 1 06021 TRACSA  CLA INSTA-3,1
00205  -0 32000 0 00057         ANA TGMSK=
00206  -0 10000 0 00215         TNZ GOTOVA
00207  -0 50000 1 06022         CAL INST•A-2,1
00210  -0 32000 0 00060         ANA NMASK=
00211  -0 10000 0 00153         TNZ OTHER
00212   0 50000 1 06022         CLA INST•A-2,1
00213   0 07400 4 00356         TSX STB,4
00214   1 00004 1 00134         TXI AA,1,4
00215   0 50000 1 06021 GOTOVA  CLA INST•A-3,1
00216  -0 73400 4 00000         PDX 0,4
00217   2 00001 4 00220 SELF1   TIX SELF1+1,4,1
00220   1 00004 1 00221 LD4••=  TXI 4TIX,1,4
00221   2 04230 1 00306 4TIX    TIX RDIN,1,NOINS
00222   0 50000 1 06022         CLA INST•A-2,1
00223  -0 63400 4 00106         SXD ERAS2=,4
00224   0 07400 4 00356         TSX STB,4
00225  -0 53400 4 00106         LXD ERAS2=,4
00226   2 00001 4 00220         TIX LD4••=,4,1
00227   1 00004 1 00134         TXI AA,1,4
00230  -0 53400 4 07775 DOCSA   LXD DOBOX=,4
00231   1 00002 4 00232 SELF2   TXI SELF2+1,4,2
00232   0 50000 1 06024         CLA INST•A,1
00233   0 60100 4 06501         STO DOLIST+1,4
00234   0 50000 1 06022         CLA INST•A-2,1
00235   0 60100 4 06500         STO DOLIST,4
00236  -0 63400 4 07775         SXD DOBOX=,4
00237   0 07400 4 00356         TSX STB,4
00240   0 50000 1 06020         CLA INST•A-4,1
00241   0 07400 4 00356         TSX STB,4
00242   1 00004 1 00134         TXI AA,1,4
00243   0 50000 1 06017 IF3CSA  CLA INST•A-5,1
00244  -0 32000 0 00054         ANA OPMSK=
00245   0 40200 0 00074         SUB LTPL•=
```

```
FIND WHAT KIND OF TRANSFER THIS IS F4411070
FOUR INTO INDEX REGISTER C         F4411080
                                   F4411090
HAVE FOUND TYPE OF TRANSFER        F4411100
NOT FOUND YET                      F4411110
IS THIS A TRANSFER WITH A SYMBOLIC F4411120
   ADDRESS = SPECIAL MARK          F4411130
YES,IGNORE AS NOT REAL TRANSFER    F4411140
                                   F4411150
                                   F4411160
                                   F4411170
IS  A CONDITIONAL TRANSFER, PUT ITSF4411180
   ADDRESS AND THE ADDRESS OF THE  F4411190
   NEXT INSTRUCTION IN THE BASIC   F4411200
   BLOCK LIST                      F4411210
LOOK AT NEXT INSTRUCTION           F4411220
TRA IS THE OPERATION CODE          F4411230
TSX                                F4411240
TXL                                F4411250
TZE                                F4411260
IS INSTRUCTION TAGGED              F4411270
                                   F4411280
YES,IS A GO TO VECTOR              F4411290
TEST FOR A GO TO N                 F4411300
IS ADDRESS IN N-BLOCK              F4411310
YES,THIS IS A GO TO N,IGNORE NOW   F4411320
NOT TAGGED,IS A STRAIGHT TRANSFER  F4411330
STORE ADDRESS IN BASIC BLOCK LIST  F4411340
LOOK AT NEXT INSTRUCTION           F4411350
THIS IS A GO TO VECTOR             F4411360
                                   F4411370
PUT NUMBER OF BRANCHES INTO IR C   F4411380
SET FOR NEXT INSTRUCTION           F4411390
READ IN MORE INSTRUCTIONS IF NEEDEDF4411400
GET ADDRESS OF THIS INSTRUCTION    F4411410
SAVE INDEX REGISTER C              F4411420
PUT ADDRESS IN BASIC BLOCK LIST    F4411430
RESTORE INDEX REGISTER C           F4411440
HAVE ALL BRANCHES BEEN DONE        F4411450
YES,LOOK AT NEXT INSTRUCTION       F4411460
THIS IS THE END OF A DO            F4411470
SET DOLIST ADDRESS FOR NEXT ENTRY  F4411480
PUT LOCATION OF TRANSFER AND       F4411490
ADDRESS OF TRANSFER INTO DO LIST   F4411500
                                   F4411510
                                   F4411520
STORE DO LIST ADDRESS              F4411530
PUT ADDRESS OF TRA BACK IN TRA TABLF4411540
                                   F4411550
PUT LOC OF NEXT INST• IN TRA       F4411560
LOOK AT NEXT INST•                 F4411570
THIS INSTRUCTION IS A TZE          F4411580
                                   F4411590
IS IT FOLLOWED BY BOTH A TPL AND   F4411600
```

```
00246 -0 10000 0 00173         TNZ 2WYTR                    A TRA, IF NOT, TREAT IT AS A      F4411610
00247  0 50000 1 06013         CLA INST.A-9,1               TWO-WAY TRANSFER                  F4411620
00250 -0 32000 0 00054         ANA OPMSK=                                                     F4411630
00251  0 40200 0 00064         SUB LTRA.=                                                     F4411640
00252 -0 10000 0 00173         TNZ 2WYTR                                                      F4411650
00253  0 50000 1 06022         CLA INST.A-2,1          PUT ADDRESSES OF THE THREE BRANCHES    F4411660
00254  0 07400 4 00356         TSX STB,4                  INTO THE BASIC BLOCK LIST           F4411670
00255  0 50000 1 06016         CLA INST.A-6,1                                                 F4411680
00256  0 07400 4 00356         TSX STB,4                                                      F4411690
00257  0 50000 1 06012         CLA INST.A-10,1                                                F4411700
00260  0 07400 4 00356         TSX STB,4                                                      F4411710
00261  1 00014 1 00134         TXI AA,1,12             LOOK AT INSTRUCTION AFTER THESE 3.     F4411720
00262  0 50000 1 06021 PSECS   CLA INSTA-3,1           INSTRUCTION IS A PSE                   F4411730
00263 -0 32000 0 00056         ANA PSTMK=                                                     F4411740
00264  0 40200 0 00055         SUB PSEMK=                                                     F4411750
00265 -0 10000 0 00153         TNZ OTHER               NOT A SKIP, LOOK AT NEXT INST.         F4411760
00266  0 50000 1 06017 TSTCS   CLA INSTA-5,1           THIS IS A TEST INSTRUCTION             F4411770
00267 -0 32000 0 00054         ANA OPMSK=              IS IT FOLLOWED BY A TRA                F4411780
00270  0 40200 0 00064         SUB LTRA.=                                                     F4411790
00271 -0 10000 0 00153         TNZ OTHER               NO,GO TO NEXT INSTRUCTION              F4411800
00272  0 50000 1 06016         CLA INST.A-6,1          YES, IS USED FOR SKIPPING              F4411810
00273  0 07400 4 00356         TSX STB,4                                                      F4411820
00274  0 50000 1 06013         CLA INST.A-9,1          IS TEST INSTRUCTION FOLLOWED BY        F4411830
00275 -0 32000 0 00054         ANA OPMSK=                 TWO TRAS                            F4411840
00276  0 40200 0 00064         SUB LTRA.=                                                     F4411850
00277 -0 10000 0 00303         TNZ SLOC                NO, STORE LOCATION OF 2ND INST.        F4411860
00300  0 50000 1 06012         CLA INST.A-10,1         YES,STORE ADDRESS OF 2ND TRA           F4411870
00301  0 07400 4 00356         TSX STB,4                                                      F4411880
00302  1 00014 1 00134         TXI AA,1,12             DO INSTRUCTION AFTER 2ND TRA NEXT      F4411890
00303  0 50000 1 06014 SLOC    CLA INSTA-8,1           STORE LOCATION OF 2ND INSTRUCTION      F4411900
00304  0 07400 4 00356         TSX STB,4                  AFTER TEST                          F4411910
00305  1 00010 1 00134         TXI AA,1,8              LOOK AT 2ND INSTRUCTION AFTER TEST     F4411920
                                                                                              F4411930
                               THIS ROUTINE READS A BLOCK OF COMPILED INSTRUCTIONS INTO        F4411940
                               STORAGE FROM TAPE 4, FILE 1.                                   F4411950
00306  0 50000 0 00063 RDIN    CLA LNOP.=              STORE EXIT ADDRESS FROM RDINS          F4411960
00307  0 60100 0 00342         STO XRDIN                                                      F4411970
00310  0 50000 0 00032 RDINSA  CLA MINUS4             INITIALIZE ERROR BOX                   F4411980
00311  0 60100 0 00030         STO ERRBX                                                      F4411990
00312  0 76200 0 00224 RDSEL   RDS INSTTP              SELECT INSTRUCTION TAPE                F4412000
00313 -0 63400 1 00105         SXD ERAS1=,1                                                   F4412010
00314 -0 53400 1 00131         LXD LD12.=,1                                                   F4412020
00315  0 50000 1 01574 RCLA    CLA BGINS,1             MOVE EXTRA INSTRUCTIONS                F4412030
00316  0 60100 1 06024         STO INST.A,1                                                   F4412040
00317  2 00001 1 00315         TIX RCLA,1,1                                                   F4412050
00320 -0 63400 1 00106         SXD ERAS2=,1            SAVE INDEX IN CASE OF ERROR            F4412060
00321  0 70000 1 06010 RCPY    CPY INSTA-12,1          READ IN BLOCK OF INSTRUCTIONS          F4412070
00322  1 00001 1 00321         TXI RCPY,1,1                                                   F4412080
00323  1 77777 1 00334         TXI RDEND,1,-1          END OF FILE                            F4412090
00324  0 76600 0 00333 TPTST   WRS 219                 TEST FOR TAPE ERROR                    F4412100
00325 -0 76000 0 00012         RTT                                                            F4412110
00326  0 02000 0 00346         TRA RDERR               ERROR                                  F4412120
00327  0 50000 0 00032         CLA MINUS4              INITIALIZE ERROR BOX                   F4412130
00330  0 60100 0 00030         STO ERRBX                                                      F4412140
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00331   3 04230 1 00341 LNOINS TXH XRDIN-1,1,NOINS     END OF RECORD--SEE IF IT IS END OF  F4412150
                                                          BLOCK GOING INTO STORAGE        F4412160
00332   0 76200 0 00224         RDS INSTTP              READ NEXT BLOCK                    F4412170
00333   0 02000 0 00320         TRA RCPY-1              STORE NUMBER OF REMAINING INSTRUC- F4412180
00334  -0 75400 1 00000 RDEND   PXD 0,1                    TIONS FOR TEST                 F4412190
00335   0 40000 0 00131         ADD LD12.=                                                 F4412200
00336   0 62200 0 00134         STD AA                  STORE FINAL EXIT ADDRESS.          F4412210
00337   0 50000 0 00076         CLA LOUT                                                   F4412220
00340   0 62100 0 00134         STA AA                  NO ERROR,RESTORE INDEX REGISTER    F4412230
00341  -0 53400 1 00105         LXD ERAS1=,1            RETURN TO MAIN ROUTINE             F4412240
00342   0 02000 0 00135 XRDIN   TRA AA+1                RESTORE USUAL EXIT ADDRESS IN RDINSF4412250
00343   0 50000 0 00075 RDIN2   CLA LTRAA                                                  F4412260
00344   0 60100 0 00342         STO XRDIN               RETURN TO MAIN ROUTINE             F4412270
00345   0 02000 0 00222         TRA 4TIX+1                                                 F4412280
00346   0 50000 0 00030 RDERR   CLA ERRBX               HAVE 5 TRIES AT READING BEEN MADE  F4412290
00347  -0 12000 0 00351 SKIP1   TMI SKIP1+2                YES, GO TO DIAGNOSTIC ROUTINE  F4412300
00350   0 07400 4 00004         TSX RDFORT,4                NO, TRY READING AGAIN          F4412310
00351   0 40000 0 00031         ADD LA1                                                    F4412320
00352   0 60100 0 00030         STO ERRBX                                                  F4412330
00353   0 76400 0 00224         BST INSTTP              RESET INDEX REGISTER               F4412340
00354  -0 53400 1 00106         LXD ERAS2=,1               AND TRY TO READ AGAIN           F4412350
00355   0 02000 0 00332         TRA LNOINS+1                                               F4412360
                                                        THIS ROUTINE STORES,IN ORDER AND ELIMINATING DUPLICATIONS, F4412370
                                                        THE COMPILED INSTRUCTION NUMBER OF THE BEGINNING OF EACH   F4412380
                                                        BASIC BLOCK                        F4412390
00356   0 60100 0 00107 STB     STO ERAS3=                                                 F4412400
00357  -0 63400 1 00105         SXD ERAS1=,1                                               F4412410
00360  -0 75400 2 00000         PXD 0,2                                                    F4412420
00361   0 62200 0 00421         STD BTXH                                                   F4412430
00362   0 62200 0 00425         STD BTXL                                                   F4412440
00363   0 62200 0 00401         STD PLACEA                                                 F4412450
00364   0 77100 0 00001         ARS 1                                                      F4412460
00365   0 30000 0 00033         FAD L0...=                                                 F4412470
00366   0 77100 0 00033         ARS 27                                                     F4412480
00367   0 40200 0 00040         SUB L01..=                                                 F4412490
00370   0 62100 0 00372         STA AR..                                                   F4412500
00371   0 50000 0 00103         CLA CON.TA                                                 F4412510
A  00372   0 77100 0 00000 ARS     ARS                                                    F4412520
00373   0 56000 0 00104         LDQ CNST2A                                                 F4412530
00374  -0 73400 1 00000         PDX 0,1                                                    F4412540
00375   0 77100 0 00001 ARSB    ARS 1                                                      F4412550
00376   0 62200 0 00403         STD TXIBB                                                  F4412560
00377   0 62200 0 00405         STD TIXBB                                                  F4412570
00400   0 50000 0 00107         CLA ERAS3=                                                 F4412580
00401   3 00000 1 00405 PLACEA  TXH TIXBB,1,XXXXXX                                         F4412590
00402   0 34000 1 07774         CAS BBLIST+1,1                                             F4412600
D  00403   1 00000 1 00406 TXIBB   TXI CLAB,1                                             F4412610
00404   0 02000 0 00432         TRA BOUT                                                   F4412620
D  00405   2 00000 1 00406 TIXBB   TIX CLAB,1                                             F4412630
00406   0 50000 0 00405 CLAB    CLA TIXBB                                                  F4412640
00407   0 04000 0 00375         TLQ ARSB                                                   F4412650
00410   0 50000 0 00107         CLA ERAS3=              X WAS NOT FOUND, ENTER IT          F4412660
00411   3 01273 2 00434         TXH BTSX,2,ZBB-1        TEST FOR OVERFLOW OF BBLIST        F4412670
00412   0 56000 1 07774         LDQ BBLIST+1,1                                             F4412680
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00413   0 04000 0 00415         TLQ TXI2                                                F4412690
00414   0 02000 0 00417         TRA BLDQ+1                                              F4412700
00415   1 00001 1 00416 TXI2    TXI BLDQ,1,1                                            F4412710
00416   0 56000 1 07774 BLDQ    LDQ BBLIST+1,1      X SHOULD BE ENTERED HERE, SAVE NEXTF4412720
00417   0 60100 1 07774         STO BBLIST+1,1        ENTRY AND STORE X                 F4412730
00420   1 00001 1 00421         TXI BTXH,1,1        IS THIS LAST ENTRY IN TABLE.        F4412740
D 00421 3 00000 1 00430 BTXH    TXH BSTQ,1          YES, TRANSFER                       F4412750
00422   0 50000 1 07774         CLA BBLIST+1,1      NO, SHIFT NEXT ENTRY                F4412760
00423  -0 60000 1 07774         STQ BBLIST+1,1                                          F4412770
00424   1 00001 1 00425         TXI BTXL,1,1                                            F4412780
D 00425 -3 00000 1 00416 BTXL   TXL BLDQ,1          IS THIS LAST ENTRY IN TABLE         F4412790
00426   0 60100 1 07774         STO BBLIST+1,1      YES, STORE LAST ENTRY               F4412800
00427   1 00001 2 00432         TXI BOUT,2,1                                            F4412810
00430  -0 60000 1 07774 BSTQ    STQ BBLIST+1,1      STORE LAST ENTRY                    F4412820
00431   1 00001 2 00432         TXI BOUT,2,1                                            F4412830
00432  -0 53400 1 00105 BOUT    LXD ERAS1=,1        RESTORE INDEX REGISTER              F4412840
00433   0 02000 4 00001         TRA 1,4             TRANSFER BACK.                      F4412850
00434   0 07400 4 00004 BTSX    TSX RDFORT,4        BBLIST IS FULL WITHOUT THIS ENTRY   F4412860
                                                                                        F4412870
                        THIS ROUTINE READS TIFGO FROM TAPE 2, FILE 5, RECORD 6,         F4412880
                        ELIMINATING UNWANTED PARTS OF TIFGO.                            F4412890
00435   0 50000 0 00032 STTIF=  CLA MINUS4          INITIALIZE ERROR BOX                F4412900
00436   0 60100 0 00030         STO ERRBX                                               F4412910
00437   0 76400 0 00222         BST TBLTAP          POSITION TAPE TO READ TIFGO         F4412920
00440   0 76400 0 00222         BST TBLTAP                                              F4412930
00441   0 76200 0 00222         RDS TBLTAP                                              F4412940
00442   0 70000 0 00105         CPY ERAS1=          GET NO. OF RECORDS IN DOTAG         F4412950
00443  -0 53400 1 00105         LXD ERAS1=,1        BACKSPACE OVER COUNT, END FILE,     F4412960
00444   1 00014 1 00445 TXITF   TXI TXITF+1,1,12      DOTAG, END FILE, 9 TABLES         F4412970
00445   0 76400 0 00222 BSTA    BST TBLTAP                                              F4412980
00446   2 00001 1 00445 SELF3   TIX SELF3-1,1,1                                         F4412990
00447   0 76200 0 00222         RDS TBLTAP                                              F4413000
00450   0 70000 0 00106         CPY ERAS2=          COPY TABLE NUMBER                   F4413010
00451   0 70000 0 00105         CPY ERAS1=          COPY NO OF WORDS IN TABLE           F4413020
00452   0 70000 1 06024 CPYTF   CPY TIFRD,1         COPY WORD OF TIFGO                  F4413030
00453   0 02000 0 00456         TRA CLATFA          REGULAR EXIT FROM COPY              F4413040
00454   0 07400 4 00004         TSX RDFORT,4        END OF FILE SHOULD NOT OCCUR        F4413050
00455   1 77777 1 00476         TXI CHECK,1,-1      END OF RECORD - GIVE RTT, SET INDEXF4413060
00456   0 50000 1 06024 CLATFA  CLA TIFRD,1         LOOK AT THIS WORD OF TIFGO          F4413070
00457  -0 12000 0 00451         TMI CPYTF-1         - MEANS AN IF, GIVE 2ND COPY,IGNOREF4413080
00460  -0 32000 0 00057         ANA TGMSK=          IS THIS A GO TO N ENTRY             F4413090
00461   0 40200 0 00031         SUB LA1                                                 F4413100
00462   0 70000 1 06023         CPY TIFRD-1,1       COPY SECOND WORD OF ENTRY           F4413110
00463   0 10000 0 00467         TZE GOTONA          THIS IS A GO TO N ENTRY             F4413120
00464   0 40200 0 00034         SUB L5...=          NOT A GO TO N--IS IT AN ASSIGN      F4413130
00465  -0 10000 0 00452         TNZ CPYTF           NO, LOOK AT NEXT ENTRY, DONT SAVE   F4413140
00466   1 00002 1 00452 ASSN    TXI CPYTF,1,2       AN ASSIGN,KEEP ENTRY IN TIFRD       F4413150
00467   0 50000 1 06023 GOTONA  CLA TIFRD-1,1       A GO TO N, SAVE ENTRY AND ALSO      F4413160
00470   0 62200 0 00105         STD ERAS1=            LEAVE ENOUGH SPACE FOR CORRES-    F4413170
00471   0 73400 4 00000         PAX 0,4               PONDING ENTRIES IN TRAD           F4413180
00472  -0 75400 4 00000         PXD 0,4                                                 F4413190
00473   0 40200 0 00105         SUB ERAS1=                                              F4413200
00474   0 62200 0 00475 SELF4   STD SELF4+1                                             F4413210
00475   1 00000 1 00466         TXI ASSN,1,XXXXXX   LOOK AT NEXT ENTRY IN TIFRD         F4413220
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00476   0 76600 0 00333 CHECK  IOD                                  TEST FOR TAPE ERROR                                F4413230
00477  -0 76000 0 00012        RTT                                                                                     F4413240
00500   0 02000 0 00515        TRA ERRORA                           ERROR                                              F4413250
00501   0 50000 0 00106        CLA ERAS2=                           CHECK FOR POSITIONING OF TAPE                      F4413260
00502   0 40200 0 00035        SUB TIFLAB                                                                              F4413270
00503  -0 10000 0 00524        TNZ BADPOS                                                                              F4413280
00504  -0 75400 1 00000        PXD 0,1                              SAVE LENGTH OF TABLE FOR TESTS                     F4413290
00505   0 62200 0 00570        STD ABOX                                                                                F4413300
00506   0 77100 0 00022        ARS 18                                                                                  F4413310
00507   0 60100 0 00106        STO ERAS2=                                                                              F4413320
00510  -0 10000 0 00525        TNZ RDTRAD-2                         TIFGO IS NOT EMPTY                                 F4413330
00511   0 76200 0 00222 RDS6   RDS TBLTAP                                                                              F4413340
00512   1 77777 2 00513        TXI RDS6+2,2,-1                      NO ENTRIES IN TIFGO-SKIP PROCESSING                F4413350
00513  -0 63400 2 07774        SXD BBOX*=,2                                                                            F4413360
00514   0 02000 0 00637        TRA LXA6                                                                                F4413370
00515   0 50000 0 00030 ERRORA CLA ERRBX                                                                               F4413380
00516  -0 12000 0 00520 SKIP2  TMI SKIP2+2                          HAVE 5 TRIES AT READING BEEN MADE                  F4413390
00517   0 07400 4 00004        TSX RDFORT,4                            YES, GO TO DIAGNOSTIC ROUTINE                   F4413400
00520   0 40000 0 00031        ADD LA1                                 NO, TRY READING AGAIN                           F4413410
00521   0 60100 0 00030        STO ERRBX                                                                               F4413420
00522  -0 53400 1 00040        LXD LD1**=,1                         RESET INDEX REGISTER                               F4413430
00523   0 02000 0 00445        TRA BSTA                                                                                F4413440
00524   0 07400 4 00004 BADPOS TSX RDFORT,4                         TAPE POSITIONED INCORRECTLY                        F4413450
                                                                                                                       F4413460
                               THIS ROUTINE READS TRAD FROM TAPE 2, FILE 5, RECORD 7, AND                              F4413470
                               ENTERS ALL WORDS OF TRAD INTO THE BASIC BLOCK LIST.                                     F4413480
00525   0 50000 0 00032        CLA MINUS4                           INITIALIZE ERROR BOX                               F4413490
00526   0 60100 0 00030        STO ERRBX                                                                               F4413500
00527   0 53400 1 00031 RDTRAD LXA LA1,1                            SET INDEX                                          F4413510
00530   0 76200 0 00222        RDS TBLTAP                                                                              F4413520
00531   0 70000 0 00105        CPY ERAS1=                           COPY TABLE NUMBER                                  F4413530
00532   0 70000 1 03711        CPY TRAD*=+1,1                       COPY NUMBER OF WORDS AND TABLE                     F4413540
00533   1 77777 1 00532 SELF5  TXI SELF5-1,1,-1                     COPY NEXT WORD                                     F4413550
00534   0 07400 4 00004        TSX RDFORT,4                         END OF FILE SHOULD NOT OCCUR                       F4413560
00535   0 76600 0 00333        IOD                                  END OF RECORD--TEST FOR ERROR                      F4413570
00536  -0 76000 0 00012        RTT                                                                                     F4413580
00537   0 02000 0 00551        TRA ERR2TD                           ERROR                                              F4413590
00540   0 50000 0 00105        CLA ERAS1=                           CHECK FOR POSITIONING OF TAPE                      F4413600
00541   0 40200 0 00036        SUB TRALAB                                                                              F4413610
00542  -0 10000 0 00524        TNZ BADPOS                                                                              F4413620
00543  -3 00000 1 00560 TXLTRD TXL TXITRD,1,0                       ALL OF TRAD NOW IN BASIC BLOCK LIST                F4413630
00544   0 50000 1 03710        CLA TRAD*=,1                         NO ERROR--ENTER IN BASIC BLOCK LIST                F4413640
00545   0 76700 0 00022        ALS 18                               SHIFT WORD OF TRAD                                 F4413650
00546   0 60100 1 03710        STO TRAD*=,1                                                                            F4413660
00547   0 07400 4 00356        TSX STB,4                                                                               F4413670
00550   1 00001 1 00543        TXI TXLTRD,1,1                       SET FOR NEXT WORD IN TRAD                          F4413680
00551   0 50000 0 00030 ERR2TD CLA ERRBX                                                                               F4413690
00552  -0 12000 0 00554 SKIP3  TMI SKIP3+2                          HAVE 5 TRIES AT READING BEEN MADE                  F4413700
00553   0 07400 4 00004        TSX RDFORT,4                            YES, GO TO DIAGNOSTIC ROUTINE                   F4413710
00554   0 40000 0 00031        ADD LA1                                 NO, TRY READING AGAIN                           F4413720
00555   0 60100 0 00030        STO ERRBX                                                                               F4413730
00556   0 76400 0 00222        BST TBLTAP                                                                              F4413740
00557   0 02000 0 00527        TRA RDTRAD                                                                              F4413750
00560   1 77777 2 00561 TXITRD TXI TXITRD+1,2,-1                                                                       F4413760
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00561 -0 63400 2 07774        SXD BBOX*=,2                SAVE LENGTH OF BB TABLE                F4413770
                                                                                                 F4413780
                              THIS COMBINES TIFGO AND TRAD INTO TIFRD                            F4413790
00562  0 53400 1 00031 CMBNE  LXA LA1,1                   COMBINE TRAD WITH TIFGO                F4413800
00563  0 50000 1 06024 CLATF  CLA TIFRD,1                 LOOK FOR A GO TO N ENTRY IN TIFRD      F4413810
00564 -0 32000 0 00057        ANA TGMSK=                                                         F4413820
00565  0 40200 0 00031        SUB LA1                                                            F4413830
00566  0 10000 0 00572        TZE GOTN2                                                          F4413840
00567  1 00002 1 00570        TXI ABOX,1,2                                                       F4413850
D 00570 -2 00000 1 00563 ABOX TNX CLATF,1                 IS THIS END OF TIFRD                   F4413860
00571  0 02000 0 00605        TRA CLAER                   YES, STORE TIFRD ON DRUM               F4413870
00572  0 50000 1 06023 GOTN2  CLA TIFRD-1,1               GO TO N, PUT IN ENTRIES FROM TRAD      F4413880
00573 -0 73400 2 00000        PDX 0,2                     SET INDEX FOR FIRST WORD               F4413890
00574  0 76700 0 00022        ALS 18                                                             F4413900
00575  0 62200 0 00603        STD TXH                     STORE INDEX FOR LAST WORD              F4413910
00576  0 50000 2 04303 CLATR  CLA TRAD*=+251,2            STORE WORD FROM TRAD INTO TIFRD        F4413920
00577 -0 76000 0 00003        SSM                                                                F4413930
00600  0 60100 1 06022        STO TIFRD-2,1                                                      F4413940
00601  1 77777 2 00602        TXI TXIA,2,-1               SET INDEX FOR TRAD                     F4413950
00602  1 00001 1 00603 TXIA   TXI TXH,1,1                 SET INDEX FOR TIFRD                    F4413960
D 00603  3 00000 2 00576 TXH  TXH CLATR,2                 CHECK FOR LAST WORD FOR THIS GO TO     F4413970
00604  1 00002 1 00570        TXI ABOX,1,2                SET FOR NEXT ENTRY IN TIFRD            F4413980
                                                                                                 F4413990
                              THIS ROUTINE WRITES TIFRD ON DRUM 1 IN BLOCKS OF 200 WORDS*      F4414000
00605  0 50000 0 00106 CLAER  CLA ERAS2=                  HOW MANY WORDS ARE LEFT TO COPY        F4414010
00606 -0 12000 0 00643        TMI RFRET                   NONE                                   F4414020
00607  0 40200 0 00041        SUB LZTIF=                                                         F4414030
00610 -0 12000 0 00637 TMI    TMI LXA6                    ONLY A PARTIAL BLOCK                   F4414040
00611  0 53400 1 00041        LXA LZTIF=,1                FULL                                   F4414050
00612  0 60100 0 00106        STO ERAS2=                  STORE NO OF WORDS LEFT AFTER THIS      F4414060
00613  0 76600 0 00301 WRSTIF WRS TIFDRM                                                         F4414070
00614 -0 75400 1 00000        PXD 0,1                     PUT LENGTH OF BLOCK IN ACCUMULATOR     F4414080
00615  0 60100 0 00107        STO ERAS3=                    AND IN ERAS3=                        F4414090
00616  0 36100 1 06024 ACLF   ACL TIFRD,1                 COMPUTE CHECKSUM                       F4414100
00617  2 00001 1 00616        TIX ACLF,1,1                                                       F4414110
00620  0 60200 0 00105        SLW ERAS1=                  STORE CHECK SUM                        F4414120
00621  0 46000 0 00047        LDA Y                       LOCATE DRUM ADDRESS                    F4414130
00622 -0 53400 1 00107        LXD ERAS3=,1                SET INDEX                              F4414140
00623  0 70000 0 00107        CPY ERAS3=                  COPY NO OF WORDS IN BLOCK              F4414150
00624  0 70000 1 06024 CPY7FT CPY TIFRD,1                 COPY TABLE                             F4414160
00625  2 00001 1 00624 SELF9  TIX SELF9-1,1,1                                                    F4414170
00626  0 70000 0 00105        CPY ERAS1=                  COPY CHECK SUM                         F4414180
00627 -0 50000 0 00616        CAL ACLF                    SET ADDRESSES FOR COMPUTING            F4414190
00630  0 40200 0 00041        SUB LZTIF=                     CHECK SUM AND COPY                  F4414200
00631  0 62100 0 00616 STA6   STA ACLF                                                           F4414210
00632  0 62100 0 00624        STA CPY7FT                                                         F4414220
00633  0 50000 0 00047        CLA Y                       SET DRUM ADDRESS                       F4414230
00634  0 40000 0 00042        ADD LZTF2=                                                         F4414240
00635  0 62100 0 00047        STA Y                                                              F4414250
00636  0 02000 0 00605        TRA CLAER                   DO NEXT BLOCK                          F4414260
00637  0 53400 1 00106 LXA6   LXA ERAS2=,1                PUT LENGTH IN INDEX                    F4414270
00640  0 50200 0 00033        CLS L0***=                  PUT MINUS IN ERAS2= AS LENGTH LEFT     F4414280
00641  0 60100 0 00106        STO ERAS2=                                                         F4414290
00642  0 02000 0 00613        TRA WRSTIF                  TRA TO WRITE BLOCK AND COMPUTE CKSM    F4414300
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                                                                                F4414310
                        THIS ROUTINE READS FRET FROM TAPE 2, FILE 5, RECORD 12, AND   F4414320
                        CHANGES FREQUENCIES TO PROBABILITIES.                         F4414330
00643   0 50000 0 00032 RFRET   CLA MINUS4      INITIALIZE ERROR BOX                  F4414340
00644   0 60100 0 00030         STO ERRBX                                             F4414350
00645   0 53400 4 00034         LXA L5...=,4    SPACE TO FRET                         F4414360
00646   0 76200 0 00222 RDSFTP  RDS TBLTAP                                           F4414370
00647   2 00001 4 00646         TIX RDSFTP,4,1                                        F4414380
00650   0 70000 0 00106         CPY ERAS2=      COPY TABLE NUMBER                     F4414390
00651   0 70000 0 00105 RDINF   CPY ERAS1=      COPY NUMBER OF WORDS IN TABLE         F4414400
00652  -0 53400 2 00105         LXD ERAS1=,2    PUT NUMBER OF WORDS INTO INDEX B      F4414410
00653  -3 00000 2 01012         TXL EMPTY,2,0                                         F4414420
00654   0 53400 1 00031         LXA LA1,1       INITIALIZE INDEX REGISTERS A AND C    F4414430
00655  -0 53400 4 00050         LXD LXFRT=,4                                          F4414440
00656   0 70000 4 06023 CPYF    CPY FRET.=,4    COPY WORDS INTO STORAGE               F4414450
00657   0 50000 4 06023         CLA FRET.=,4    IS THIS WORD THE FORMULA NUMBER OF    F4414460
00660  -0 12000 0 00665         TMI TNX            A NEW ENTRY--YES, TRANSFER         F4414470
00661   0 40000 4 06022 ADD     ADD FRET.=-1,4  NO, ADD THIS FREQUENCY TO PREVIOUS    F4414480
00662   0 60100 4 06023         STO FRET.=,4       SUM TO GET CUMULATIVE FREQUENCY    F4414490
00663  -2 00001 2 00724         TNX ALDNE,2,1   IS TABLE ALL COPIED                   F4414500
00664   1 77777 4 00656         TXI CPYF,4,-1   NO,COPY NEXT WORD                     F4414510
00665  -2 00001 2 00711 TNX     TNX ERRFN,2,1   THIS IS FORM. NO,--SHOULDNT END TAB   F4414520
00666   1 77777 4 00667 SELF10  TXI SELF10+1,4,-1 INDEX PLACE IN STORAGE              F4414530
00667   0 70000 4 06023 CPY3FT  CPY FRET.=,4    COPY FIRST FREQUENCY IN ENTRY         F4414540
00670  -2 00001 2 00706         TNX DOEND,2,1   TEST FOR END OF TABLE ON TAPE         F4414550
00671   1 77777 4 00672 SELF11  TXI SELF11+1,4,-1 INDEX PLACE IN STORAGE              F4414560
00672   0 70000 4 06023         CPY FRET.=,4    COPY NEXT WORD-- IS IT NEXT FREQ OR   F4414570
00673   0 50000 4 06023         CLA FRET.=,4       IS IT NEW FORMULA NUMBER           F4414580
00674   0 12000 0 00661         TPL ADD         NEXT FREQUENCY,GO TO ADD              F4414590
00675   0 50000 4 06021 DOCSFT  CLA FRET.=-2,4  NEW FORMULA NUMBER,ENTRY JUST        F4414600
00676   0 60100 1 06023         STO DVFQ.=,1       COPIED WAS FOR A DO, MOVE TO       F4414610
00677   0 50000 4 06022         CLA FRET.=-1,4     DVFQ                               F4414620
00700   0 60100 1 06022         STO DVFQ.=-1,1                                        F4414630
00701   1 00002 1 00702         TXI CLAFT,1,2   INDEX POSITION IN DVFQ TABLE          F4414640
00702   0 50000 4 06023 CLAFT   CLA FRET.=,4    PUT NEW FORMULA INTO FRET IN PLACE    F4414650
00703   0 60100 4 06021         STO FRET.=-2,4     OF ENTRY JUST MOVED                F4414660
00704  -2 00001 2 00711         TNX ERRFN,2,1   THIS SHOULD BE END ONLY IF WAS DOCS   F4414670
00705   1 00001 4 00667         TXI CPY3FT,4,1  COPY NEXT WORD                        F4414680
00706   0 50000 0 00663 DOEND   CLA ADD+2       THIS DO ENTRY IS END OF TABLE         F4414690
00707   0 62100 0 00704         STA CLAFT+2     RESTORE ADDRESS                       F4414700
00710   0 02000 0 00675         TRA DOCSFT      ERROR EXIT                            F4414710
00711   0 07400 4 00004 ERRFN   TSX RDFORT,4    THE TAPE RECORD ENDS WITH A FORMULA   F4414720
00712   0 50000 0 00665         CLA TNX            NUMBER WITH NO FREQUENCIES         F4414730
00713   0 62100 0 00704         STA CLAFT+2     RESTORE ADDRESS                       F4414740
00714   0 50000 0 00030 ERRORF  CLA ERRBX                                             F4414750
00715  -0 12000 0 00717 SKIP4   TMI SKIP4+2    HAVE 5 TRIES AT READING BEEN MADE     F4414760
00716   0 07400 4 00004         TSX RDFORT,4       YES, GO TO DIAGNOSTIC ROUTINE      F4414770
00717   0 40000 0 00031         ADD LA1            NO, TRY READING AGAIN              F4414780
00720   0 60100 0 00030         STO ERRBX                                             F4414790
00721   0 76400 0 00222         BST TBLTAP                                            F4414800
00722   0 76200 0 00222         RDS TBLTAP      SET TO READ FRET AGAIN.               F4414810
00723   0 02000 0 00650         TRA RDSFTP+2    TRY AGAIN                             F4414820
00724   0 76600 0 00333 ALDNE   IOD                                                   F4414830
00725  -0 76000 0 00012         RTT             TEST FOR TAPE ERROR                   F4414840
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00726  0 02000 0 00714          TRA ERRORF          ERROR                                  F4414850
00727  0 50000 0 00106          CLA ERAS2=          CHECK FOR POSITIONING OF TAPE          F4414860
00730  0 40200 0 00037          SUB FRELAB                                                 F4414870
00731 -0 10000 0 00524          TNZ BADPOS                                                 F4414880
00732  1 77777 4 00733          TXI CONTN,4,-1                                             F4414890
00733 -0 63400 1 01274 CONTN     SXD DVFTST,1        SAVE LENGTH OF DVFQ TABLE              F4414900
00734 -0 63400 4 00107           SXD FRTBX=,4        SAVE LENGTH OF FRET TABLE IN STOR.     F4414910
00735  1 00001 4 00736           TXI CLA1,4,1                                               F4414920
00736  0 50000 4 06023 CLA1      CLA FRET.=,4        TAKE TOTAL FREQ OF ENTRY (LAST WD)     F4414930
00737  0 60100 0 00105           STO ERAS1=          STORE AS DIVISOR                       F4414940
00740  0 50000 0 00052           CLA ENDMK=          STORE HIGHEST NO AS TOTAL PROB.        F4414950
00741  0 60100 4 06023           STO FRET.=,4                                               F4414960
00742  1 00001 4 00743           TXI CLAD,4,1        INDEX PLACE IN FRET                    F4414970
00743  0 50000 4 06023 CLAD      CLA FRET.=,4        LOOK AT NEXT WORD                      F4414980
00744 -0 12000 0 00753           TMI NEWFM           FORMULA NUMBER--END OF THIS ENTRY      F4414990
00745  0 56000 0 00033           LDQ LO...=          ANOTHER CUMULATIVE FREQUENCY           F4415000
00746  0 22100 0 00105           DVP ERAS1=          DIVIDE BY TOTAL FREQUENCY TO GET       F4415010
00747  0 76000 0 00012           DCT                   CUMULATIVE PROBABILITY               F4415020
00750  0 56000 0 00052           LDQ ENDMK=                                                 F4415030
00751 -0 60000 4 06023           STQ FRET.=,4                                               F4415040
00752  1 00001 4 00743           TXI CLAD,4,1        LOOK AT NEXT WORD                      F4415050
00753  1 00001 4 00754 NEWFM     TXI NEWFM+1,4,1     IS THIS END OF TABLE                   F4415060
00754 -2 01750 4 00736           TNX CLA1,4,XFRET=   NO--LOOK AT  NEXT ENTRY                F4415070
                                                                                           F4415080
                                 THIS ROUTINE WRITES FRET ON DRUM 2 IN BLOCKS OF 250 WORDS  F4415090
                                                                                           F4415100
                                                                                           F4415110
00755  0 50200 0 00107 DONE      CLS FRTBX=                                                 F4415120
00756  0 40000 0 00050           ADD LXFRT=          PUT NO. OF WORDS IN FRET INTO INDEX    F4415130
00757 -0 73400 4 00000           PDX 0,4             IS THERE ONLY A PARTIAL BLOCK LEFT     F4415140
00760 -2 00372 4 01006 LZFRT=    TNX LSTBLK,4,ZFRET= NO, FULL BLOCK--SET INDEX REGS.        F4415150
00761 -0 53400 3 00760           LXD LZFRT=,3        GET LENGTH OF BLOCK                    F4415160
00762  0 50000 0 00043           CLA LAZFT=          SET ADDRESSES FOR BLOCK                F4415170
00763  0 40100 0 00771 ADM       ADM ACLA                                                   F4415180
00764  0 62100 0 00771           STA ACLA                                                   F4415190
00765  0 62100 0 00776           STA CPYFT           SELECT DRUM                            F4415200
00766  0 76600 0 00302           WRS FRTDRM                                                 F4415210
00767 -0 75400 2 00000           PXD 0,2             STORE LENGTH OF BLOCK                  F4415220
00770  0 60100 0 00106           STO ERAS2=          FIND CHECKSUM                          F4415230
00771  0 36100 2 04053 ACLA      ACL FRETN=,2                                               F4415240
00772  2 00001 2 00771           TIX ACLA,2,1        STORE CHECKSUM                         F4415250
00773  0 60200 0 00105           SLW ERAS1=                                                 F4415260
00774  0 46000 0 00046           LDA FRETY=          COPY NO OF WORDS IN BLOCK              F4415270
00775  0 70000 0 00106           CPY ERAS2=          COPY BLOCK                             F4415280
00776  0 70000 1 04053 CPYFT     CPY FRETN=,1                                               F4415290
00777  2 00001 1 00776           TIX CPYFT,1,1       COPY CHECK SUM                         F4415300
01000  0 70000 0 00105           CPY ERAS1=          IS THIS END OF TABLE                   F4415310
01001  3 01750 4 01014           TXH OUTA,4,XFRET=   NO,SET DRUM ADDRESS FOR NEXT BLOCK     F4415320
01002  0 50000 0 00046           CLA FRETY=                                                 F4415330
01003  0 40000 0 00044           ADD LAFT2=                                                 F4415340
01004  0 62100 0 00046           STA FRETY=          DO NEXT BLOCK                          F4415350
01005  0 02000 0 00760           TRA LZFRT=          ONLY A PARTIAL BLOCK LEFT              F4415360
01006 -0 75400 4 00000 LSTBLK     PXD 0,4             LENGTH OF BLOCK INTO INDICES           F4415370
01007 -0 73400 3 00000           PDX 0,3                                                    F4415380
01010  0 77100 0 00022           ARS 18
01011  1 01750 4 00763           TXI ADM,4,XFRET=
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01012   0 76600 0 00302 EMPTY  WRS FRTDRM                                                    F4415390
01013   0 46000 0 00046        LDA FRETY=                                                    F4415400
01014   0 70000 0 00033 OUTA   CPY L0...=                                                    F4415410
01015   0 77200 0 00224        REW INSTTP          REWIND COMPILED INSTRUCTION TAPE          F4415420
                                                                                             F4415430
                               THIS ROUTINE SORTS THE LIST OF TXL INSTRUCTIONS BY ADDRESS     F4415440
01016 -0 53400 1 07775 SRTDO   LXD DOBOX=,1        PUT TOTAL LNGTH OF DOLIST IN ERAS2=       F4415450
01017 -3 00000 1 01305         TXL CLTRA=-3,1,0    IF NO DOS, OMIT ROUTINES WITH DOS         F4415460
01020 -0 63400 1 00106         SXD ERAS2=,1                                                  F4415470
01021   0 50000 1 06500 CLADO  CLA DOLIST,1        TAKE LAST ENTRY NOT ALREADY SORTED        F4415480
01022   0 56000 1 06501        LDQ DOLIST+1,1      PUT ADDRESS IN AC, LOC IN MQ              F4415490
01023 -3 00002 1 01046 TXLDO   TXL STOREA,1,2      IS THERE ANOTHER ENTRY TO BE              F4415500
                                                     COMPARED                                F4415510
01024   0 34000 1 06502        CAS DOLIST+2,1      YES, COMPARE ADDRESSES                    F4415520
01025   1 77776 1 01023        TXI TXLDO,1,-2      STORED ADDRESS SMALLER, LOOK AT           F4415530
                                                     NEXT WORD                               F4415540
01026   0 02000 0 01040        TRA COMPR           ADDRESSES ARE EQUAL, COMPARE LOCATN       F4415550
01027   0 60100 0 00105        STO ERAS1=          STORED ADDRESS LARGER, EXCHANGE           F4415560
01030   0 50000 1 06503        CLA DOLIST+3,1        ENTRIES                                 F4415570
01031 -0 60000 1 06503 STQDO   STQ DOLIST+3,1                                               F4415580
01032   0 56000 0 00105        LDQ ERAS1=                                                    F4415590
01033   0 60100 0 00105        STO ERAS1=                                                    F4415600
01034   0 50000 1 06502        CLA DOLIST+2,1                                                F4415610
01035 -0 60000 1 06502         STQ DOLIST+2,1                                                F4415620
01036   0 56000 0 00105        LDQ ERAS1=                                                    F4415630
01037   1 77776 1 01023        TXI TXLDO,1,-2                                                F4415640
01040   0 60100 0 00105 COMPR  STO ERAS1=          ADDRESSES EQUAL,COMPARE LOCATIONS         F4415650
01041   0 50000 1 06503        CLA DOLIST+3,1                                                F4415660
01042   0 04000 0 01044        TLQ CLA2            STORED LARGER,DO NOT EXCHANGE             F4415670
01043   0 02000 0 01031        TRA STQDO           STORED LOC SMALLER, EXCHANGE              F4415680
01044   0 50000 0 00105 CLA2   CLA ERAS1=          RESTORE ACCUMULATOR                       F4415690
01045   1 77776 1 01023        TXI TXLDO,1,-2                                                F4415700
01046 -0 53400 1 00106 STOREA  LXD ERAS2=,1        NOW HAVE HIGHEST OF ENTRIES NOT           F4415710
01047   0 60100 1 06500        STO DOLIST,1          PREVIOUSLY SORTED, STORE JUST           F4415720
01050 -0 60000 1 06501         STQ DOLIST+1,1        BEFORE THOSE ALREADY SORTED AND         F4415730
01051   1 77776 1 01052 SELF13 TXI SELF13+1,1,-2     SET INDEX TO AVOID THIS ENTRY AS        F4415740
01052 -0 63400 1 00106         SXD ERAS2=,1          ALREADY SORTED, LOOK FOR HIGHEST        F4415750
01053   3 00002 1 01021        TXH CLADO,1,2         ENTRY OF THOSE NOT YET SORTED.          F4415760
                               TABLE IS ENTIRELY SORTED NOW.                                 F4415770
                                                                                             F4415780
                               THIS ROUTINE REPLACES THE INSTRUCTION NUMBERS IN THE DO LIST   F4415790
                               BY BASIC BLOCK NUMBERS                                        F4415800
01054   0 53400 2 00033        LXA L0...=,2        INITIALIZE INDEX REGISTERS                F4415810
01055   0 50000 0 07775        CLA DOBOX=          PUT NUMBER OF WORDS IN LIST INTO          F4415820
01056   0 62200 0 01060        STD TIXDO             DECREMENT OF TIX FOR COMPARISON         F4415830
01057   0 53400 1 00031        LXA LA1,1                                                     F4415840
D 01060   2 00000 1 01102 TIXDO  TIX RDDOT,1       HAVE ALL ENTRIES BEEN DONE                F4415850
01061   0 50000 1 06477        CLA DOLIST-1,1      ADD INST NO TO BE CHANGED (ADDR)          F4415860
01062   0 34000 2 07773 LDQ    CAS BBLIST,2        COMPARE TO INST NO OF BEG OF BB           F4415870
01063   1 00001 2 01062        TXI LDQ,2,1         BEG BB LESS, TRY NEXT                     F4415880
01064   0 02000 0 01066        TRA LDQ+4           BEG. B.B. EQUAL,FOUND                     F4415890
01065   1 77777 2 01066        TXI LDQ+4,2,-1      BEG B B GREATER, PREVIOUS BB IS IT        F4415900
01066 -0 75400 2 00000 LDQP4   PXD 0,2             PUT B B NO IN DECREMENT                   F4415910
01067   0 60100 1 06477        STO DOLIST-1,1      REPLACE INSTR NO IN DO LIST               F4415920
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01070   0 50000 1 06500         CLA DOLIST,1          ADD INSTR NO OF LOC OF TXL                F4415930
01071   0 34000 2 07773         CAS BBLIST,2          COMPARE TO BB OF ADDR FIRST               F4415940
01072   1 00001 2 01071 SELF14  TXI SELF14-1,2,1      TOO SMALL--TRY NEXT                       F4415950
01073   0 02000 0 01075 SELF15  TRA SELF15+2          EQUAL--FOUND                              F4415960
01074   1 77777 2 01075 SELF16  TXI SELF16+1,2,-1     TOO LARGE, WAS ONE PREVIOUS               F4415970
01075  -0 75400 2 00000 CASP4   PXD 0,2               PUT BB NO INTO DOLIST IN PLACE OF         F4415980
01076   0 60100 1 06500         STO DOLIST,1            INSTRUCTION NUMBER                      F4415990
01077   0 50000 1 06477         CLA DOLIST-1,1        PUT BB NO OF ADDRESS OF THIS DO           F4416000
01100  -0 73400 2 00000         PDX 0,2                  INTO IR B TO START COMPARISON          F4416010
01101   1 00002 1 01060         TXI TIXDO,1,2         DO NEXT ENTRY                             F4416020
                                                                                                 F4416030
                                THIS ROUTINE READS DOCARE FROM DRUM 1                            F4416040
01102   0 50000 0 00032 RDDOT   CLA MINUS4            INITIALIZE ERROR BOX                      F4416050
01103   0 60100 0 00030         STO ERRBX                                                        F4416060
01104   0 76200 0 00301 RDSDOT  RDS DOCRDR            SELECT DOCARE DRUM                        F4416070
01105   0 53400 1 00033         LXA L0...=,1          ZERO INTO I.R.A                           F4416080
01106   0 70000 0 00105         CPY ERAS1=                                                       F4416090
01107   0 53400 4 00105         LXA ERAS1=,4                                                     F4416100
01110   0 70000 0 00106         CPY ERAS2=                                                       F4416110
01111  -2 00002 4 01141         TNX CLAE,4,2          TEST FOR EMPTY TABLE                      F4416120
01112   0 70000 1 04216 CPYDOT  CPY DOCARE,1          COPY TABLE                                F4416130
01113   1 00001 1 01114 SELF17  TXI SELF17+1,1,1                                                 F4416140
01114   0 70000 1 04363         CPY DOCARE+101,1      COPY CHECKSUMS                            F4416150
01115   2 00002 4 01112         TIX CPYDOT,4,2        TEST FOR END                              F4416160
01116  -0 63400 1 00107         SXD ERAS3=,1          SAVE INDEX                                F4416170
01117  -0 53400 2 00107         LXD ERAS3=,2                                                     F4416180
01120  -0 50000 0 00105         CAL ERAS1=                                                       F4416190
01121   0 36100 1 04217         ACL DOCARE+1,1                                                   F4416200
01122   2 00001 1 01121 SELF18  TIX SELF18-1,1,1      SUM ENTRIES                               F4416210
01123   0 60200 0 00105         SLW ERAS1=                                                       F4416220
01124  -0 50000 0 00106         CAL ERAS2=                                                       F4416230
01125   0 36100 2 04363 ACLB    ACL DOCARE+101,2      SUM CHECKS                                F4416240
01126   2 00001 2 01125         TIX ACLB,2,1                                                     F4416250
01127   0 60200 0 00106         SLW ERAS2=                                                       F4416260
01130   0 50000 0 00106 CHSMCR  CLA ERAS2=                                                       F4416270
01131   0 40200 0 00105         SUB ERAS1=                                                       F4416280
01132   0 10000 0 01143         TZE RDDTG             NO ERROR-DO NEXT PART OF PROGRAM          F4416290
01133   0 50000 0 00030         CLA ERRBX                                                        F4416300
01134  -0 12000 0 01136 SKIP5   TMI SKIP5+2           HAVE 5 TRIES AT READING BEEN MADE         F4416310
01135   0 07400 4 00004         TSX RDFORT,4             YES, GO TO DIAGNOSTIC ROUTINE           F4416320
01136   0 40000 0 00031         ADD LA1                  NO, TRY READING AGAIN                   F4416330
01137   0 60100 0 00030         STO ERRBX                                                        F4416340
01140   0 02000 0 01104         TRA RDSDOT                                                       F4416350
01141   0 60000 0 00107 CLAE    STZ ERAS3=            SET SIGNAL FOR EMPTY DOCARE               F4416360
01142   0 02000 0 01130         TRA CHSMCR                                                       F4416370
                                                                                                 F4416380
                                THIS ROUTINE READS DOTAG FROM TAPE 2, FILE 6, AND CONDENSES      F4416390
                                IT                                                               F4416400
01143   0 76200 0 00222 RDDTG   RDS TBLTAP                                                       F4416410
01144   0 76200 0 00222         RDS TBLTAP                                                       F4416420
01145   0 76200 0 00222         RDS TBLTAP                                                       F4416430
01146   0 50000 0 00032         CLA MINUS4            INITIALIZE ERROR BOX                      F4416440
01147   0 60100 0 00030         STO ERRBX                                                        F4416450
01150  -0 53400 1 00054         LXD OPMSK=,1          COMPLEMENT OF ONE INTO IR A               F4416460
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01151   0 76200 0 00222 RDSDTG RDS TBLTAP                                F4416470
01152   0 70000 1 04216 CPY1D  CPY DOTAG,1      COPY RECORD SAVING ONLY THOSE  F4416480
01153   0 02000 0 01156        TRA CPY2D           PARTS TO BE USED          F4416490
01154   0 02000 0 01203        TRA NTRDO=       END OF FILE--ALL COPIED      F4416500
01155   0 02000 0 01167        TRA TESTDT       END OF RECORD--TEST FOR ERROR F4416510
01156   0 70000 0 00105 CPY2D  CPY ERAS1=                                   F4416520
01157   0 70000 0 00105        CPY ERAS1=                                   F4416530
01160   0 70000 0 00105        CPY ERAS1=                                   F4416540
01161   0 70000 1 04217        CPY DOTAG+1,1                                F4416550
01162   0 70000 1 04220        CPY DOTAG+2,1                                F4416560
01163   0 70000 1 04221        CPY DOTAG+3,1                                F4416570
01164   0 70000 0 00105        CPY ERAS1=                                   F4416580
01165   0 70000 0 00105        CPY ERAS1=                                   F4416590
01166   1 77774 1 01152        TXI CPY1D,1,-4   SET FOR NEXT ENTRY           F4416600
01167  -0 76000 0 00012 TESTDT RTT             TEST REDUNDANCY              F4416610
01170   0 02000 0 01173        TRA ERR2DT                                   F4416620
01171  -0 63400 1 01216        SXD DTGBX,1      SAVE LENGTH OF TABLE SO FAR  F4416630
01172   0 02000 0 01151        TRA RDSDTG       COPY NEXT RECORD            F4416640
01173   0 50000 0 00030 ERR2DT CLA ERRBX                                    F4416650
01174  -0 12000 0 01176 SKIP6  TMI SKIP6+2      HAVE 5 TRIES AT READING BEEN MADE F4416660
01175   0 07400 4 00004        TSX RDFORT,4        YES, GO TO DIAGNOSTIC ROUTINE F4416670
01176   0 40000 0 00031        ADD LA1             NO, TRY READING AGAIN     F4416680
01177   0 60100 0 00030        STO ERRBX                                    F4416690
01200   0 76400 0 00222        BST TBLTAP                                   F4416700
01201  -0 53400 1 01216        LXD DTGBX,1      SET INDEX TO READ LAST RECORD AGAINF4416710
01202   0 02000 0 01151        TRA RDSDTG                                   F4416720
                                                                            F4416730
                        THIS ROUTINE PUTS INFORMATION FROM DOTAG AND DVFQ INTO DOLISTF4416740
01203  -0 53400 1 00054 NTRDO= LXD OPMSK=,1     COMPLEMENT OF ONE INTO I R A F4416750
01204   0 53400 2 00031        LXA LA1,2        ONE INTO IR B                F4416760
01205   0 53400 4 00033        LXA L0...=,4     ZERO INTO INDEX C            F4416770
01206   0 50000 0 01216        CLA DTGBX                                    F4416780
01207   0 62200 0 01247        STD DTGBX2       PUT LENGTH OF DOTAG IN FOR TEST F4416790
T 01210 -0 75400 0 00000       PXD                                          F4416800
01211   0 60100 0 00105        STO ERAS1=                                   F4416810
01212   0 60100 0 00106        STO ERAS2=       CLEAR ERAS1= AND ERAS2=     F4416820
01213   0 02000 0 01216        TRA NXTDO+2                                  F4416830
01214   1 00002 2 01215 NXTDO  TXI NXTDO+1,2,2                              F4416840
01215   1 77774 1 01216        TXI DTGBX,1,-4   SET FOR NEXT ENTRY           F4416850
01216  -3 77777 1 01310 DTGBX  TXL CLTRA=,1,-1  IS DOTAG FINISHED--IF SO EXIT F4416860
01217   0 50000 1 04221 CLADT  CLA DOTAG+3,1    LOOK FOR INDICATION OF AN IF F4416870
01220   0 12000 0 01223        TPL STF+2        TRANSFER IF DO HAS NO IF     F4416880
01221   0 50000 0 00053 STF    CLA TAGMRK       STORE IF INDICATION IN DOLIST F4416890
01222  -0 60200 2 06477        ORS DOLIST-1,2                               F4416900
01223   0 50000 1 04216        CLA DOTAG,1                                  F4416910
01224  -0 32000 0 00053        ANA TAGMRK       LOOK FOR INDICATION OF VARIABLE F4416920
                                                   NO OF TIMES IN LOOP      F4416930
01225  -0 10000 0 01266        TNZ VRBLN        VARIABLE,GET FROM DVFQ       F4416940
01226   0 50000 1 04220        CLA DOTAG+2,1    GET (N2-N1+N3) AND PUT IN MQ F4416950
01227   0 62100 0 00105        STA ERAS1=                                   F4416960
T 01230 -0 75400 0 00000       PXD              CLEAR ACCUMULATOR           F4416970
01231   0 56000 0 00105        LDQ ERAS1=       DIVIDE (N2-N1+N3) BY N3 TO GET F4416980
01232   0 22100 1 04217        DVP DOTAG+1,1       NUMBER OF TIMES IN DO LOOP F4416990
01233   0 76000 0 00012        DCT                                          F4417000
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01234   0 07400 4 00004         TSX RDFORT,4                BAD DIVIDE                                F4417010
01235  -0 60000 0 00105 STQDTG  STQ ERAS1=                                                           F4417020
01236   0 50000 0 00105         CLA ERAS1=                  SHIFT TO AC                               F4417030
01237   0 62100 2 06500         STA DOLIST,2                TEST FOR END                              F4417040
01240  -0 53400 4 00107 NDDOT   LXD ERAS3=,4                                                         F4417050
01241   0 50000 1 04222         CLA DOTAG+4,1               DOES NEXT ENTRY IN DOTAG CORRESPONDF4417060
01242   0 34000 4 04217 DDCAS   CAS DOCARE+1,4                  TO A TXL                              F4417070
01243   0 02000 0 01245         TRA DDTIX                                                             F4417080
01244   1 77774 1 01247         TXI DTGBX2,1,-4             NO-SET FOR NEXT ENTRY AND SAME TXL        F4417090
01245   2 00001 4 01242 DDTIX   TIX DDCAS,4,1                                                         F4417100
01246   0 02000 0 01214         TRA NXTDO                   YES-LOOK AT NEXT TXL AND NEXT ENTRYF4417110
01247  -3 00000 1 01310 DTGBX2  TXL CLTRA=,1                TEST FOR END                              F4417120
01250   0 50000 1 04216         CLA DOTAG,1                 DOES THIS ENTRY HAVE A VARIABLE NO.F4417130
01251  -0 32000 0 00053         ANA TAGMRK                     OF TIMES IN LOOP                       F4417140
01252  -0 10000 0 01264         TNZ VBLN2                   YES,GET NO. FROM DVFQ                     F4417150
01253   0 50000 1 04220         CLA DOTAG+2,1               NO,GET N2-N1+N3                           F4417160
01254   0 62100 0 00106         STA ERAS2=                  AND PUT IN MQ                             F4417170
01255  -0 75400 0 00000         PXD 0,0                     CLEAR AC                                  F4417180
01256   0 56000 0 00106         LDQ ERAS2=                  DIV N2-N1+N3 BY N3 TO GET NO. OF          F4417190
01257   0 22100 1 04217         DVP DOTAG+1,1                  TIMES IN THIS DO                       F4417200
01260   0 76000 0 00012         DCT                                                                   F4417210
01261   0 07400 4 00004         TSX RDFORT,4                BAD DIVIDE                                F4417220
01262   0 20000 0 00105 MPY     MPY ERAS1=                                                            F4417230
01263   0 02000 0 01235         TRA STQDTG                                                            F4417240
01264   0 50000 0 00101 VBLN2   CLA LMPY                    SET EXIT ADDRESS                          F4417250
01265   0 02000 0 01267         TRA VRBLN+1                                                           F4417260
01266   0 50000 0 00102 VRBLN   CLA LSTQ                    SET EXIT ADDRESS                          F4417270
01267   0 62100 0 01304         STA EXIT                                                              F4417280
01270   0 50000 1 04216         CLA DOTAG,1                 GET FORMULA NUMBER OF DO                  F4417290
01271   0 77100 0 00022         ARS 18                                                                F4417300
01272  -0 76000 0 00003         SSM                                                                   F4417310
01273  -0 53400 4 00111         LXD DVFQB=,4                                                          F4417320
01274   3 00000 4 01300 DVFTST  TXH LDQ5,4                  TEST FOR END OF DVFQ                      F4417330
01275   0 34000 4 06023         CAS DVFQ.=,4                COMPARE TO FORMULA NO. IN DVFQ            F4417340
01276   1 00002 4 01274         TXI DVFTST,4,2              DVFQ TOO SMALL, TRY NEXT                  F4417350
01277   1 00002 4 01302         TXI ENTER,4,2               EQUAL--SET INDEX FOR NEXT SEARCH          F4417360
01300   0 56000 0 00034 LDQ5    LDQ L5...=                  FREQ NOT IN DVFQ, TAKE 5 AS FREQ          F4417370
01301   0 02000 0 01303         TRA ENTER+1                                                           F4417380
01302   0 56000 4 06024 ENTER   LDQ DVFQ.=+1,4                                                        F4417390
01303  -0 63400 4 00111         SXD DVFQB=,4                                                          F4417400
A  01304   0 02000 0 00000 EXIT    TRA                     RETURN TO MAIN PART OF THIS ROUTINEF4417410
01305  -0 53400 4 00220         LXD LD4..=,4                READ DOTAG                                F4417420
01306   0 76200 0 00222 RDSP    RDS TBLTAP                  FIND BEGINNING OF DOTAG                   F4417430
01307   2 00001 4 01306         TIX RDSP,4,1                                                          F4417440
                                                                                                      F4417450
                                THIS ROUTINE CLEARS THE TRANSFER TABLE AND PRESETS ALL                F4417460
                                COUNTERS TO ZERO                                                      F4417470
01310   0 56000 0 00031 CLTRA=  LDQ LA1                                                               F4417480
01311  -0 75400 0 00000         PXD 0,0                                                               F4417490
01312   0 60100 0 01113         STO NLIST-1                 STORE ENDMARK FOR N-LIST                  F4417500
01313   0 53400 1 00045         LXA LZTR4=,1                                                          F4417510
01314   0 60100 1 06025         STO TRAM+1,1                                                          F4417520
01315  -0 60000 1 06024         STQ TRAM,1                                                            F4417530
01316   2 00002 1 01314 SELF26  TIX SELF26-2,1,2                                                      F4417540
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01317 -0 53400 1 07775          LXD DOBOX=,1                                                    F4417550
01320  0 50000 0 00054          CLA OPMSK=                                                      F4417560
01321  0 60100 1 06477          STO DOLIST-1,1          STORE ENDMARK FOR DOLIST                F4417570
01322  0 76200 0 00221          RDS SYSTAP                                                      F4417580
01323  0 60000 0 01114          STZ NLIST               CLEAR DUMMY SENSE LIGHTS.               F4417590
01324  0 60000 0 01115          STZ NLIST+1                                                     F4417600
01325  0 60000 0 01116          STZ NLIST+2                                                     F4417610
01326  0 60000 0 01117          STZ NLIST+3                                                     F4417620
01327  0 02000 0 00004          TRA RDFORT                                                      F4417630
                                                                                               F4417640
                                                                                               F4417650
                                SECTION 4 - PART 2 OF 6 (1ST RECORD OF 2)                      F4420010
                                                                                               F4420020
                                FORTRAN EDITOR INFORMATION                                     F4420030
                                   MASTER RECORD CARD = F0640000                               F4420040
                                   ENTRY POINT = 4 (CONTROL GOES BACK TO FORTRAN LOADER -      F4420050
                                                    1 TO CS - IN ORDER TO READ IN NEXT RECORD) F4420060
                                   FIRST LOCATION = 33                                         F4420070
                                   LAST LOCATION = 1104                                        F4420080
                                                                                               F4420090
                                                                                               F4420100
                00033           ORG 27                                                         F4420110
                                CONSTANTS AND VARIABLES                                        F4420120
00033  0 00000 0 00000 L0M      HTR 0                                                          F4420130
00034  0 00000 0 00006 L6M      HTR 6                                                          F4420140
00035  0 00001 0 00000 LD1M     HTR 0,0,1                                                      F4420150
00036  0 00003 0 00000 LD3      HTR 0,0,3                                                      F4420160
00037  0 00007 0 00000 LD7M     HTR 0,0,7                                                      F4420170
00040  0 00000 0 01275 SETYM       SETADD               DRUM ADDRESS FOR SET TABLE            F4420180
00041  0 00000 0 01750 TIFY        TIFADD               DRUM ADDRESS FOR TIFRD                F4420190
00042  0 00000 0 00311 LZSET1      ZSET+1                                                     F4420200
00043  0 00000 0 00312 LZTIF2      ZTIFRD+2                                                   F4420210
00044  0 05360 0 00000 LXTRA       0,0,XTRA                                                   F4420220
00045  0 01274 0 00000 LZTRA       0,0,ZTRA                                                   F4420230
00046  0 00620 0 00000 LXSET       0,0,XSET                                                   F4420240
00047  0 00310 0 00000 LZSET       0,0,ZSET                                                   F4420250
00050  0 76664 0 00000 LNLST       0,0,-NLIST           ADDRESS OF N                          F4420260
00051  0 76660 0 00000 LDSAN       0,0,-NLIST-4         ADDRESS OF SENSE LIGHT                F4420270
00052  0 00000 0 03063 LFXDN       RDTIF-1              LAST LOCATION IN FIXDO LIST           F4420280
00053  0 02000 0 00613 LCOUT    TRA OUTB                TRANSFER TO EXIT ROUTINE              F4420290
00054  0 02000 0 03131 TRNOM    TRA NOMOR                                                     F4420300
00055  2 00000 4 00705 CNST2M   TIX C3CLA,4,0           TO TEXT FOR END OF LOOKUP             F4420310
00056 +002000000000     CONSTM  OCT 2000000000                                               F4420320
00057 +000000077777     ADRMK   OCT 77777                                                    F4420330
00060 +077777000000     DECMKM  OCT 77777000000                                              F4420340
00061 -300000000000     PFXMKM  OCT -300000000000                                            F4420350
00062 +000000700000     IFMSK   OCT 700000                                                   F4420360
00063 +000770000000     XXPSX   OCT 770000000                                                F4420370
00064 +000140000000     XX14X   OCT 140000000                                                F4420380
00065 +000160000000     XX16X   OCT 160000000                                                F4420390
00066 +000360000000     XX360   OCT 360000000                                                F4420400
00067 -370000000000     FSTLT   OCT -370000000000                                            F4420410
00070 -230000000000     FSTT    OCT -230000000000                                            F4420420
00071 +170000000000     OCTALM  OCT 170000000000                                             F4420430
00072 +377777777777     ENDMKM  OCT 377777777777
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00073 -100000000000     GTNCD  OCT -100000000000                                  F4420440
00074 +300000000000     CRTCD  OCT 300000000000                                   F4420450
00075 +076225000000     LPSE   OCT 76225000000                                    F4420460
00076 +034743000000     LTPL   OCT 34743000000                                    F4420470
00077 +035121000000     LTRA   OCT 35121000000          TRA                       F4420480
00100 +001622000000            OCT 1622000000           TXL-TRA                   F4420490
00101 -000372000000     LTROP  OCT -372000000           TTR-TXL                   F4420500
00102 +035121000000            OCT 35121000000          TRA                       F4420510
00103 +041104000000            OCT 41104000000          PSE-TRA                   F4420520
00104 -033642000000            OCT -33642000000         DCT-PSE                   F4420530
00105 -024000000000            OCT -24000000000         RTT-DCT                   F4420540
00106 +027642000000            OCT 27642000000          MSE-RTT                   F4420550
00107 -007100000000            OCT -7100000000          TZE-MSE                   F4420560
00110 -032154000000            OCT -32154000000         HPR-TZE                   F4420570
00111 +031316000000     LNTOP  OCT 31316000000          TSX-HPR                   F4420580
00112 +000001000000     SBOX   OCT 1000000                                        F4420590
00113 -000001000000     SPBOX  OCT -1000000                                       F4420600
00114 +000001000000     TBOX   OCT 1000000                                        F4420610
00115 -000001000000     TPBOX  OCT -1000000                                       F4420620
00116   0 00312 0 00000 PBOX       0,0,ZTIFRD+2                                   F4420630
00117   0 00000 0 00000 BBOX                                                      F4420640
00120   0 00000 0 00000 MBOX       0                                              F4420650
00121   0 00000 0 00000 ACBOX      0                                              F4420660
00122   0 00000 0 00000 OUTBX      0                                              F4420670
00123   0 00000 0 00000 ENTBX      0                                              F4420680
00124   0 00000 0 00000 XBOX                       SAVE POWER OF 2               F4420690
00125   0 00000 0 00000 ERAS1M     0                                              F4420700
00126   0 00000 0 00000 ERAS2M     0                                              F4420710
00127   0 00000 0 00000 ERAS3M                                                    F4420720
                                                                                  F4420730
                        THIS ROUTINE COMPLETES THE ANALYSIS OF THE COMPILED       F4420740
                        INSTRUCTIONS USING THE BASIC BLOCK LIST, THE DO LIST, AND F4420750
                        TIFRD.  IT COMPILES THE TABLES OF SETS AND TRANSFERS USED IN F4420760
                        THE SIMULATION PROGRAM.                                   F4420770
00130   1 00001 2 00131 BEGBB  TXI BEGBB+1,2,1     SET FOR NEXT BASIC BLOCK      F4420780
00131   0 50000 0 00112        CLA SBOX                                           F4420790
00132   0 40000 0 00113        ADD SPBOX                                          F4420800
00133   0 77100 0 00022        ARS 18              PUT SET TABLE ADDRESS INTO BB TABLEF4420810
00134   0 40000 0 00114        ADD TBOX                                           F4420820
00135   0 40000 0 00115        ADD TPBOX                                          F4420830
00136   0 60100 2 02413        STO BBTABL,2        PUT TRA TABLE ADDRESS INTO BB TABLEF4420840
00137  -0 53400 4 00114        LXD TBOX,4                                         F4420850
00140  -2 01274 4 00143        TNX FNDAS,4,ZTRA    IS BLOCK OF TRA TABLE FULL    F4420860
00141  -0 63400 4 00114        SXD TBOX,4          SAVE NEW INDEX FOR TRA        F4420870
00142   0 07400 4 03147        TSX WRTRA,4         WRITE TRA BLOCK ON DRUM       F4420880
00143  -2 00454 1 00145 FNDAS  TNX 2FNDS,1,ZINSTM  IS BLOCK OF INSTRUCTIONS ALL USED F4420890
00144   0 07400 4 00763        TSX RDINSM,4        YES, READ IN NEXT BLOCK       F4420900
00145   0 50000 1 03703 2FNDS  CLA INSTM,1         IF THERE IS NO LOCATION SYMBOL, F4420910
00146   0 10000 0 00225        TZE TR3S+1             THIS CANT BE A SET OR AN ENDING F4420920
                                                      OTHER THAN A CERTAINTY CASE  F4420930
00147  -0 53400 4 00116        LXD PBOX,4          CHANGE, LOOK AT ASSIGN ENTRY  F4420940
00150  -2 00310 4 00155 2TNX   TNX BADD,4,ZTIFRD   IS BLOCK OF TIFRD ALL USED    F4420950
00151  -0 63400 4 00116        SXD PBOX,4          YES, READ IN MORE             F4420960
00152   0 07400 4 03064        TSX RDTIF,4                                       F4420970
```

```
00153 -0 53400 4 00116        LXD PBOX,4
00154  0 50000 1 03703        CLA INST.M,1
00155  0 40000 0 00034 BADD   ADD L6M
00156  0 40200 4 04214        SUB TIFRDM,4
00157  0 10000 0 00231        TZE ASNCS
00160  0 50000 1 03702 2CLA   CLA INSTM-1,1
00161 -0 32000 0 00060        ANA DECMKM
00162  0 40200 0 00075        SUB LPSE
00163 -0 10000 0 00257        TNZ TSTTR
00164  0 50000 1 03700        CLA INST.M-3,1
00165 -0 32000 0 00063        ANA XXPSX
00166  0 40200 0 00064        SUB XX14X
00167  0 10000 0 00174        TZE STSLT
00170  0 50000 1 03677        CLA INSTM-4,1
00171  0 40200 2 07772        SUB BBLIST-1,2
00172  0 10000 0 00320        TZE CRTCS
00173  0 02000 0 00504        TRA IF2PS
00174 -0 53400 4 00112 STSLT  LXD SBOX,4
00175 -2 00310 4 00201        TNX 3CLA,4,ZSET
00176 -0 63400 4 00112        SXD SBOX,4
00177  0 07400 4 01032        TSX WRSET,4
00200 -0 53400 4 00112        LXD SBOX,4
00201  0 50000 1 03700 3CLA   CLA INSTM-3,1
00202 -0 32000 0 00037        ANA LD7M
00203  0 10000 0 00210        TZE SLSOF
00204  0 40000 0 00051        ADD LDSAN
00205  0 40000 0 00031        ADD LA1
00206  0 60100 4 04524        STO SET..M,4
00207  1 00001 4 00224        TXI TR3S,4,1
00210 -0 63400 2 00117 SLSOF  SXD BBOX,2
00211 -0 53400 2 00276        LXD LD4,2
00212  0 50000 0 00051        CLA LDSAN
00213  0 40000 0 00035 3ADD   ADD LD1M
00214 -2 00310 4 00220        TNX 4STO,4,ZSET
00215 -0 63400 4 00112        SXD SBOX,4
00216  0 07400 4 01032        TSX WRSET,4
00217 -0 53400 4 00112        LXD SBOX,4
00220  0 60100 4 04524 4STO   STO SETM,4
00221  1 00001 4 00222        TXI 3TIX,4,1
00222  2 00001 2 00213 3TIX   TIX 3ADD,2,1
00223 -0 53400 2 00117        LXD BBOX,2
00224 -0 63400 4 00112 TR3S   SXD SBOX,4
00225  0 50000 1 03677        CLA INST.M-4,1
00226  0 40200 2 07772        SUB BBLIST-1,2
00227  0 10000 0 00320        TZE CRTCS
00230  1 00004 1 00143 TXFAS  TXI FNDAS,1,4
00231 -0 63400 4 00116 ASNCS  SXD PBOX,4
00232  0 50000 1 03675        CLA INST.M-6,1
00233  0 07400 4 00632        TSX SRCHN,4
00234  0 40000 0 00050        ADD LNLST
00235 -0 53400 4 00112        LXD SBOX,4
00236 -2 00310 4 00242        TNX 4STD,4,ZSET
00237 -0 63400 4 00112        SXD SBOX,4
00240  0 07400 4 01032        TSX WRSET,4
```

```
                                                    F4420980
COMPARE FORMULA NO. TO ASSIGN                       F4420990
   LIST.                                            F4421000
                                                    F4421010
                                                    F4421020
NOT AN ASSIGN                                       F4421030
TEST FOR A SET SENSE LIGHT                          F4421040
                                                    F4421050
NOT A PSE, LOOK FOR A TRANSFER                      F4421060
LOOK AT ADDRESS OF PSE FOR SET                      F4421070
                                                    F4421080
                                                    F4421090
IT IS A SET SENSE LIGHT                             F4421100
NOT A SET SENSE LIGHT, SEE IF NEXT                  F4421110
   INSTRUCTION STARTS A BB                          F4421120
YES, IS A CERTAINTY CASE                            F4421130
NO, IS A PSE CASE.                                  F4421140
LOAD INDEX FOR SET TABLE                            F4421150
IF SET BLOCK IS FULL, PUT ON DRUM                   F4421160
SAVE INDEX                                          F4421170
GO TO DRUM ROUTINE                                  F4421180
RESTORE INDEX                                       F4421190
LOOK AT RELATIVE ADDRESS OF PSE                     F4421200
FIND NO OF SENSE LIGHT                              F4421210
IF ZERO TURN ALL LIGHTS OFF                         F4421220
NOT ZERO, ADD ADDRESS OF FIRST                      F4421230
ADD ONE FOR SENSE LIGHT ON                          F4421240
STORE SET ENTRY                                     F4421250
INDEX FOR NEXT SET ENTRY                            F4421260
SAVE INDEX B                                        F4421270
                                                    F4421280
PUT ENTRIES IN SET TABLE TO TURN                    F4421290
   OFF ALL SENSE LIGHTS                             F4421300
IS BLOCK OF SETS FULL                               F4421310
YES, SAVE INDEX C                                   F4421320
WRITE BLOCK ON DRUM                                 F4421330
RESTORE INDEX C                                     F4421340
                                                    F4421350
SET FOR NEXT ENTRY IN TABLE                         F4421360
ARE ALL SETS DONE                                   F4421370
YES, RESTORE INDEX B                                F4421380
STORE SET TABLE INDEX                               F4421390
TEST THIS FOR END OF A BASIC BLOCK                  F4421400
(CANT BE A TRANSFER, SKIP, ETC.)                    F4421410
END OF BB MUST BE A CERTAINTY CASE                  F4421420
NOT END OF BB, LOOK AT NEXT INSTR.                  F4421430
SAVE INDEX FOR TIFRD                                F4421440
PUT ADDRESS (=N) OF STA INTO AC                     F4421450
SEARCH N-LIST FOR N                                 F4421460
PUT INDEX FOR N IN SET TABLE                        F4421470
PUT SET TABLE ADDRESS INTO INDEX                    F4421480
IS SET BLOCK FULL                                   F4421490
YES,SAVE INDEX                                      F4421500
PUT BLOCK ON DRUM                                   F4421510
```

```
00241  -0 53400 4 00112          LXD  SBOX,4
00242   0 60100 4 04524 4STD     STO  SETM,4
00243  -0 63400 4 00112          SXD  SBOX,4
00244  -0 53400 4 00116          LXD  PBOX,4
00245   0 50000 4 04213          CLA  TIFRDM-1,4
00246   0 76700 0 00022          ALS  18
00247   1 00002 4 00250 LD2      TXI  LD2+1,4,2
00250  -0 63400 4 00116          SXD  PBOX,4
00251   0 07400 4 00667          TSX  FNDBB,4
00252  -0 53400 4 00112          LXD  SBOX,4
00253   0 77100 0 00022          ARS  18
00254   0 62100 4 04524          STA  SET..M,4
00255   1 00001 4 00256          TXI  4TXII,4,1
00256   1 00004 1 00224 4TXII    TXI  TR3S,1,4
```

```
00257   0 50000 1 03677 TSTTR    CLA  INSTM-4,1
00260   0 40200 2 07772          SUB  BBLIST-1,2
00261   0 10000 0 00312          TZE  ENDBB
00262  -0 53400 4 00612          LXD  LD8,4
00263  -0 50000 1 03702          CAL  INST.M-1,1
00264  -0 32000 0 00060          ANA  DECMKM
00265   0 40200 4 00112 SUBP     SUB  LNTOP+1,4
00266   0 10000 4 00307          TZE  TRTIN+1,4
00267   2 00001 4 00265          TIX  SUBP,4,1
00270  -0 50000 1 03702          CAL  INST.M-1,1
00271  -0 32000 0 00067 6ANA     ANA  FSTLT
00272   0 60200 0 00125          SLW  ERAS1M
00273   0 50000 0 00125          CLA  ERAS1M
00274   0 40200 0 00070          SUB  FSTT
00275   0 10000 0 00426          TZE  CNDTR
00276   1 00004 1 00143 LD4      TXI  FNDAS,1,4
00277   0 02000 0 00451          TRA  GOTOVM
00300   0 02000 0 00504          TRA  IF2PS
00301   0 02000 0 00536          TRA  IF2CS
00302   0 02000 0 00536          TRA  IF2CS
00303   0 02000 0 00530          TRA  MSECSM
00304   0 02000 0 00552          TRA  IF3CSM
00305   0 02000 0 00601          TRA  HPRCS
00306   1 00004 1 00143 TRTIN    TXI  FNDAS,1,4
00307   0 02000 0 00324          TRA  TRACSM
00310   0 02000 0 00377          TRA  DOCSM
00311   0 02000 0 00327 TRTTR    TRA  TRACSM+3
00312  -0 53400 4 00036 ENDBB    LXD  LD3,4
00313   0 50000 1 03702          CLA  INST.M-1,1
00314  -0 32000 0 00060          ANA  DECMKM
00315   0 40200 4 00102 6SUB     SUB  LTROP+1,4
00316   0 10000 4 00312          TZE  TRTTR+1,4
00317   2 00001 4 00315          TIX  6SUB,4,1
00320   0 07400 4 00663 CRTCS    TSX  ENTB2,4
```

```
RESTORE INDEX                                          F4421520
STORE ADDRESS OF N BEING SET                           F4421530
SAVE INDEX                                             F4421540
SET FOR TIFRD                                          F4421550
GET VALUE TO ASSIGN TO N FROM TIFRD                    F4421560
                                                       F4421570
SET INDEX FOR NEXT ENTRY IN TIFRD                      F4421580
SAVE TIFRD INDEX                                       F4421590
CHANGE VALUE FOR N TO BASIC BLOCK                      F4421600
   NUMBER, PUT SET ADDRESS IN INDEX                    F4421610
   AND PUT VALUE N IS TO BE GIVEN                      F4421620
   INTO TABLE ENTRY                                    F4421630
SET INDEX FOR NEXT ENTRY IN TABLE                      F4421640
SINCE THIS INSTRUCTION IS A CLA AND                    F4421650
   IS FOLLOWED BY A STA, IT CANNOT                     F4421660
   BE THE END OF A BASIC BLOCK.                        F4421670
   ALSO THE STA CANNOT BE AN                           F4421680
   ASSIGN, PSE, TRANSFER, OR SKIP.                     F4421690
   IT CAN ONLY BE A CERTAINTY CASE                     F4421700
   OR INNOCUOUS.                                       F4421710
IS THIS LAST INSTRUCTION IN A BB                       F4421720
                                                       F4421730
YES,LOOK FOR TYPE OF ENDING                            F4421740
NO, CHECK FOR ENDING OF GROUP OF                       F4421750
   INSTRUCTIONS                                        F4421760
LOOK AT OP CODE                                        F4421770
COMPARE TO OP CODES OF POSSIBLE                        F4421780
   ENDINGS--TRANSFER WHEN FOUND                        F4421790
TRY NEXT POSSIBILITY                                   F4421800
NOT FOUND--LOOK FOR A CONDITIONAL                      F4421810
   TRANSFER                                            F4421820
                                                       F4421830
                                                       F4421840
                                                       F4421850
IS A CONDITIONAL TRANSFER                              F4421860
NOT AN END OF BB, LOOK AT NEXT INST                    F4421870
TRA IS THE OPERATION CODE                              F4421880
PSE                                                    F4421890
DCT                                                    F4421900
RTT                                                    F4421910
MSE                                                    F4421920
TZE                                                    F4421930
HPR                                                    F4421940
TSX IS OP CODE                                         F4421950
TRA IS THE OPERATION CODE                              F4421960
TXL                                                    F4421970
TTR                                                    F4421980
SET INDEX                                              F4421990
THIS INST ENDS A BASIC BLOCK--LOOK                     F4422000
   AT OP CODE FOR TYPE OF ENDING                       F4422010
COMPARE TO POSSIBLE OP CODE                            F4422020
TRANSFER IF FOUND                                      F4422030
TRY NEXT POSSIBILITY                                   F4422040
NOT A CONDITIONAL TRANSFER--IT IS                      F4422050
```

```
00321 -0 50000 0 00074 6CLA    CAL  CRTCD
00322  0 63000 2 02413         STP  BBTABL,2
00323  1 00004 1 00130         TXI  BEGBB,1,4
00324 -0 50000 1 03701 TRACSM  CAL  INSTM-2,1
00325 -0 32000 0 00061         ANA  PFXMKM
00326 -0 10000 0 00334         TNZ  GOTONM
00327  0 50000 1 03701         CLA  INST.M-2,1
00330  0 07400 4 00653         TSX  ENTRB,4
00331 -0 50000 0 00074         CAL  CRTCD
00332  0 63000 2 02413         STP  BBTABL,2
00333  1 00004 1 00130         TXI  BEGBB,1,4
00334 -0 50000 0 00073 GOTONM  CAL  GTNCD
00335  0 63000 2 02413         STP  BBTABL,2
00336  0 50000 1 03701         CLA  INST.M-2,1
00337  0 07400 4 00632         TSX  SRCHN,4
00340 -0 53400 4 00114         LXD  TBOX,4
00341  0 62200 4 06024         STD  TRA..M,4
00342 -0 53400 4 00116         LXD  PBOX,4
00343 -2 00310 4 00347 7TNX    TNX  BCLA,4,ZTIFRD
00344 -0 63400 4 00116         SXD  PBOX,4
00345  0 07400 4 03064         TSX  RDTIF,4
00346 -0 53400 4 00116         LXD  PBOX,4
00347  0 50000 1 03703 BCLA    CLA  INSTM,1
00350 -0 32000 0 00060         ANA  DECMKM
00351  0 40000 0 00031         ADD  LA1
00352  0 40200 4 04214         SUB  TIFRDM,4
00353  0 10000 0 00355 8ATZE   TZE  8TXI
00354  0 07400 4 00004         TSX  RDFORT,4
00355  1 00002 4 00356 8TXI    TXI  8TXI+1,4,2
00356 -2 00310 4 00362 8TNX    TNX  8CLA,4,ZTIFRD
00357 -0 63400 4 00116         SXD  PBOX,4
00360  0 07400 4 03064         TSX  RDTIF,4
00361 -0 53400 4 00116         LXD  PBOX,4
00362  0 50000 4 04214 8CLA    CLA  TIFRDM,4
00363  0 12000 0 00375         TPL  8ATRB
00364  0 76000 0 00003         SSP
00365 -0 63400 4 00116         SXD  PBOX,4
00366 -0 53400 4 00114         LXD  TBOX,4
00367 -2 01274 4 00372         TNX  8ATSX,4,ZTRA
00370 -0 63400 4 00114         SXD  TBOX,4
00371  0 07400 4 03147         TSX  WRTRA,4
00372  0 07400 4 00653 8ATSX   TSX  ENTRB,4
00373 -0 53400 4 00116         LXD  PBOX,4
00374  1 00001 4 00356         TXI  8TXI+1,4,1
00375 -0 63400 4 00116 8ATRB   SXD  PBOX,4
00376  1 00004 1 00130         TXI  BEGBB,1,4
00377  0 50000 1 03701 DOCSM   CLA  INSTM-2,1
00400  0 07400 4 00653         TSX  ENTRB,4
00401  0 07400 4 00663         TSX  ENTB2,4
00402 -0 63400 2 00117         SXD  BBOX,2
00403 -0 53400 2 00035         LXD  LD1M,2
00404 -0 53400 4 00114         LXD  TBOX,4
00405  0 50000 2 06500 9CLAT   CLA  DOLIST,2
```

```
   A CERTAINTY CASE DUE TO AN ENTRYF4422060
PUT CERTAINTY CODE IN BB TABLE      F4422070
                                    F4422080
LOOK AT NEXT INSTR--BEG OF A BB.    F4422090
OP CODE IS TRA--SEE IF ADDRESS IS   F4422100
   IN PROGRAM(UNCONDITIONAL TRA) ORF4422110
   IN N LIST (GO TO N)              F4422120
GET INSTR OF ADDRESS                F4422130
ENTER IN TRA TABLE                  F4422140
STORE CERTAINTY CODE IN BB TABLE    F4422150
                                    F4422160
LOOK AT NEXT INST.--NEW B.B.        F4422170
IS A GO TO N                        F4422180
STORE GO TO N CODE IN BB TABLE      F4422190
PUT N INTO AC                       F4422200
FIND LOCATION OF N IN N-LIST        F4422210
                                    F4422220
PUT N-LIST ADDRESS IN TRA TABLE     F4422230
PUT TIFRD ADDRESS INTO INDEX        F4422240
IS TIFRD BLOCK USED                 F4422250
YES, SAVE INDEX                     F4422260
READ IN NEXT BLOCK OF TIFRD         F4422270
RESTORE INDEX                       F4422280
COMPARE FORMULA NUMBER OF INSTR. TOF4422290
   THAT OF NEXT ENTRY IN TIFRD      F4422300
                                    F4422310
                                    F4422320
                                    F4422330
ENTRY FOUND
NO ENTRY FOUND IN TIFRD FOR GO TO NF4422340
SET FOR N-WORDS IN TIFRD            F4422350
SEE IF TIFRD BLOCK IS ALL USED      F4422360
YES SAVE INDEX                      F4422370
READ IN NEXT BLOCK                  F4422380
RESTORE INDEX                       F4422390
GET NEXT VALUE ON N FROM TIFRD      F4422400
PLUS INDICATES NO MORE VALUES FOR NF4422410
ELIMINATE MINUS SIGN                F4422420
SAVE TIFRD INDEX                    F4422430
GET TRA TABLE INDEX                 F4422440
IS BLOCK OF TRA TABLE FULL          F4422450
YES SAVE INDEX                      F4422460
WRITE BLOCK ON DRUM                 F4422470
ENTER TRANSFER IN TRA TABLE         F4422480
RESTORE INDEX FOR TIFRD             F4422490
SET FOR NEXT WORD                   F4422500
SAVE TIFRD INDEX                    F4422510
SET FOR NEXT INSTR AND NEXT BB.     F4422520
THIS IS A DO CASE                   F4422530
ENTER ADDRESS OF TRA BACK           F4422540
ENTER TRA TO NEXT INSTR             F4422550
SAVE INDEX                          F4422560
LOOK AT DOLIST ENTRY FOR            F4422570
   THIS DO                          F4422580
COMPARE LOCATION IN DO LIST TO      F4422590
```

```
00406 -0 32000 0 00060        ANA DECMKM
00407  0 40200 0 00117        SUB BBOX
00410  0 10000 0 00412        TZE CLAR
00411  1 00002 2 00405        TXI 9CLAT,2,2
00412  0 50000 2 06477 CLAR   CLA DOLIST-1,2
00413 -0 32000 0 00062        ANA IFMSK
00414  0 10000 0 00424        TZE DONOIF
00415  0 50000 2 06500        CLA DOLIST,2
00416  0 76700 0 00022        ALS 18
00417  0 62200 4 06030 DWFCD  STD TRAM+4,4
00420 -0 50000 0 00417        CAL DWFCD
00421 -0 53400 2 00117 DOLXD  LXD BBOX,2
00422  0 63000 2 02413        STP BBTABL,2
00423  1 00004 1 00130        TXI BEGBB,1,4
00424 -0 50000 0 00424 DONOIF CAL DONOIF
00425  0 02000 0 00421        TRA DOLXD
00426  0 50000 1 03701 CNDTR  CLA INSTM-2,1
00427  0 40200 0 00071        SUB OCTALM
00430  0 10000 0 00230        TZE TXFAS
00431  0 50000 1 03703        CLA INST.M,1
00432  0 40200 1 03701        SUB INST.M-2,1
00433  0 10000 0 00230        TZE TXFAS
00434  0 50000 1 03701        CLA INST.M-2,1
00435  0 07400 4 00653        TSX ENTRB,4
00436  0 50000 1 03675        CLA INST.M-6,1
00437  0 07400 4 00653        TSX ENTRB,4
00440  0 50000 1 03703        CLA INST.M,1
00441 -0 53400 4 00114 11LXD  LXD TBOX,4
00442  0 62200 4 06030        STD TRA..M+4,4
00443 -0 50000 0 00474 11CAL  CAL PBYCDM
00444  0 63000 2 02413        STP BBTABL,2
00445  0 50000 0 00247        CLA LD2
00446  0 62200 4 06026        STD TRA..M+2,4
00447 -0 63400 4 00114        SXD TBOX,4
00450  1 00010 1 00130        TXI BEGBB,1,8
00451  0 50000 1 03700 GOTOVM CLA INSTM-3,1
00452 -0 73400 4 00000        PDX 0,4
00453  2 00001 4 00455        TIX OK,4,1
00454  0 07400 4 00004        TSX RDFORT,4

00455  3 00001 4 00457 OK     TXH ONEVCT+1,4,1
00456  1 00004 1 00327 ONEVCT TXI TRACSM+3,1,4
00457 -0 75400 4 00000        PXD 0,4
00460 -0 53400 4 00114        LXD TBOX,4
00461  0 62200 4 06022        STD TRA..M-2,4
00462  0 62200 0 00120        STD MBOX
00463 -0 50000 0 00474        CAL PBYCDM
00464  0 63000 2 02413        STP BBTABL,2
00465  0 50000 1 03703        CLA INST.M,1
00466  0 62200 4 06024        STD TRA..M,4
00467 -2 00454 1 00471 13TIX  TNX 13CLA,1,ZINSTM
00470  0 07400 4 00763        TSX RDINSM,4
00471  0 50000 1 03675 13CLA  CLA INSTM-6,1
00472  0 07400 4 00653        TSX ENTRB,4
```

```
   THIS BASIC BLOCK                          F4422600
                                             F4422610
                                             F4422620
NOT FOUND--TRY NEXT                          F4422630
LOOK AT ADDRESS WORD IN DO LIST              F4422640
SEE IF DO HAS AN IF                          F4422650
NO IF--TRANSFER                              F4422660
DO WITH IF-PUT LOOP COUNT IN                 F4422670
   TRANSFER TABLE                            F4422680
                                             F4422690
GET CODE FOR DO WITH IF                      F4422700
RESTORE INDEX FOR BB TABLE                   F4422710
STORE CODE FOR ENDING IN BB TABLE            F4422720
DO NEXT INSTR.--NEXT BASIC BLOCK             F4422730
GET CODE FOR DO WITHOUT IF                   F4422740
STORE CODE IN B B TABLE                      F4422750
THE OP CODE IS A CONDITIONAL TRA             F4422760
   SEE IF THIS IS A REAL TRANSFER            F4422770
NO-- IT IS NOT ANYTHING                      F4422780
                                             F4422790
                                             F4422800
                                             F4422810
PUT ADDRESS OF TRA IN TRA TABLE              F4422820
                                             F4422830
PUT NEXT TRA ADDRESS IN TRA TABLE            F4422840
                                             F4422850
                                             F4422860
                                             F4422870
                                             F4422880
PUT PROBABILITY CODE IN BB TABLE             F4422890
                                             F4422900
PUT NO. OF CASES (=2) IN TRA TABLE           F4422910
                                             F4422920
SAVE TRA INDEX                               F4422930
DO NEXT INSTRUCTION                          F4422940
THIS IS A GO TO VECTOR                       F4422950
                                             F4422960
CHECK NO. OF BRANCHES                        F4422970
NONE, PART OF PROGRAM NOT                    F4422980
   TRANSFERED TO                             F4422990
TEST FOR ONLY ONE BRANCH                     F4423000
ONLY ONE BRANCH--A CERTAINTY CASE            F4423010
MORE THAN ONE--STANDARD CASE                 F4423020
SET INDEX FOR TRA TABLE ADDRESS              F4423030
PUT NO. INTO TRA TABLE                       F4423040
SAVE NO. TO TEST IF VECTOR IS DONE           F4423050
                                             F4423060
PUT PROBABILITY CODE IN BB TABLE             F4423070
                                             F4423080
PUT FORMULA NUMBER INTO TRA TABLE            F4423090
IS BLOCK OF INSTRUCTIONS ALL USED            F4423100
READ IN NEXT BLOCK                           F4423110
ENTER ADDRESS OF ONE TRANSFER                F4423120
     INTO TRA TABLE.                         F4423130
```

```
00473 -0 53400 4 00120         LXD MBOX,4
00474  2 00001 4 00476 PBYCDM  TIX 13SXD,4,1
00475  1 00010 1 00130 13ON    TXI BEGBB,1,8
00476 -0 63400 4 00120 13SXD   SXD MBOX,4
00477 -0 53400 4 00114         LXD TBOX,4
00500 -2 01274 4 00503 STPCD   TNX 13TXIM,4,ZTRA
00501 -0 63400 4 00114         SXD TBOX,4
00502  0 07400 4 03147         TSX WRTRA,4
00503  1 00004 1 00467 13TXIM  TXI 13TIX,1,4
00504  0 50000 1 03700 IF2PS   CLA INSTM-3,1
00505 -0 32000 0 00063         ANA XXPSX
00506  0 40200 0 00065         SUB XX16X
00507  0 10000 0 00514         TZE PSTCS
00510  0 50000 1 03700         CLA INST.M-3,1
00511 -0 32000 0 00060         ANA DECMKM
00512  0 40200 0 00066         SUB XX360
00513 -0 10000 0 00230         TNZ TXFAS
00514 -0 50000 0 00474 PSTCS   CAL PBYCDM
00515  0 63000 2 02413         STP BBTABL,2
00516 -0 53400 4 00114         LXD TBOX,4
00517  0 50000 1 03703         CLA INST.M,1
00520  0 62200 4 06024         STD TRA..M,4
00521  0 50000 0 00247         CLA LD2
00522  0 62200 4 06022         STD TRA..M-2,4
00523  0 50000 1 03671 SNSCS   CLA INSTM-10,1
00524  0 07400 4 00653         TSX ENTRB,4
00525  0 50000 1 03675         CLA INST.M-6,1
00526  0 07400 4 00653         TSX ENTRB,4
00527  1 00014 1 00130 MSECD   TXI BEGBB,1,12
00530 -0 50000 0 00527 MSECSM  CAL MSECD
00531  0 63000 2 02413         STP BBTABL,2
00532  0 50000 1 03700         CLA INST.M-3,1
00533 -0 53400 4 00114         LXD TBOX,4
00534  0 62200 4 06024         STD TRA..M,4
00535  0 02000 0 00523         TRA SNSCS
00536 -0 50000 0 00474 IF2CS   CAL PBYCDM
00537  0 63000 2 02413         STP BBTABL,2
00540 -0 53400 4 00114         LXD TBOX,4
00541  0 50000 1 03703         CLA INST.M,1
00542  0 62200 4 06024         STD TRA..M,4
00543  0 50000 0 00247         CLA LD2
00544  0 62200 4 06022         STD TRA..M-2,4
00545  0 50000 1 03675         CLA INST.M-6,1
00546  0 07400 4 00653         TSX ENTRB,4
00547  0 50000 1 03671         CLA INST.M-10,1
00550  0 07400 4 00653         TSX ENTRB,4
00551  1 00014 1 00130 LD12M   TXI BEGBB,1,12
00552  0 50000 1 03676 IF3CSM  CLA INST.M-5,1
00553 -0 32000 0 00060         ANA DECMKM
00554  0 40200 0 00076         SUB LTPL
00555  0 10000 0 00557         TZE 16CLA
00556  0 07400 4 00004 IFTSX   TSX RDFORT,4
00557  0 50000 1 03672 16CLA   CLA INSTM-9,1
00560 -0 32000 0 00060         ANA DECMKM
```

```
HAVE ALL BRANCHES OF VECTOR BEEN    F4423140
   ENTERED                          F4423150
YES, GO TO NEXT BB--NEXT INST.      F4423160
NO,SAVE COUNT AND ENTER NEXT        F4423170
PUT TRA TABLE ADDRESS IN INDEX      F4423180
HAS THIS BLOCK OF TRA BEEN FILLED   F4423190
YES,SAVE TRA INDEX                  F4423200
WRITE BLOCK OF TRA ON DRUM          F4423210
SET INST. INDEX AND DO NEXT BRANCH  F4423220
THIS IS A PSE, LOOK AT ADDRESS TO   F4423230
   SEE IF IT IS 164-166             F4423240
                                    F4423250
YES, IT IS A TEST                   F4423260
                                    F4423270
NO, SEE IF ADDR IS 360              F4423280
                                    F4423290
NO,THIS IS NOT A BB END             F4423300
THIS IS A PSE TEST INSTRUCTION      F4423310
PUT PROBABILITY CODE IN BB TABLE    F4423320
SET INDEX FOR TRA TABLE ADDRESS     F4423330
PUT FORMULA NUMBER IN TRA TABLE     F4423340
                                    F4423350
PUT NO. OF CASES(=2) IN TRA TABLE   F4423360
                                    F4423370
PUT ADDRESS FOR ON INTO TRA TABLE   F4423380
                                    F4423390
PUT OFF ADDRESS INTO TRA TABLE      F4423400
                                    F4423410
DO NEXT BB.                         F4423420
THIS IS A MSE TEST                  F4423430
STORE MSE CODE IN BBTABL            F4423440
LOOK AT ADDRESS OF MSE              F4423450
SET INDEX FOR TRA TABLE             F4423460
PUT NO. OF SENSE LIGHT IN TRA TABLEF4423470
PUT ADDRESSES IN TRA TABLE          F4423480
THIS IS A TWO-WAY TEST INSTRUCTION  F4423490
PUT PROBABILITY CODE IN BB TABLE    F4423500
SET INDEX FOR TRA TABLE             F4423510
PUT FORMULA NUMBER IN TRA TABLE     F4423520
                                    F4423530
PUT NO OF CASES (=2) IN TRA TABLE   F4423540
                                    F4423550
PUT ADDRESSES IN TRA TABLE          F4423560
=ON- ADDRESS                        F4423570
-OFF - ADDRESS                      F4423580
                                    F4423590
DO NEXT BB                          F4423600
THIS IS A TZE, NOT END OF A BB.     F4423610
CHECK TO SEE IF IT IS FOLLOWED BY AF4423620
   TPL AND A TRA, IF NOT THERE HAS  F4423630
   BEEN AN ERROR                    F4423640
ERROR                               F4423650
CHECK FOR TRA                       F4423660
                                    F4423670
```

```
00561   0 40200 0 00077         SUB LTRA
00562  -0 10000 0 00556         TNZ IFTSX
00563  -0 50000 0 00474 16CAL   CAL PBYCDM     ERROR                                  F4423690
00564   0 63000 2 02413         STP BBTABL,2    NO ERROR                               F4423700
00565  -0 53400 4 00114         LXD TBOX,4      PUT PROBABILITY CODE IN BB TABLE       F4423710
00566   0 50000 1 03703         CLA INST.M,1    SET INDEX FOR TRA TABLE                F4423720
00567   0 62200 4 06024         STD TRA..M,4    PUT FORMULA NO. IN TRA TABLE           F4423730
00570   0 50000 0 00036         CLA LD3                                                F4423740
00571   0 62200 4 06022         STD TRA..M-2,4  PUT NO. OF CASES (=3) IN TRA TABLE     F4423750
00572   0 50000 1 03675         CLA INST.M-6,1                                         F4423760
00573   0 07400 4 00653         TSX ENTRB,4     PUT ADDRESSES OF BRANCHES INTO         F4423770
00574   0 50000 1 03701         CLA INST.M-2,1     TRA TABLE                           F4423780
00575   0 07400 4 00653         TSX ENTRB,4                                            F4423790
00576   0 50000 1 03671         CLA INST.M-10,1                                        F4423800
00577   0 07400 4 00653         TSX ENTRB,4                                            F4423810
00600   1 00014 1 00130         TXI BEGBB,1,12                                         F4423820
00601  -0 50000 1 03676 HPRCS   CAL INSTM-5,1   DO NEXT BB.                           F4423830
00602  -0 32000 0 00060         ANA DECMKM      TEST FOR PAUSE(INNOCUOUS) OR A STOP    F4423840
00603   0 40200 0 00077         SUB LTRA                                               F4423850
00604  -0 10000 0 00276         TNZ LD4         IS HPR FOLLOWED BY TRA                 F4423860
00605   0 50000 1 03675         CLA INST.M-6,1  NO-IGNORE-- IS A PAUSE                 F4423870
00606   0 40200 1 03703         SUB INST.M,1    DOES TRA GO BACK TO HPR                F4423880
00607  -0 10000 0 00276         TNZ LD4                                                F4423890
00610  -0 50000 0 00500         CAL STPCD       NO-- HPR IS A PAUSE--IGNORE            F4423900
00611   0 63000 2 02413         STP BBTABL,2    THIS IS A STOP--PUT STOP CODE IN       F4423910
00612   1 00010 1 00130 LD8     TXI BEGBB,1,8      BB TABLE AND NO ENTRY IN TRATBL     F4423920
00613  -0 63400 2 00117 OUTB    SXD BBOX,2      DO NEXT BASIC BLOCK                    F4423930
00614   0 50200 0 00760         CLS C5STD       SAVE LENGTH OF BB TABLE                F4423940
00615   0 40200 0 00031         SUB LA1         GET ADDRESS IN FXDO LIST               F4423950
00616   0 62100 0 00617         STA STOREB                                             F4423960
00617   0 60100 0 00000 STOREB  STO XXXXXX                                             F4423970
00620   0 50000 2 02413         CLA BBTABL,2                                           F4423980
00621   0 62200 0 07777         STD TTBOX=      LOOK AT LAST ENTRY IN BB TABLE         F4423990
00622   0 76700 0 00022         ALS 18          PUT LENGTH OF TRA TABLE IN TTBOX       F4424000
00623   0 62200 0 07776         STD SSBOX=                                             F4424010
00624  -0 75400 0 00000         PXD 0,0         PUT LENGTH OF SET TABLE IN SS BOX      F4424020
00625   0 60100 2 02412         STO BBTABL-1,2                                         F4424030
00626   0 07400 4 03147         TSX WRTRA,4                                            F4424040
00627   0 07400 4 01032         TSX WRSET,4     WRITE LAST BLOCK OF TRAS ON DRUM       F4424050
00630   0 76200 0 00221         RDS SYSTAP      WRITE LAST BLOCK OF SETS ON DRUM       F4424060
00631   0 02000 0 00004         TRA RDFORT                                             F4424070
                                                DO NEXT BLOCK OF PROGRAM               F4424080
                                                                                       F4424090
                        THIS ROUTINE SEARCHES THE N-LIST FOR THE N IN THE AC, ENTERS   F4424100
                        IT IF IT IS NOT ALREADY ENTERED AND RETURNS TO THE LOCATION    F4424110
                        FOLLOWING THE TSX WITH THE INDEX FOR N IN THE DECREMENT OF     F4424120
                        THE ACCUMULATOR                                                F4424130
00632  -0 63400 4 00125 SRCHN   SXD ERAS1M,4    SAVE INDEX TO RETURN                   F4424140
00633  -0 53400 4 00035         LXD LD1M,4      SET INDEX                              F4424150
00634   0 60100 0 00121         STO ACBOX       SAVE AC                                F4424160
00635   0 50000 4 01114 CLANN   CLA NLIST,4     LOOK AT ENTRY IN N-LIST                F4424170
00636   0 10000 0 00642         TZE ENTRN       END OF LIST REACHED, N NOT FOUND       F4424180
00637   0 40200 0 00121         SUB ACBOX       COMPARE TO N TO BE FOUND               F4424190
00640   0 10000 0 00650         TZE NFOUN       N HAS BEEN FOUND                       F4424200
00641   1 00001 4 00635         TXI CLANN,4,1   NOT FOUND YET, TRY NEXT ENTRY          F4424210
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00642 -2 00031 4 00644 ENTRN   TNX C1CLA,4,ZNLIST          TEST FOR OVERFLOW OF N-LIST          F4424220
00643  0 07400 4 00004         TSX RDFORT,4               N-LIST HAS OVERFLOWED                F4424230
00644  0 50000 0 00121 C1CLA   CLA ACBOX                  STORE N IN N-LIST                    F4424240
00645  0 60100 4 01114         STO NLIST,4                                                     F4424250
T    00646 -0 75400 0 00000    PXD                        STORE ZERO IN LOCATION AFTER LAST    F4424260
00647  0 60100 4 01113         STO NLIST-1,4                 ENTRY IN N-LIST                   F4424270
00650 -0 75400 4 00000 NFOUN   PXD 0,4                    PUT INDEX FOR N INTO AC              F4424280
00651 -0 53400 4 00125         LXD ERAS1M,4               RESTORE INDEX FOR TRA BACK           F4424290
00652  0 02000 4 00001         TRA 1,4                    TRANSFER BACK                        F4424300
                                                                                               F4424310
                               THIS ROUTINE TAKES THE COMPILED INSTRUCTION NUMBER IN THE       F4424320
                               ACCUMULATOR, TRANSLATES IT TO A BASIC BLOCK NUMBER, ENTERS      F4424330
                               THE BASIC BLOCK NUMBER IN THE TRANSFER TABLE, TESTS FOR A       F4424340
                               TRANSFER TO THE BEGINNING OF A DO WITH AN IF.  IT RETURNS TO    F4424350
                               THE LOCATION FOLLOWING THE TSX TO IT.                           F4424360
00653 -0 63400 4 00123 ENTRB   SXD ENTBX,4                 SAVE INDEX                           F4424370
00654  0 07400 4 00667         TSX FNDBB,4                CHANGE INSTRUCTION NUMBER TO BB NO.  F4424380
00655 -0 53400 4 00114         LXD TBOX,4                                                      F4424390
00656  0 62200 4 06023         STD TRA..M-1,4             ENTER IN TRA TABLE                   F4424400
00657  1 00002 4 00660         TXI C2SXD,4,2              SET FOR NEXT ENTRY IN TRA TABLE      F4424410
00660 -0 63400 4 00114 C2SXD   SXD TBOX,4                                                      F4424420
00661 -0 53400 4 00123         LXD ENTBX,4                GO TO TSTAD WITH ADDRESS SET TO GO   F4424430
00662  0 02000 0 00713         TRA TSTAD                     BACK TO MAIN ROUTINE              F4424440
                                                                                               F4424450
                               THIS ROUTINE ENTERS IN THE TRANSFER TABLE AND TESTS A           F4424460
                               TRANSFER TO THE INSTRUCTION (AND BASIC BLOCK) IMMEDIATELY       F4424470
                               AFTER THE LOCATION OF THE TRANSFER                              F4424480
00663 -0 63400 4 00123 ENTB2   SXD ENTBX,4                 SAVE INDEX                           F4424490
00664 -0 75400 2 00000         PXD 0,2                    PUT THIS BASIC BLOCK NO. INTO AC     F4424500
00665  0 40000 0 00035         ADD LD1M                   ADD ONE                              F4424510
00666  0 02000 0 00655         TRA ENTRB+2                ENTER AND TEST THIS ADDRESS          F4424520
                                                                                               F4424530
                               THIS ROUTINE CHANGES COMPILED INSTRUCTION NOS. (IN THE AC)      F4424540
                               TO BASIC BLOCK NUMBERS(IN DECREMENT OF THE ACCUMULATOR) BY      F4424550
                               OPTIMAL TABLE LOOKUP                                            F4424560
00667  0 60100 0 00121 FNDBB   STO ACBOX                  SAVE NUMBER BEING LOOKED FOR         F4424570
00670 -0 63400 4 00122         SXD OUTBX,4                SAVE EXIT INDEX                      F4424580
00671  0 56000 0 00055         LDQ CNST2M                 SET UP TEST FOR END                  F4424590
00672 -0 53400 4 00033         LXD L0M,4                  START LOOK UP                        F4424600
00673  0 50000 0 00124         CLA XBOX                                                        F4424610
00674  0 77100 0 00001 C3ARS   ARS 1                                                          F4424620
00675  0 62200 0 00702         STD C3TXI                                                       F4424630
00676  0 62200 0 00704         STD C3TIX                                                       F4424640
00677  0 50000 0 00121         CLA ACBOX                                                       F4424650
D    00700  3 00000 4 00704 PLACEM TXH C3TIX,4                                                 F4424660
00701  0 34000 4 07773         CAS BBLIST,4                                                    F4424670
D    00702  1 00000 4 00705 C3TXI  TXI C3CLA,4                                                 F4424680
00703  0 02000 0 00710         TRA C3FND                                                       F4424690
00704  2 00000 4 00705 C3TIX   TIX C3CLA,4,XXXXXX                                             F4424700
00705  0 50000 0 00704 C3CLA   CLA C3TIX                                                     F4424710
00706  0 04000 0 00674         TLQ C3ARS                                                       F4424720
00707  0 07400 4 00004         TSX RDFORT,4               FLOW ERROR                           F4424730
00710 -0 75400 4 00000 C3FND   PXD 0,4                                                       F4424740
00711 -0 53400 4 00122         LXD OUTBX,4                                                     F4424750
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00712  0 02000 4 00001         TRA 1,4                          RETURN                                  F4424760
                                                                                                         F4424770
                                    THIS ROUTINE TESTS FOR A TRANSFER TO THE BEGINNING OF A DO       F4424780
                                    AND MAKES A SET ENTRY FOR THE DO.                                F4424790
00713 -0 63400 1 00125 TSTAD    SXD ERAS1M,1                     SAVE INDEX REGISTER FOR TRA BACK        F4424800
00714 -0 63400 4 00122          SXD OUTBX,4                                                              F4424810
00715 -0 53400 1 00112          LXD SBOX,1                                                               F4424820
00716  0 60100 0 00121          STO ACBOX                        SAVE ADDRESS BEING TESTED               F4424830
00717 -0 53400 4 00035          LXD LD1M,4                       COMPARE TO DO LIST                      F4424840
00720  0 50000 0 00121 C4CLA   CLA ACBOX                        PUT ADDRESS BEING TESTED INTO AC        F4424850
00721 -0 50100 0 00062    .     ORA IFMSK                        WITH AN IF MARK                         F4424860
00722  0 34000 4 06477 C4CAS   CAS DOLIST-1,4                   COMPARE TO DO LIST                      F4424870
00723  1 00002 4 00722          TXI C4CAS,4,2                    ENTRY SMALLER,OR EQUAL BUT W. NO IF     F4424880
00724  0 02000 0 00731          TRA FXDO                         ENTRY EQUAL, HAS IF                     F4424890
00725 -0 63400 1 00112          SXD SBOX,1                       ENTRY LARGER, TEST FINISHED.            F4424900
00726 -0 53400 1 00125          LXD ERAS1M,1                     SAVE SET INDEX AND RESTORE INDEX        F4424910
00727 -0 53400 4 00122          LXD OUTBX,4                        REGISTERS.                            F4424920
00730  0 02000 4 00001          TRA 1,4                          RETURN TO MAIN ROUTINE                  F4424930
00731 -0 75400 2 00000 FXDO     PXD 0,2                          SEE IF TRA IS IN OR OUT OF RANGE        F4424940
00732 -0 50100 0 00062          ORA IFMSK                          OF THIS DO                            F4424950
00733  0 40200 4 06477          SUB DOLIST-1,4                                                           F4424960
00734 -0 12000 0 00742          TMI C4ENT                        TR BEFORE BEG OF DO,MAKE SET ENTRY      F4424970
00735 -0 75400 2 00000          PXD 0,2                          TR AFTER BEG OF DO, SEE IF IN DO.       F4424980
00736  0 34000 4 06500          CAS DOLIST,4                     COMPARE TO END OF DO.                   F4424990
00737  0 02000 0 00742          TRA C4ENT                        TR. AFTER DO, ENTER SET                 F4425000
00740  1 00002 4 00720          TXI C4CLA,4,2                    TR. AT END OF DO--NO SET                F4425010
00741  1 00002 4 00720          TXI C4CLA,4,2                    TR. IN RANGE OF DO--NO SET              F4425020
00742  0 50000 4 06500 C4ENT    CLA DOLIST,4                     ENTER SET FOR DO.                       F4425030
00743 -2 00310 1 00745          TNX C4STD,1,ZSET                 IS BLOCK OF SET TABLE FULL               F4425040
00744  0 07400 4 01032          TSX WRSET,4                      YES, WRITE BLOCK ON DRUM                F4425050
00745  0 60100 1 04524 C4STD    STO SETM,1                       STORE BB NO. IN SET TABLE               F4425060
00746  0 50000 0 00031          CLA LA1                                                                  F4425070
00747  0 62100 1 04524          STA SETM,1                       STORE 1 INTO SET LIST                   F4425080
00750  0 50000 0 00760          CLA C5STD                        MODIFY ADDRESS IN FIX DO LIST FOR       F4425090
00751  0 40000 0 00031          ADD LA1                            NEXT ENTRY                            F4425100
00752  0 62100 0 00760          STA C5STD                                                                F4425110
00753 -0 32000 0 00057          ANA ADRMK                                                                F4425120
00754  0 40200 0 00052          SUB LFXDN                        IS FIXDO LIST FULL                      F4425130
00755 -0 12000 0 00757          TMI C5STD-1                      NO CONTINUE TESTING                     F4425140
00756  0 07400 4 00004          TSX RDFORT,4                     FIXDOS FULL                             F4425150
00757 -0 75400 1 00000          PXD 0,1                                                                  F4425160
00760  0 60100 0 02413 C5STD    STO FIXDOS-1                     STORE SET ADDRESS IN FIX DO LIST        F4425170
00761  1 00001 1 00762 C5TXI    TXI C5TXI+1,1,1                  SET FOR NEXT ENTRY IN SET LIST          F4425180
00762  1 00002 4 00720          TXI C4CLA,4,2                    SET DO LIST INDEX, CONTINUE TEST        F4425190
                                                                                                         F4425200
                                    THIS ROUTINE READS ANOTHER BLOCK OF COMPILED INSTRUCTIONS         F4425210
                                    INTO STORAGE AND SHIFTS THE EXTRA INSTRUCTIONS TO THE            F4425220
                                    BEGINNING OF THE BLOCK                                           F4425230
00763 -0 63400 4 00122 RDINSM   SXD OUTBX,4                     SAVE INDEX FOR RETURN                   F4425240
00764  0 50000 0 00032          CLA MINUS4                       INITIALIZE ERROR BOX                    F4425250
00765  0 60100 0 00030          STO ERRBX                                                                F4425260
00766 -0 63400 2 00117          SXD BBOX,2                       SAVE INDEX                              F4425270
00767 -0 53400 4 00551          LXD LD12M,4                      SHIFT EXTRA INSTRUCTIONS FROM END       F4425280
00770  0 50000 4 03227 D1CLA    CLA NDINS,4                        OF BLOCK FOR BEGINNING                F4425290
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00771  0 60100 4 03703         STO INST.M,4                                                                F4425300
00772  2 00001 4 00770         TIX D1CLA,4,1          IS BLOCK SHIFTED                                     F4425310
00773  0 76200 0 00224 D1RDS   RDS INSTTP             SELECT INSTRUCTION TAPE                              F4425320
00774 -0 53400 2 00036         LXD LD3,2              YES, SET INDEX FOR NO. OF RECORDS                    F4425330
00775  0 70000 4 03667 D1CPY   CPY INSTM-12,4         COPY BLOCK OF INSTRUCTIONS                           F4425340
00776  1 00001 4 00775         TXI D1CPY,4,1          SET FOR NEXT WORD                                    F4425350
00777  0 02000 0 01007         TRA D2END              END OF FILE                                          F4425360
01000 -2 00001 2 01003         TNX D1BCK,2,1          END OF RECORD--IS IT END OF 3RD RECF4425370
01001  0 76200 0 00224         RDS INSTTP             NO, READ NEXT RECORD.                                F4425380
01002  0 02000 0 00775         TRA D1CPY                                                                   F4425390
01003  0 76600 0 00333 D1BCK   WRS 219                TEST FOR TAPE ERROR                                  F4425400
01004 -0 76000 0 00012         RTT                                                                         F4425410
01005  0 02000 0 01021         TRA INERR              ERROR                                                F4425420
01006  3 00453 4 01016         TXH D1XX,4,ZINSTM-1    IF 3RD RECORD FULL--NOT END OF FILEF4425430
01007 -0 75400 4 00000 D2END   PXD 0,4                REACHED END OF INSTRUCTIONS,                         F4425440
01010  0 40000 0 00612         ADD LD8                   PUT TEST FOR LAST INSTRUCTION                     F4425450
01011  0 62200 0 00143         STD FNDAS                 INTO MAIN ROUTINE                                 F4425460
01012  0 50000 0 00053         CLA LCOUT              PUT ADDRESS OF FINAL EXIT INTO MAINF4425470
01013  0 60100 0 00144         STO FNDAS+1               ROUTINE.                                          F4425480
01014  0 50000 0 00072         CLA ENDMKM                                                                  F4425490
01015  0 60100 4 03667         STO INST.M-12,4                                                             F4425500
01016 -0 53400 4 00122 D1XX    LXD OUTBX,4            NO ERROR, RESTORE INDEX REGISTERS                    F4425510
01017 -0 53400 2 00117         LXD BBOX,2                                                                  F4425520
01020  0 02000 4 00001         TRA 1,4                RETURN TO MAIN ROUTINE                               F4425530
01021  0 50000 0 00030 INERR   CLA ERRBX                                                                   F4425540
01022 -0 12000 0 01024 SKIP7   TMI SKIP7+2            HAVE 5 TRIES AT READING BEEN MADE                    F4425550
01023  0 07400 4 00004         TSX RDFORT,4              YES, GO TO DIAGNOSTIC ROUTINE                     F4425560
01024  0 40000 0 00031         ADD LA1                   NO, TRY READING AGAIN                             F4425570
01025  0 60100 0 00030         STO ERRBX                                                                   F4425580
01026  0 76400 0 00224 D2BST   BST INSTTP             BACKSPACE OVER RECORDS JUST READ                     F4425590
01027  1 00001 2 01030         TXI D2TIX,2,1                                                               F4425600
01030 -2 00003 2 01026 D2TIX   TNX D2BST,2,3                                                               F4425610
01031  0 02000 0 00773         TRA D1RDS              TAPE BACKSPACED--TRY TO READ AGAIN                   F4425620
                                                                                                           F4425630
                               THIS ROUTINE WRITES A BLOCK OF SETS ON DRUM 3.                              F4425640
01032 -0 63400 4 00122 WRSET   SXD OUTBX,4            SAVE INDEX FOR RETURN                                F4425650
01033  0 60100 0 00121         STO ACBOX              SAVE CONTENTS OF AC                                  F4425660
01034  0 50000 0 00113 D7CLA   CLA SPBOX              SET SP BOX FOR NEXT BLOCK                            F4425670
01035  0 40000 0 00047         ADD LZSET                                                                   F4425680
01036  0 60100 0 00113         STO SPBOX                                                                   F4425690
01037  0 40200 0 00046         SUB LXSET                                                                   F4425700
01040 -0 12000 0 01042         TMI STWRS              NO OVERFLOW --CONTINUE                               F4425710
01041  0 07400 4 00004         TSX RDFORT,4           SET TABLE HAS OVERFLOWED.                            F4425720
01042  0 76600 0 00303 STWRS   WRS SETDRM             SELECT DRUM                                          F4425730
01043 -0 75400 0 00000         PXD 0,0                CLEAR AC                                             F4425740
01044 -0 53400 4 00047         LXD LZSET,4            SET INDEX FOR COMPUTING CHECKSUM                     F4425750
01045  0 36100 4 04524 D6ACL   ACL SETM,4             COMPUTE CHECK SUM                                    F4425760
01046  2 00001 4 01045         TIX D6ACL,4,1                                                               F4425770
01047  0 60200 0 00125         SLW ERAS1M             STORE CHECK SUM                                      F4425780
01050  0 46000 0 00040         LDA SETYM              LOCATE DRUM ADDRESS                                  F4425790
01051 -0 53400 4 00047         LXD LZSET,4            SET INDEX FOR COPYING                                F4425800
01052  0 70000 4 04524 D6CPY   CPY SETM,4             COPY BLOCK                                           F4425810
01053  2 00001 4 01052         TIX D6CPY,4,1                                                               F4425820
01054  0 70000 0 00125         CPY ERAS1M             COPY CHECK SUM                                       F4425830
```

```
01055   0 50000 0 00040         CLA SETYM                       SET DRUM ADDRESS FOR NEXT BLOCK     F4425840
01056   0 40000 0 00042         ADD LZSET1                                                          F4425850
01057   0 60100 0 00040         STO SETYM                                                           F4425860
01060  -0 53400 4 00122         LXD OUTBX,4                     RESTORE INDEX REGISTER              F4425870
01061   0 50000 0 00121         CLA ACBOX                                                           F4425880
01062   0 02000 4 00001         TRA 1,4                                                             F4425890
                                                                                                    F4425900
                                THIS SETS UP FOR OPTIMAL LOOK UP IN BB LIST                         F4425910
01063  -0 53400 1 00551 PASS2   LXD LD12M,1                     INITIALIZE INDEX REGISTERS          F4425920
01064   1 00455 1 01065 1TXI    TXI 1TXI+1,1,ZINSTM+1                                               F4425930
01065   0 50000 0 07774         CLA BBOX,=                      GET LENGTH OF BBLIST                F4425940
01066   0 62200 0 00700         STD PLACEM                      PUT LENGTH INTO TEST                F4425950
01067   0 77100 0 00001         ARS 1                                                               F4425960
01070   0 30000 0 00033         FAD LOM                         FIND LEAST POWER OF 2 NOT LESS THANF4425970
01071   0 77100 0 00033         ARS 27                             LENGTH OF TABLE                  F4425980
01072   0 40200 0 00035         SUB LD1M                                                            F4425990
01073   0 62100 0 01075         STA ARSX                                                            F4426000
01074   0 50000 0 00056         CLA CONSTM                                                          F4426010
A 01075 0 77100 0 00000 ARSX    ARS                                                                 F4426020
01076   0 60100 0 00124         STO XBOX                                                            F4426030
01077   0 50000 0 07775         CLA DOBOX=                      IF THERE ARE NO DOS, DO NOT TEST    F4426040
01100  -0 10000 0 01103         TNZ TRAQ-1                         FOR A TRANSFER TO A DO           F4426050
01101   0 50000 0 00730         CLA FXDO-1                                                          F4426060
01102   0 60100 0 00713         STO TSTAD                                                           F4426070
01103   0 53400 2 00057         LXA ADRMK,2                                                         F4426080
01104   0 02000 0 00130 TRAQ    TRA BEGBB                                                           F4426090
                                                                                                    F4426100
                                                                                                    F4426110
                                SECTION 4 - PART 2 OF 6 (2ND RECORD OF 2)                           F4426120
                                                                                                    F4426130
                                FORTRAN EDITOR INFORMATION                                          F4426140
                                   MASTER RECORD CARD = F0650000                                    F4426150
                                   ENTRY POINT = 1063 (CONTROL GOES TO PREVIOUS RECORD)             F4426160
                                   FIRST LOCATION = 3064                                            F4426170
                                   LAST LOCATION = 3210                                             F4426180
                                                                                                    F4426190
                                                                                                    F4426200
                      03064     ORG 1588                                                            F4426210
                                THIS ROUTINE READS A BLOCK OF TIFRD INTO CORE STORAGE FROM          F4426220
                                DRUM 1.                                                             F4426230
03064  -0 63400 4 00122 RDTIF   SXD OUTBX,4                     SAVE INDEX FOR RETURN               F4426240
03065  -0 63400 2 00125         SXD ERAS1M,2                    SAVE INDEX                          F4426250
03066   0 50000 0 00032         CLA MINUS4                      INITIALIZE ERROR BOX                F4426260
03067   0 60100 0 00030         STO ERRBX                                                           F4426270
03070   0 50000 0 03703         CLA NTIFR-1                     MOVE EXTRA WORD FROM END OF BLOCK   F4426280
03071   0 60100 0 04213         STO TIFRDM-1                       TO BEGINNING                     F4426290
03072   0 76200 0 00301 TFRDS   RDS TIFDRM                      SELECT DRUM                         F4426300
03073   0 46000 0 00041         LDA TIFY                        LOCATE DRUM ADDRESS                 F4426310
03074   0 70000 0 00126         CPY ERAS2M                      COPY LENGTH OF BLOCK                F4426320
03075  -0 53400 6 00126         LXD ERAS2M,6                    SET INDEX FOR COUNT                 F4426330
03076   0 70000 4 04213 D2CPY   CPY TIFRDM-1,4                  READ IN BLOCK OF TIFRD              F4426340
03077   2 00001 4 03076         TIX D2CPY,4,1                   TEST FOR END OF BLOCK               F4426350
03100   0 70000 0 00127         CPY ERAS3M                      COPY CHECK SUM                      F4426360
03101  -0 50000 0 00126         CAL ERAS2M                                                          F4426370
```

```
03102   0 10000 0 03121          TZE LSTBLT          TIFGO IS EMPTY                                  F4426380
03103   0 36100 2 04213 D3ACL    ACL TIFRDM-1,2      COMPUTE CHECKSUM                                F4426390
03104   2 00001 2 03103          TIX D3ACL,2,1                                                       F4426400
03105   0 60200 0 00121          SLW ACBOX                                                           F4426410
03106   0 50000 0 00121          CLA ACBOX                                                           F4426420
03107   0 40200 0 00127          SUB ERAS3M          COMPARE CHECK SUMS                              F4426430
03110  -0 10000 0 03141          TNZ TFERR           NOT EQUAL,ERROR                                 F4426440
03111  -0 53400 4 00126          LXD ERAS2M,4        WAS THIS A FULL BLOCK                           F4426450
03112  -2 00307 4 03121          TNX LSTBLT,4,ZTIFRD-1  NO--WAS LAST BLOCK                           F4426460
03113   0 50000 0 00041          CLA TIFY            THIS WAS A FULL BLOCK, SET DRUM                 F4426470
03114   0 40000 0 00043          ADD LZTIF2             ADDRESS FOR NEXT BLOCK                       F4426480
03115   0 62100 0 00041          STA TIFY                                                            F4426490
03116  -0 53400 2 00125 TFLXD    LXD ERAS1M,2        RESTORE INDEX REGISTER                          F4426500
03117  -0 53400 4 00122          LXD OUTBX,4                                                         F4426510
03120   0 02000 4 00001          TRA 1,4             RETURN TO MAIN ROUTINE                          F4426520
03121   0 50000 0 00054 LSTBLT   CLA TRNOM           END OF TIFGO--PREVENT FURTHER                   F4426530
03122   0 60100 0 03065          STO RDTIF+1            ATTEMPTS TO READ IN                          F4426540
03123   0 50000 0 00126          CLA ERAS2M          PUT NUMBER OF WORDS IN THIS BLOCK               F4426550
03124   0 40000 0 00035          ADD LD1M               INTO COMPARISONS                             F4426560
03125   0 62200 0 00150          STD 2TNX                                                            F4426570
03126   0 62200 0 00343          STD 7TNX                                                            F4426580
03127   0 62200 0 00356          STD 8TNX                                                            F4426590
03130   0 02000 0 03116          TRA TFLXD           RESTORE INDEX REGISTERS AND EXIT.               F4426600
03131   0 50000 0 03156 NOMOR    CLA TRTSX           TIFRD IS ALL USED - STORE A TSX                 F4426610
03132   0 60100 0 03064          STO RDTIF                                                           F4426620
03133   0 50000 0 03140          CLA TR2CL                                                           F4426630
03134   0 60100 0 00147          STO 2TNX-1                                                          F4426640
03135  -0 53400 4 00116          LXD PBOX,4                                                          F4426650
03136   0 60000 4 04214          STZ TIFRDM,4                                                        F4426660
03137   0 02000 0 03117          TRA TFLXD+1                                                         F4426670
03140   0 02000 0 00160 TR2CL    TRA 2CLA                                                            F4426680
03141   0 50000 0 00030 TFERR    CLA ERRBX                                                           F4426690
03142  -0 12000 0 03144 SKIP8    TMI SKIP8+2         HAVE 5 TRIES AT READING BEEN MADE               F4426700
03143   0 07400 4 00004          TSX RDFORT,4           YES, GO TO DIAGNOSTIC ROUTINE                F4426710
03144   0 40000 0 00031          ADD LA1                NO, TRY READING AGAIN                        F4426720
03145   0 60100 0 00030          STO ERRBX                                                           F4426730
03146   0 02000 0 03072          TRA TFRDS                                                           F4426740
                                                                                                     F4426750
                                 THIS ROUTINE WRITES A BLOCK OF THE TRA TABLE ON THE DRUM            F4426760
                                 WITH CHECK SUM                                                      F4426770
03147  -0 63400 4 00122 WRTRA    SXD OUTBX,4         SAVE INDEX FOR RETURN                           F4426780
03150   0 60100 0 00121          STO ACBOX           SAVE CONTENTS OF THE AC                         F4426790
03151   0 50000 0 00115 TRCLA    CLA TPBOX           SET TP BOX FOR NEXT BLOCK                       F4426800
03152   0 40000 0 00045          ADD LZTRA                                                           F4426810
03153   0 60100 0 00115          STO TPBOX                                                           F4426820
03154   0 40200 0 00044          SUB LXTRA                                                           F4426830
03155  -0 12000 0 03157          TMI TRWRS           NO OVERFLOW--CONTINUE                           F4426840
03156   0 07400 4 00004 TRTSX    TSX RDFORT,4        THE TRA TABLE HAS OVERFLOWED                    F4426850
03157   0 76600 0 00301 TRWRS    WRS TRADRM          SELECT DRUM                                     F4426860
03160  -0 53400 4 00045          LXD LZTRA,4         SET INDEX                                       F4426870
03161  -0 75400 0 00000          PXD 0,0             CLEAR AC                                        F4426880
03162   0 36100 4 06024 D4ACL    ACL TRAM,4          COMPUTE CHECKSUM                                F4426890
03163   2 00001 4 03162          TIX D4ACL,4,1                                                       F4426900
03164   0 60200 0 00125          SLW ERAS1M          STORE CHECK SUM                                 F4426910
```

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03165 -0 53400 4 00045          LXD LZTRA,4                SET INDEX FOR COPYING                F4426920
03166  0 70000 4 06024 D4CPY    CPY TRAM,4                 COPY BLOCK                           F4426930
03167  2 00001 4 03166          TIX D4CPY,4,1                                                   F4426940
03170  0 70000 0 00125          CPY ERAS1M                 COPY CHECK SUM                       F4426950
03171 -0 53400 4 00276          LXD LD4,4                                                       F4426960
03172  0 50000 4 04530 D5CLA    CLA NDTRA,4                SHIFT EXTRA ENTRIES FROM THE  END    F4426970
03173  0 60100 4 06024          STO TRA..M,4                  TO THE BEGINNING OF BLOCK         F4426980
03174  2 00001 4 03172          TIX D5CLA,4,1                                                   F4426990
03175 -0 53400 4 00045          LXD LZTRA,4                SET INDEX                            F4427000
03176 -0 75400 0 00000          PXD 0,0                                                         F4427010
03177  0 56000 0 00031          LDQ LA1                                                         F4427020
03200  0 60100 4 06021 D5ST2    STO TRAM-3,4               INITIALIZE TRA TABLE                 F4427030
03201 -0 60000 4 06020          STQ TRA..M-4,4                                                  F4427040
03202  2 00002 4 03200          TIX D5ST2,4,2                                                   F4427050
03203  0 50000 0 03157          CLA TRWRS                  SET ADDRESS FOR NEXT BLOCK           F4427060
03204  0 40000 0 00031          ADD LA1                                                         F4427070
03205  0 62100 0 03157          STA TRWRS                                                       F4427080
03206 -0 53400 4 00122 TRLXD     LXD OUTBX,4                RESTORE INDEX REGISTERS              F4427090
03207  0 50000 0 00121          CLA ACBOX                  RESTORE CONTENTS OF AC               F4427100
03210  0 02000 4 00001          TRA 1,4                    RETURN TO MAIN ROUTINE               F4427110
                                                                                                F4427120
                                                                                                F4427130
                                SECTION 4 - PART 3 OF 6                                         F4430010
                                                                                                F4430020
                                FORTRAN EDITOR INFORMATION                                      F4430030
                                   MASTER RECORD CARD = F0670000                                F4430040
                                   ENTRY POINT = 111                                            F4430050
                                   FIRST LOCATION = 33                                          F4430060
                                   LAST LOCATION = 437                                          F4430070
                                                                                                F4430080
                                                                                                F4430090
                 00033          ORG 27                                                          F4430100
                                CONSTANTS AND VARIABLES                                         F4430110
00033  0 00000 0 00000 ZERO       0                                                            F4430120
00034  0 00001 0 00000 LD1N       0,0,1                                                        F4430130
00035  0 70007 0 00000 LD7N       0,0,-TRATBL+2                                                F4430140
00036 +200000000000     PBYCDN OCT 200000000000                                                F4430150
00037 -300000000000     PFXMKN OCT -300000000000                                               F4430160
00040 +377777777777     ENDMKN OCT 377777777777                                                F4430170
00041  0 00000 0 00310 LAZST      ZSET                                                         F4430180
00042  0 00000 0 00311 LZST1      ZSET+1                                                       F4430190
00043  0 00000 0 00374 LZFR1      ZFRET=+2                                                     F4430200
00044  0 00000 0 01274 LAZTR      ZTRA                                                         F4430210
00045  0 00310 0 00000 LZSETN     0,0,ZSET                                                     F4430220
00046  0 01274 0 00000 LZTRAN     0,0,ZTRA                                                     F4430230
00047  0 00000 0 01275 WSETY      SETADD                DRUM ADDRESS FOR SET TABLE             F4430240
00050  0 00000 0 01750 FRETY      FRTADD                DRUM ADDRESS FOR FRET                  F4430250
00051  0 00000 0 02260 BBLYN      BBLADD                DRUM ADDRESS FOR BB LIST               F4430260
00052  0 00000 0 03270 DOYN       DOADDR                DRUM ADDRESS FOR DO LIST               F4430270
00053  0 02000 0 00366 TRBCK   TRA CLAFN                                                       F4430280
00054  0 00000 0 00201 LFXST      FXSET                                                        F4430290
00055  0 00000 0 00000 ERAS1N                                                                  F4430300
00056  0 00000 0 00000 ERAS2N                                                                  F4430310
00057  0 00000 0 00000 ERAS3N                                                                  F4430320
```

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00060  0 00000 0 00000 ERAS4N                                                  F4430330
00061  0 00000 0 00000 ERAS5N                                                  F4430340
                                                                               F4430350
                          THIS ROUTINE READS THE SET TABLE FROM DRUM 3.         F4430360
00062  0 50000 0 00032 RDSET  CLA MINUS4      INITIALIZE ERROR BOX             F4430370
00063  0 60100 0 00030        STO ERRBX                                        F4430380
00064  0 76200 0 00303 16WRS  RDS SETDRM                                       F4430390
00065  0 46000 0 00047        LDA WSETY       LOCATE DRUM ADDRESS              F4430400
00066 -0 53400 3 07776        LXD SSBOX=,3    SET INDEX REGISTERS              F4430410
00067  0 70000 1 01063 16CPY  CPY SETTAB+1,1  COPY TABLE                       F4430420
00070  2 00001 1 00067        TIX 16CPY,1,1                                    F4430430
00071  0 70000 0 00055        CPY ERAS1N      COPY CHECK SUM                   F4430440
00072 -0 75400 0 00000        PXD 0,0         CLEAR AC                         F4430450
00073  0 36100 2 01063 16ACL  ACL SETTAB+1,2  COMPUTE CHECK SUM                F4430460
00074  2 00001 2 00073        TIX 16ACL,2,1                                    F4430470
00075  0 60200 0 00056        SLW ERAS2N      STORE CHECK SUM                  F4430480
00076  0 50000 0 00056        CLA ERAS2N      COMPARE CHECK SUMS               F4430490
00077  0 40200 0 00055        SUB ERAS1N                                       F4430500
00100  0 10000 0 00107        TZE READ4       IF NO ERROR-READ IN NEXT PROGRAM F4430510
                                                                               F4430520
00101  0 50000 0 00030 17ERR  CLA ERRBX       HAVE 5 TRIES AT READING BEEN MADE F4430530
00102 -0 12000 0 00104 SKIP9  TMI SKIP9+2        YES, GO TO DIAGNOSTIC ROUTINE F4430540
00103  0 07400 4 00004        TSX RDFORT,4       NO, TRY READING AGAIN         F4430550
00104  0 40000 0 00031        ADD LA1                                          F4430560
00105  0 60100 0 00030        STO ERRBX                                        F4430570
00106  0 02000 0 00064        TRA 16WRS       TRY AGAIN                        F4430580
00107  0 76200 0 00221 READ4  RDS SYSTAP                                       F4430590
00110  0 02000 0 00004        TRA RDFORT                                       F4430600
                                                                               F4430610
                          THIS ROUTINE WRITES THE BBLIST ON DRUM 3             F4430620
00111 -0 53400 3 07774 LXD    LXD BBOX.=,3    PUT BASIC BLOCK LIST ON DRUM     F4430630
00112 -0 75400 0 00000        PXD 0,0                                          F4430640
00113  0 76600 0 00303        WRS BBLDRM                                       F4430650
00114  0 36100 1 07773        ACL BBLIST,1    COMPUTE CHECK SUM                F4430660
00115  2 00001 1 00114 SELF30 TIX SELF30-1,1,1                                 F4430670
00116  0 36100 0 07773        ACL BBLIST                                       F4430680
00117  0 60200 0 00055        SLW ERAS1N      STORE CHECK SUM                  F4430690
00120  0 46000 0 00051        LDA BBLYN                                        F4430700
00121  0 70000 2 07773        CPY BBLIST,2    COPY LIST                        F4430710
00122  2 00001 2 00121 SELF31 TIX SELF31-1,2,1                                 F4430720
00123  0 70000 0 07773        CPY BBLIST      COPY LAST WORD IN LIST           F4430730
00124  0 70000 0 00055        CPY ERAS1N      COPY CHECK SUM                   F4430740
                                                                               F4430750
                          THIS ROUTINE WRITES DOLIST ON DRUM 1.                F4430760
00125 -0 53400 3 07775        LXD DOBOX=,3    COPY DO LIST ONTO DRUM           F4430770
00126 -0 75400 0 00000        PXD 0,0                                          F4430780
00127  0 76600 0 00301        WRS DODRUM      SELECT DRUM                      F4430790
00130  0 36100 1 06500 2ACL   ACL DOLIST,1    COMPUTE CHECK SUM                F4430800
00131  2 00001 1 00130        TIX 2ACL,1,1                                     F4430810
00132  0 60200 0 00055        SLW ERAS1N      STORE CHECK SUM                  F4430820
00133  0 46000 0 00052        LDA DOYN                                         F4430830
00134  0 70000 2 06500 2CPY   CPY DOLIST,2    COPY TABLE                       F4430840
00135  2 00001 2 00134        TIX 2CPY,2,1                                     F4430850
00136  0 70000 0 00055        CPY ERAS1N      COPY CHECK SUM                   F4430860
```

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                                    THIS READS THE TWO BLOCKS OF THE SET TABLE FROM THE DRUM      F4430870
00137   0 50000 0 00032 4PXD    CLA MINUS4                  INITIALIZE ERROR BOX                  F4430880
00140   0 60100 0 00030         STO ERRBX                                                         F4430890
00141   0 76200 0 00303 4WRS    RDS SETDRM                                                        F4430900
00142   0 46000 0 00047         LDA WSETY                                                         F4430910
00143  -0 53400 3 00045         LXD LZSETN,3                                                      F4430920
00144   0 70000 1 07774 4CPY    CPY SETLOC,1                COPY BLOCK                            F4430930
00145   2 00001 1 00144         TIX 4CPY,1,1                                                      F4430940
00146   0 70000 0 00055         CPY ERAS1N                  COPY CHECK SUM                        F4430950
00147  -0 75400 0 00000         PXD 0,0                     CLEAR AC                              F4430960
00150   0 36100 2 07774 4ACL    ACL SETLOC,2                COMPUTE CHECKSUM                      F4430970
00151   2 00001 2 00150         TIX 4ACL,2,1                                                      F4430980
00152   0 60200 0 00056         SLW ERAS2N                                                        F4430990
00153   0 50000 0 00056         CLA ERAS2N                                                        F4431000
00154   0 40200 0 00055         SUB ERAS1N                  COMPARE CHECK SUMS                    F4431010
00155   0 10000 0 00164 4TZE    TZE TESTST                                                        F4431020
00156   0 50000 0 00030 STERR   CLA ERRBX                                                         F4431030
00157  -0 12000 0 00161 SKIP10  TMI SKIP10+2                HAVE 5 TRIES AT READING BEEN MADE     F4431040
00160   0 07400 4 00004         TSX RDFORT,4                   YES, GO TO DIAGNOSTIC ROUTINE      F4431050
00161   0 40000 0 00031         ADD LA1                        NO, TRY READING AGAIN              F4431060
00162   0 60100 0 00030         STO ERRBX                                                         F4431070
00163   0 02000 0 00141         TRA 4WRS                    TRY AGAIN TO READ IN                  F4431080
00164   0 50000 0 07776 TESTST  CLA SSBOX=                  IS THERE ANOTHER BLOCK ON DRUM        F4431090
00165   0 40200 0 00045         SUB LZSETN                                                        F4431100
00166  -0 12000 0 00201         TMI FXSET                   NO OTHER-                             F4431110
00167   0 50000 0 00047 6SET    CLA WSETY                   ANOTHER BLOCK-SET DRUM ADDRESS        F4431120
00170   0 40000 0 00042         ADD LZST1                                                         F4431130
00171   0 60100 0 00047         STO WSETY                                                         F4431140
00172   0 50000 0 00144 5CLA    CLA 4CPY                    SET ADDRESSES FOR NEXT BLOCK          F4431150
00173   0 40200 0 00041         SUB LAZST                                                         F4431160
00174   0 62100 0 00144         STA 4CPY                                                          F4431170
00175   0 62100 0 00150         STA 4ACL                                                          F4431180
00176   0 50000 0 00054         CLA LFXST                                                         F4431190
00177   0 62100 0 00155         STA 4TZE                    STORE ADDRESS FOR NEXT ROUTINE        F4431200
00200   0 02000 0 00137         TRA 4PXD                    READ IN NEXT BLOCK                    F4431210
                                                                                                  F4431220
                                    THIS ROUTINE FIXES THE SETS FOR TRANSFERS TO DOS WITH IFS      F4431230
00201   0 53400 1 00033 FXSET   LXA ZERO,1                  SET INDEX FOR FIX DO LIST             F4431240
00202   0 50000 1 02414 CCLA    CLA FIXDOS,1                GET ENTRY FROM FIXDO LIST             F4431250
00203  -0 12000 0 00213         TMI WRTST                   ALL DONE IF MINUS                     F4431260
00204  -0 73400 4 00000         PDX 0,4                     SET FOR ADDRESS IN SET TABLE          F4431270
00205   0 50000 4 07774         CLA SETLOC,4                LOOK AT ENTRY IN SET TABLE            F4431280
00206  -0 73400 2 00000         PDX 0,2                     SET FOR ADDRESS IN BASIC BLOCK TAB.   F4431290
00207   0 50000 2 02413         CLA BBTABL,2                GET ADDRESS IN TRA TABLE              F4431300
00210   0 40000 0 00035         ADD LD7N                    SET FOR CORE ADDRESS OF COUNTER       F4431310
00211   0 62200 4 07774         STD SETLOC,4                PUT INTO SET TABLE                    F4431320
00212   1 77777 1 00202         TXI CCLA,1,-1               LOOK AT NEXT ENTRY IN FIXDO LIST      F4431330
                                                                                                  F4431340
                                    THIS ROUTINE WRITES THE FINISHED SET TABLE ON THE DRUM        F4431350
00213  -0 53400 3 07776 WRTST   LXD SSBOX=,3                SET INDEX REGISTERS                   F4431360
00214   0 76600 0 00303         WRS SETDRM                  SELECT DRUM                           F4431370
00215  -0 75400 0 00000         PXD 0,0                                                           F4431380
00216   0 36100 1 07774 7AACL   ACL SETLOC,1                COMPUTE CHECK SUM                     F4431390
00217   2 00001 1 00216         TIX 7AACL,1,1                                                     F4431400
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00220   0 60200 0 00055         SLW ERAS1N                  STORE CHECK SUM                          F4431410
00221   0 46000 0 00047         LDA WSETY                                                            F4431420
00222   0 70000 2 07774 7ACPY   CPY SETLOC,2                 COPY TABLE                               F4431430
00223   2 00001 2 00222         TIX 7ACPY,2,1                                                        F4431440
00224   0 70000 0 00055         CPY ERAS1N                  COPY CHECK SUM                           F4431450
                                                                                                     F4431460
                                    THIS ROUTINE READS THE TRA TABLE FROM THE DRUM                   F4431470
                                                                                                     F4431480
00225   0 50000 0 07777 RDTRA   CLA TTBOX=                                                           F4431490
00226   0 40200 0 00034         SUB LD1N                                                             F4431500
00227   0 60100 0 00057         STO ERAS3N                  INITIALIZE ERAS3N                        F4431510
00230   0 50000 0 00032 8PXD    CLA MINUS4                  INITIALIZE ERROR BOX                     F4431520
00231   0 02000 0 00265         TRA SKIP11+3                                                         F4431530
00232   0 76200 0 00301 8WRS    RDS TRADRM                                                           F4431540
00233  -0 53400 3 00046         LXD LZTRAN,3                SET INDICES                              F4431550
00234   0 70000 1 07774 8CPY    CPY TRATBL+1,1              COPY BLOCK OF TABLE                      F4431560
00235   2 00001 1 00234         TIX 8CPY,1,1                                                         F4431570
00236   0 70000 0 00055         CPY ERAS1N                  COPY CHECK SUM                           F4431580
00237   0 36100 2 07774 8ACL    ACL TRATBL+1,2                                                       F4431590
00240   2 00001 2 00237         TIX 8ACL,2,1                                                         F4431600
00241   0 60200 0 00056         SLW ERAS2N                                                           F4431610
00242   0 50000 0 00056         CLA ERAS2N                                                           F4431620
00243   0 40200 0 00055         SUB ERAS1N                  COMPARE CHECK SUMS                       F4431630
00244  -0 10000 0 00261         TNZ TRERR                   IF NOT ZERO, HAS BEEN AN ERROR           F4431640
00245   0 50000 0 00057         CLA ERAS3N                  PUT NO OF WORDS COPIED IN AC             F4431650
00246   0 40200 0 00046         SUB LZTRAN                  ADD BLOCK JUST COPIED                    F4431660
00247  -0 12000 0 00270         TMI CLRNS                   MINUS MEANS ALL DONE, CLEAR N LIST       F4431670
00250   0 60100 0 00057         STO ERAS3N                  STORE NUMBER OF WORDS LEFT TO COPY       F4431680
00251   0 50000 0 00232         CLA 8WRS                    NOT FINISHED--SET DRUM NUMBER FOR        F4431690
00252   0 40000 0 00031         ADD LA1                        NEXT BLOCK                            F4431700
00253   0 62100 0 00232         STA 8WRS                                                             F4431710
00254   0 50000 0 00234         CLA 8CPY                    SET ADDRESSES FOR NEXT BLOCK             F4431720
00255   0 40200 0 00044         SUB LAZTR                                                            F4431730
00256   0 62100 0 00234         STA 8CPY                                                             F4431740
00257   0 62100 0 00237         STA 8ACL                                                             F4431750
00260   0 02000 0 00230         TRA 8PXD                    COPY NEXT BLOCK                          F4431760
00261   0 50000 0 00030 TRERR   CLA ERRBX                                                            F4431770
00262  -0 12000 0 00264 SKIP11  TMI SKIP11+2                HAVE 5 TRIES AT READING BEEN MADE        F4431780
00263   0 07400 4 00004         TSX RDFORT,4                   YES, GO TO DIAGNOSTIC ROUTINE         F4431790
00264   0 40000 0 00031         ADD LA1                        NO, TRY READING AGAIN                 F4431800
00265   0 60100 0 00030         STO ERRBX                                                            F4431810
00266  -0 75400 0 00000         PXD 0,0                     CLEAR AC                                 F4431820
00267   0 02000 0 00232         TRA 8WRS                    TRY AGAIN                                F4431830
                                                                                                     F4431840
                                    THIS CLEARS THE LOCATION IN THE N-LIST                           F4431850
00270   0 56000 0 00033 CLRNS   LDQ ZERO                                                             F4431860
00271   0 53400 4 00031         LXA LA1,4                                                            F4431870
00272   0 50000 4 01114 CLANS   CLA NLIST,4                                                          F4431880
00273   0 10000 0 00300         TZE 11PXD                   END OF LIST-DO NEXT ROUTINE              F4431890
00274  -0 60000 4 01114         STQ NLIST,4                 STORE ZERO IN N-LIST                     F4431900
00275   1 00001 4 00272         TXI CLANS,4,1               SET FOR NEXT WORD IN LIST                F4431910
                                                                                                     F4431920
                                    THIS ROUTINE READS FRET FROM DRUM 2                              F4431930
00276  -0 63400 2 00060 RDFRT   SXD ERAS4N,2                SAVE INDEX REGISTERS                     F4431940
00277  -0 63400 1 00061         SXD ERAS5N,1
```

```
00300   0 50000 0 00032 11PXD   CLA MINUS4                  INITIALIZE ERROR BOX                          F4431950
00301   0 02000 0 00343         TRA SKIP12+3                                                              F4431960
00302   0 76200 0 00302 11WRS   RDS FRTDRM                  SELECT DRUM                                   F4431970
00303   0 46000 0 00050         LDA FRETY                   LOCATE DRUM ADDRESS                           F4431980
00304   0 70000 0 00056         CPY ERAS2N                  COPY NO. OF WORDS IN BLOCK                    F4431990
00305  -0 53400 7 00056         LXD ERAS2N,7                SET INDEX REGISTERS                           F4432000
00306   0 70000 1 01062 11CPY   CPY FRET,1                  COPY BLOCK                                    F4432010
00307   2 00001 1 00306         TIX 11CPY,1,1                                                             F4432020
00310   0 70000 0 00055         CPY ERAS1N                  COPY CHECK SUM                                F4432030
00311   0 70000 0 00057         CPY ERAS3N                  COPY FIRST WORD OF NEXT BLOCK                 F4432040
00312   0 36100 2 01062 11ACL   ACL FRET,2                  COMPUTE CHECKSUM                              F4432050
00313   2 00001 2 00312         TIX 11ACL,2,1                                                             F4432060
00314   0 36100 0 00056         ACL ERAS2N                                                                F4432070
00315   0 60200 0 00056         SLW ERAS2N                                                                F4432080
00316   3 00000 4 00322         TXH 11CLA,4,0               TEST FOR FRET EMPTY                           F4432090
00317   0 50000 0 00402         CLA NOQFD                   IF EMPTY--PREVENT LOOKING AT IT               F4432100
00320   0 62100 0 00357         STA 13TXIN-1                                                              F4432110
00321   0 02000 0 00346         TRA FXTRA                   GO TO MAKE UP PROBABILITIES                   F4432120
00322   0 50000 0 00056 11CLA   CLA ERAS2N                  COMPARE CHECKSUMS                             F4432130
00323   0 40200 0 00055         SUB ERAS1N                                                                F4432140
00324  -0 10000 0 00337         TNZ FQERR                   IF NOT ZERO--HAS BEEN AN ERROR                F4432150
00325   0 50000 0 00050 12CLA   CLA FRETY                   SET DRUM ADDRESS FOR NEXT BLOCK               F4432160
00326   0 40000 0 00043         ADD LZFR1                                                                 F4432170
00327   0 60100 0 00050         STO FRETY                                                                 F4432180
00330   0 50000 0 00057         CLA ERAS3N                  TEST FOR END OF FRET                          F4432190
00331  -0 10000 0 00334         TNZ 12TRA-2                                                               F4432200
00332   0 50000 0 00341         CLA SKIP12+1                STORE A TSX TO PREVENT READING                F4432210
00333   0 60100 0 00301         STO 11PXD+1                    IN MORE-THIS IS END OF TABLE               F4432220
00334  -0 53400 1 00061         LXD ERAS5N,1                RESTORE INDEX REGISTERS                       F4432230
00335  -0 53400 2 00060         LXD ERAS4N,2                                                              F4432240
00336   0 02000 0 00346 12TRA   TRA FXTRA                   GO TO NEXT PART OF PROGRAM                    F4432250
00337   0 50000 0 00030 FQERR   CLA ERRBX                                                                 F4432260
00340  -0 12000 0 00342 SKIP12  TMI SKIP12+2               HAVE 5 TRIES AT READING BEEN MADE             F4432270
00341   0 07400 4 00004         TSX RDFORT,4                   YES, GO TO DIAGNOSTIC ROUTINE              F4432280
00342   0 40000 0 00031         ADD LA1                        NO, TRY READING AGAIN                      F4432290
00343   0 60100 0 00030         STO ERRBX                                                                 F4432300
00344  -0 75400 0 00000         PXD 0,0                                                                   F4432310
00345   0 02000 0 00302         TRA 11WRS                   TRY AGAIN                                     F4432320
                                                                                                          F4432330
                                THIS ROUTINE PUTS THE CUMULATIVE PROBABILITIES INTO THE TRA               F4432340
                                TABLE FROM THE FREQUENCY TABLE                                            F4432350
00346  -0 53400 2 00033 FXTRA   LXD ZERO,2                  SET INDEX REGISTERS                           F4432360
00347   0 50000 0 07774         CLA BBOX,=                  ADD LENGTH OF TABLE                           F4432370
00350   0 40200 0 00034         SUB LD1N                                                                  F4432380
00351   0 62200 0 00352         STD 13TXH                   STORE FOR COMPARISON                          F4432390
D 00352 3 00000 2 00062 13TXH   TXH RDSET,2                 HAS END OF TABLE BEEN REACHED                 F4432400
00353  -0 50000 2 02413         CAL BBTABL,2                LOOK AT ENTRY IN BB TABLE                     F4432410
00354  -0 73400 1 00000         PDX 0,1                     GET ADDRESS IN TRA TABLE                      F4432420
00355  -0 32000 0 00037         ANA PFXMKN                  LOOK AT CODE FOR ENDING                       F4432430
00356   0 40200 0 00036         SUB PBYCDN                  IS IT A PROBABILITY CASE                      F4432440
00357   0 10000 0 00361         TZE CLAT                    YES, GET PROBABILITIES                        F4432450
00360   1 00001 2 00352 13TXIN  TXI 13TXH,2,1               NO, GO TO NEXT BASIC BLOCK                    F4432460
00361   0 50000 4 01062 CLAT    CLA FRET,4                  IS FORMULA NO. IN TRA TABLE THE               F4432470
00362   0 76700 0 00022         ALS 18                         SAME AS IN FRET(FRET HAS - SIGN)           F4432480
```

```
00363   0 40000 1 07773          ADD  TRATBL,1
00364  -0 10000 0 00402          TNZ  NOQFD
00365  -2 00001 4 00372 14TIX    TNX  14LXD,4,1
00366   0 50000 4 01062 CLAFN    CLA  FRET,4
00367  -0 12000 0 00360          TMI  13TXIN
00370   0 60100 1 07773          STO  TRATBL,1
00371   1 00002 1 00365          TXI  14TIX,1,2
00372   0 50000 0 00057 14LXD    CLA  ERAS3N
00373  -0 10000 0 00377          TNZ  14CLA
00374   0 50000 0 00402          CLA  NOQFD
00375   0 62100 0 00357          STA  13TXIN-1
00376   1 00001 2 00352          TXI  13TXH,2,1
00377   0 50000 0 00053 14CLA    CLA  TRBCK
00400   0 62100 0 00336          STA  12TRA
00401   0 02000 0 00276          TRA  RDFRT
00402  -0 12000 0 00416 NOQFD    TMI  NTENT

00403   2 00001 4 00404          TIX  CLAQ,4,1
00404   0 50000 4 01062 CLAQ     CLA  FRET,4
00405  -0 12000 0 00362          TMI  CLAT+1
00406   2 00001 4 00404          TIX  CLAQ,4,1
00407   0 50000 0 00057          CLA  ERAS3N
00410   0 10000 0 00414          TZE  NDTBL
00411   0 50000 0 00403          CLA  CLAQ-1
00412   0 62100 0 00336          STA  12TRA
00413   0 02000 0 00276          TRA  RDFRT
00414   0 50000 0 00402 NDTBL    CLA  NOQFD
00415   0 62100 0 00357          STA  13TXIN-1
00416   0 50000 1 07771 NTENT    CLA  TRATBL-2,1
00417  -0 63400 4 00055          SXD  ERAS1N,4
00420  -0 73400 4 00000          PDX  0,4
00421   0 50000 0 00034          CLA  LD1N
00422   0 56000 0 00033          LDQ  ZERO
00423   0 22100 1 07771          DVP  TRATBL-2,1
00424   0 76000 0 00012          DCT
00425   0 07400 4 00004          TSX  RDFORT,4
00426  -0 60000 0 00056          STQ  ERAS2N
00427  -0 75400 0 00000          PXD  0,0
00430   0 40000 0 00056 15ADD    ADD  ERAS2N
00431   0 60100 1 07773          STO  TRATBL,1
00432  -2 00001 4 00434          TNX  15LXD,4,1
00433   1 00002 1 00430          TXI  15ADD,1,2
00434  -0 53400 4 00055 15LXD    LXD  ERAS1N,4
00435   0 50000 0 00040          CLA  ENDMKN
00436   0 60100 1 07773          STO  TRATBL,1
00437   1 00001 2 00352          TXI  13TXH,2,1
```

```
                                                                F4432490
NO, NO FREQUENCY FOUND                                          F4432500
SET FOR NEXT WORD                                               F4432510
GET PROBABILITY FROM FRET                                       F4432520
MINUS INDICATES NEXT ENTRY IN FRET                              F4432530
PUT PROBABILITY IN TRA TABLE                                    F4432540
SET FOR NEXT ENTRY IN TRA                                       F4432550
TEST FOR END OF LAST BLOCK                                      F4432560
                                                                F4432570
END OF TABLE-PREVENT FURTHER                                    F4432580
   LOOKING AT FRET                                              F4432590
ALSO END OF ENTRY-LOOK AT NEXT BB.                              F4432600
END OF BLOCK OF FRET--READ IN NEXT                              F4432610
   BLOCK, SETTING ADDRESS FOR                                   F4432620
   RETURN                                                       F4432630
FORM. NO. IN FRET IS LARGER, NOT                                F4432640
   IN FRET                                                      F4432650
FORM. NO. SMALLER, TRY NEXT ENTRY                               F4432660
LOOK AT NEXT WORD IN FRET                                       F4432670
- MEANS NEW ENTRY, COMPARE TO TRA                               F4432680
KEEP LOOKING FOR BEG. OF NEXT ENTRY                             F4432690
END OF BLOCK REACHED                                            F4432700
TEST FOR END OF TABLE                                           F4432710
END OF BLOCK ONLY-STORE RETURN                                  F4432720
   ADDRESS AND GO TO READ                                       F4432730
   IN NEXT BLOCK                                                F4432740
END OF TABLE-PREVENT FURTHER                                    F4432750
   LOOKING AT FRET.                                             F4432760
NO ENTRY IN FRET--MAKE UP FREQS                                 F4432770
SAVE FRET ADDRESS                                               F4432780
PUT NO. OF BRANCHES IN INDEX                                    F4432790
PUT TOTAL PROBABILITY IN AC                                     F4432800
CLEAR MQ                                                        F4432810
DIVIDE BY NO. OF BRANCHES                                       F4432820
                                                                F4432830
BAD DIVIDE                                                      F4432840
STORE PROBABILITY IN AC                                         F4432850
CLEAR AC                                                        F4432860
ADD PROB. OF BRANCH FOR CUMULATING                              F4432870
   PROBABILITY AND STORE                                        F4432880
IS THIS BASIC BLOCK DONE                                        F4432890
NO, DO NEXT BRANCH                                              F4432900
RESTORE INDEX                                                   F4432910
                                                                F4432920
STORE PROBABILITY IN LAST BRANCH                                F4432930
DO NEXT BASIC BLOCK.                                            F4432940
                                                                F4432950
                                                                F4432960
SECTION 4 - PART 4 OF 6                                         F4440010
                                                                F4440020
FORTRAN EDITOR INFORMATION                                      F4440030
   MASTER RECORD CARD = F0690000                                F4440040
   ENTRY POINT = 42                                             F4440050
   FIRST LOCATION = 33                                          F4440060
```

```
                                   LAST LOCATION = 161                                                    F4440070
                                                                                                          F4440080
                                                                                                          F4440090
                    00033          ORG 27                                                                 F4440100
                                   CONSTANTS AND VARIABLES                                                F4440110
00033  0 00001 0 00000 LD1P        0,0,1                                                                  F4440120
00034  0 77777 0 00000 DECMKP      0,0,-1                                                                 F4440130
00035  0 77777 0 77777 ADMK        -1,0,-1                                                                F4440140
00036 +100000000000    BT2MK   OCT 100000000000                                                           F4440150
00037  0 00000 0 07640 VISITS  HTR 4000            COUNTER FOR NUMBER OF VISITS                          F4440160
00040 +321702174347    RAND1   OCT 321702174347                                                          F4440170
00041 +000000000001    RAND2   OCT 1                                                                      F4440180
                                                                                                          F4440190
                                   THIS ROUTINE SIMULATES THE FLOW OF THE COMPILED PROGRAM,               F4440200
                                   KEEPING TRACK OF THE NUMBER OF TIMES EACH BRANCH IS TAKEN AT           F4440210
                                   EACH BRANCH POINT                                                      F4440220
00042 -0 53400 1 00031 SIMUL    LXD LA1,1           PUT ZERO IN I R A                                     F4440230
00043 -0 50000 0 07777          CAL TTBOX=                                                                F4440240
00044  0 77100 0 00014          ARS 12              NUMBER OF STEPS IS NUMBER OF 2-WORDF4440250
00045  0 60100 0 00037          STO VISITS             ENTRIES IN TRATBL TIMES 128                        F4440260
00046  0 50000 0 00037 INTOBB   CLA VISITS          COUNT NO. OF BASIC BLOCKS VISITED                     F4440270
00047  0 40200 0 00031          SUB LA1                                                                   F4440280
00050 -0 12000 0 00160          TMI READ5           HAVE FINISHED SIMULATION                              F4440290
00051  0 60100 0 00037          STO VISITS                                                                F4440300
00052  0 50000 1 02413          CLA BBTABL,1        GET ADDRESS OF SETS FOR THIS BB                       F4440310
00053  0 76700 0 00022          ALS 18                                                                    F4440320
00054  0 62200 0 00060          STD 1TXL                                                                  F4440330
00055  0 50000 1 02412          CLA BBTABL-1,1      GET FIRST ADDRESS OF SETS FOR BB                      F4440340
00056  0 73400 2 00000          PAX 0,2                                                                   F4440350
00057  0 50000 2 01063 1CLA     CLA SETTAB+1,2      LOOK AT ENTRY IN SET TABLE                            F4440360
D 00060 -3 00000 2 00065 1TXL   TXL ON,2            NO MORE SETS                                          F4440370
00061 -0 73400 4 00000          PDX 0,4             PUT ADDRESS INTO INDEX                                F4440380
00062  0 76700 0 00022          ALS 18                                                                    F4440390
00063  0 62200 4 00000          STD 0,4             DO THE SET                                            F4440400
00064  1 77777 2 00057          TXI 1CLA,2,-1       DO NEXT SET                                           F4440410
00065 -0 50000 1 02413 ON       CAL BBTABL,1                                                              F4440420
00066 -0 73400 2 00000          PDX 0,2             PUT TRATBL ADDRESS IN INDEX                           F4440430
00067  0 40200 0 00036          SUB BT2MK                                                                 F4440440
00070 -0 12000 0 00132          TMI DOWIF           CODE IS 000, DO WITH IF                               F4440450
00071  0 40200 0 00036          SUB BT2MK                                                                 F4440460
00072 -0 12000 0 00122          TMI MSECSE          CODE IS 001--MSE CASE                                 F4440470
00073  0 40200 0 00036          SUB BT2MK                                                                 F4440480
00074 -0 12000 0 00141          TMI PRBYCS          CODE IS 010--PROBABILITY                              F4440490
00075  0 40200 0 00036          SUB BT2MK                                                                 F4440500
00076 -0 12000 0 00147          TMI ENTERP          CODE IS 011--CERTAINTY                                F4440510
00077  0 40200 0 00036          SUB BT2MK                                                                 F4440520
00100 -0 12000 0 00140          TMI TROUT           CODE IS 100-- DO NO IF                                F4440530
00101  0 40200 0 00036          SUB BT2MK                                                                 F4440540
00102 -0 12000 0 00105          TMI GOTONP          CODE IS 101-GO TO N CASE                              F4440550
00103 -0 53400 1 00031 STOPCS   LXD LA1,1           -10 IS A STOP-GO TO BB ZERO                           F4440560
00104  0 02000 0 00046          TRA INTOBB                                                                F4440570
00105  0 50000 2 07773 GOTONP   CLA TRATBL,2        THIS IS A GO TO N--GET ADDRESS OF                     F4440580
00106 -0 73400 4 00000          PDX 0,4                N-CELL AND PUT IN INDEX                            F4440590
00107  0 50000 1 02412          CLA BBTABL-1,1      SAVE END OF ENTRY IN TRA TABLE                        F4440600
```

```
00110   0 62200 0 00116          STD TXLN
00111   0 50000 2 07772 CLANT    CLA TRATBL-1,2
00112  -0 32000 0 00034          ANA DECMKP
00113   0 40200 4 01114          SUB NLIST,4
00114   0 10000 0 00147          TZE ENTERP
00115   1 00002 2 00116          TXI TXLN,2,2
D 00116  -3 00000 2 00111 TXLN   TXL CLANT,2
00117  -0 50000 1 02413          CAL BBTABL,1
00120  -0 73400 2 00000          PDX 0,2
00121   0 02000 0 00147          TRA ENTERP
00122   0 50000 2 07773 MSECSE   CLA TRATBL,2
00123  -0 73400 4 00000          PDX 0,4
00124   0 50000 4 01260          CLA SNSLT,4
00125   0 10000 0 00131          TZE MSETXI
00126  -0 75400 0 00000          PXD 0,0
00127   0 60100 4 01260          STO SNSLT,4
00130   0 02000 0 00147          TRA ENTERP
00131   1 00002 2 00147 MSETXI   TXI ENTERP,2,2
00132   0 50000 2 07771 DOWIF    CLA TRATBL-2,2
00133  -0 40000 0 00033          ADD LD1P
00134   0 56000 2 07773          LDQ TRATBL,2
00135   0 04000 0 00140          TLQ TROUT
00136   0 62200 2 07771          STD TRATBL-2,2
00137   0 02000 0 00147          TRA ENTERP
00140   1 00002 2 00147 TROUT    TXI ENTERP,2,2
00141   0 56000 0 00040 PRBYCS   LDQ RAND1
00142   0 20000 0 00041          MPY RAND2
00143  -0 60000 0 00041          STQ RAND2
00144   0 50000 2 07773 COMP     CLA TRATBL,2
00145   0 04000 0 00147          TLQ ENTERP
00146   1 00002 2 00144          TXI COMP,2,2
00147   0 50000 2 07772 ENTERP   CLA TRATBL-1,2
00150  -0 73400 1 00000          PDX 0,1
00151   0 40000 0 00031          ADD LA1
00152   0 62100 2 07772          STA TRATBL-1,2
00153   0 40200 2 07772          SUB TRATBL-1,2
00154   0 10000 0 00046          TZE INTOBB
00155   0 50000 0 00035 OVRFLO   CLA ADMK
00156   0 62100 2 07772          STA TRATBL-1,2
00157   0 02000 0 00046          TRA INTOBB
00160   0 76200 0 00221 READ5    RDS SYSTAP
00161   0 02000 0 00004          TRA RDFORT
```

```
                                                        F4440610
LOOK AT ENTRY IN TRAT                                   F4440620
AND OUT ALL BUT VALUE FOR N IN TRAT                     F4440630
IS THIS ENTRY FOR CURRENT VALUE                         F4440640
YES, ENTER                                              F4440650
NO, LOOK AT NEXT ENTRY IN TRAT                          F4440660
TEST FOR N NOT SET                                      F4440670
                                                        F4440680
                                                        F4440690
ENTER TRA TO FIRST BRANCH GIVEN                         F4440700
THIS IS A MSE--GET ADDRESS OF SENSE                     F4440710
   LIGHT CELL AND PUT IN INDEX                          F4440720
IS LIGHT ON OR OFF                                      F4440730
OFF--TAKE SECOND BRANCH                                 F4440740
ON--TURN OFF, TAKE FIRST BRANCH                         F4440750
                                                        F4440760
ENTER TRANSFER                                          F4440770
ENTER TRANSFER                                          F4440780
THIS IS A DO WITH AN IF                                 F4440790
ADD ONE TO LOOP COUNT                                   F4440800
COMPARE TO NO. OF TIMES IN LOOP                         F4440810
TRANSFER OUT--LOOP DONE                                 F4440820
LOOP NOT DONE-STORE NEW COUNT                           F4440830
TAKE TRANSFER BACK                                      F4440840
TAKE TRANSFER OUT                                       F4440850
THIS IS A PROBABILITY CASE                              F4440860
GENERATE A RANDOM NUMBER BY                             F4440870
   MULTIPLIC. AND SAVE THE RESULT                       F4440880
COMPARE TO CUMULATIVE PROB IN TRA                       F4440890
FOUND, TAKE TRANSFER                                    F4440900
NOT FOUND--LOOK AT NEXT BRANCH                          F4440910
THIS IS THE BRANCH TO BE TAKEN                          F4440920
PUT NO. OF NEXT BASIC BLOCK IN IR A                     F4440930
ADD 1 TO COUNTER FOR THIS TRANSFER                      F4440940
STORE COUNT                                             F4440950
TEST FOR OVERFLOW                                       F4440960
NO OVERFLOW, DO NEXT BB                                 F4440970
                                                        F4440980
STORE MAXIMUM COUNT                                     F4440990
                                                        F4441000
                                                        F4441010
                                                        F4441020
                                                        F4441030
                                                        F4441040
                                                        F4450010
                                                        F4450020
                                                        F4450030
                                                        F4450040
                                                        F4450050
                                                        F4450060
                                                        F4450070
                                                        F4450080
                                                        F4450090
                                                        F4450100
```

SECTION 4 - PART 5 OF 6

FORTRAN EDITOR INFORMATION
   MASTER RECORD CARD = F0710000
   ENTRY POINT = 42
   FIRST LOCATION = 33
   LAST LOCATION = 205

```
00033          ORG 27
```

```
                                        CONSTANTS AND VARIABLES                                                  F4450110
                                                                                                                 F4450120
00033 +000000700000     TGMSK   OCT 700000                                                                       F4450130
00034 +000000777777     RTMSK   OCT 777777                                                                       F4450140
00035 -300000000000     CODMK   OCT -300000000000                                                                F4450150
00036   0 00000 0 03270 DOYY        DOADDR                                                                       F4450160
00037   0 00000 0 00000 MPYR1                                                                                    F4450170
00040   0 00000 0 00000 MPYR2                                                                                    F4450180
00041   0 00000 0 00000 BBBOX                                                                                    F4450190
                                                                                                                 F4450200
                                        THIS ROUTINE PUTS THE DO LIST INTO STORAGE FROM THE DRUM                  F4450210
00042   0 50000 0 00032 RDDOS   CLA MINUS4          INITIALIZE ERROR BOX                                         F4450220
00043   0 60100 0 00030         STO ERRBX                                                                        F4450230
00044   0 76200 0 00301 RDSDOL  RDS DODRUM                                                                       F4450240
00045  -0 53400 3 07775         LXD DOBOX=,3                                                                     F4450250
00046   0 46000 0 00036         LDA DOYY                                                                         F4450260
00047  -3 00000 1 00204         TXL READ6,1,0       IF NO DOS-GO TO TAG PASS                                     F4450270
00050   0 70000 1 01120         CPY DOBLOK,1                                                                     F4450280
00051   2 00001 1 00050 SELF32  TIX SELF32-1,1,1                                                                 F4450290
00052   0 70000 0 00040         CPY MPYR2                                                                        F4450300
T 00053  -0 75400 0 00000       PXD                                                                              F4450310
00054   0 36100 2 01120         ACL DOBLOK,2                                                                     F4450320
00055   2 00001 2 00054 SELF33  TIX SELF33-1,2,1                                                                 F4450330
00056   0 60200 0 00037         SLW MPYR1                                                                        F4450340
00057   0 50000 0 00037         CLA MPYR1                                                                        F4450350
00060   0 40200 0 00040         SUB MPYR2                                                                        F4450360
00061   0 10000 0 00070         TZE FXDOS                                                                        F4450370
00062   0 50000 0 00030         CLA ERRBX                                                                        F4450380
00063  -0 12000 0 00065 SKIP13  TMI SKIP13+2        HAVE 5 TRIES AT READING BEEN MADE                            F4450390
00064   0 07400 4 00004         TSX RDFORT,4           YES, GO TO DIAGNOSTIC ROUTINE                              F4450400
00065   0 40000 0 00031         ADD LA1                NO, TRY READING AGAIN                                      F4450410
00066   0 60100 0 00030         STO ERRBX                                                                        F4450420
00067   0 02000 0 00044         TRA RDSDOL                                                                       F4450430
                                                                                                                 F4450440
                                        THIS ROUTINE FIXES THE COUNTERS FOR BASIC BLOCKS IN DOS                   F4450450
                                        WITHOUT IFS                                                              F4450460
T 00070  -0 75400 0 00000 FXDOS  PXD                                                                            F4450470
00071   0 60100 2 00443 ZSTO    STO LCNTR,2                                                                      F4450480
00072   3 00226 2 00074         TXH ZLXD,2,150      CLEAR L-COUNTERS TO INITIALIZE                               F4450490
00073   1 00001 2 00071         TXI ZSTO,2,1                                                                     F4450500
00074  -0 53400 4 00031 ZLXD    LXD LA1,4           SET INDEX REGISTER--0 IN IR C                                F4450510
00075   0 53400 2 00031         LXA LA1,2           ONE IN B                                                     F4450520
00076   0 50000 0 07775         CLA DOBOX=          PUT LENGTH OF TNX TABLE IN 9TSTND                            F4450530
00077   0 62200 0 00203         STD 9TSTND                                                                       F4450540
00100   0 50000 2 01117 LOOKDO  CLA DOBLOK-1,2      LOOK AT ENTRY IN DO LIST                                     F4450550
00101  -0 32000 0 00033         ANA TGMSK           DOES THIS DO HAVE AN IF                                      F4450560
00102   1 00002 2 00103 4TXI    TXI 4TXI+1,2,2      SET FOR NEXT ENTRY IN DO LIST                                F4450570
00103  -0 10000 0 00203         TNZ 9TSTND          DO HAS IF-LOOK AT NEXT                                       F4450580
00104   0 50000 0 00031         CLA LA1             NO IF-START FIXING COUNTERS                                  F4450590
00105   0 60100 4 00443         STO LCNTR,4         PUT ONE IN COUNTER ZERO                                      F4450600
00106   1 00001 4 00107         TXI 4CLA,4,1                                                                     F4450610
00107   0 50000 2 01121 4CLA    CLA DOBLOK+1,2                                                                   F4450620
00110   0 62200 0 00041         STD BBBOX           STORE NO. OF THIS BB.                                        F4450630
00111   0 50000 2 01122         CLA DOBLOK+2,2                                                                   F4450640
00112   0 62100 4 00443         STA LCNTR,4         STORE NO. TIMES IN LOOP IN COUNTERS
```

```
00113   0 50000 2 01117 NTHRDO CLA DOBLOK-1,2
00114   0 40200 2 01121         SUB DOBLOK+1,2
00115  -0 10000 0 00126         TNZ ENDBBQ
00116   1 00001 4 00117 BEGDO   TXI CLANO-1,4,1
00117   1 00002 2 00120         TXI CLANO,2,2
00120   0 50000 2 01122 CLANO   CLA DOBLOK+2,2
00121   0 62100 4 00443         STA LCNTR,4
00122   0 56000 4 00443         LDQ LCNTR,4
00123   0 20000 4 00444         MPY LCNTR+1,4
00124  -0 60000 4 00443         STQ LCNTR,4
00125   0 02000 0 00113         TRA NTHRDO
00126  -0 53400 1 00041 ENDBBQ  LXD BBBOX,1
00127   0 50000 1 02413         CLA BBTABL,1
00130  -0 73400 1 00000         PDX 0,1
00131  -0 32000 0 00035         ANA CODMK
00132   0 10000 0 00155         TZE ENDDO
00133   0 50000 1 07772         CLA TRATBL-1,1
00134  -0 32000 0 00034         ANA RTMSK
00135   0 60100 0 00037         STO MPYR1
00136   0 56000 0 00037         LDQ MPYR1
00137   0 20000 4 00443         MPY LCNTR,4
00140  -0 60000 0 00037         STQ MPYR1
00141   0 50000 0 00037         CLA MPYR1
00142   0 34000 0 00034         CAS RTMSK
00143   0 50000 0 00034         CLA RTMSK
00144   0 76100 0 00000         NOP
00145   0 62100 1 07772         STA TRATBL-1,1
00146  -0 53400 1 00041 6LXD    LXD BBBOX,1
00147   1 00001 1 00150         TXI NXTBB,1,1
00150  -0 75400 1 00000 NXTBB   PXD 0,1
00151   0 62200 0 00041         STD BBBOX
00152   0 40200 2 01117         SUB DOBLOK-1,2
00153   0 10000 0 00116         TZE BEGDO
00154   0 02000 0 00126         TRA ENDBBQ
00155   0 50000 1 07770 ENDDO   CLA TRATBL-3,1
00156  -0 32000 0 00034         ANA RTMSK
00157   0 60100 0 00037         STO MPYR1
00160   0 56000 0 00037         LDQ MPYR1
00161   0 20000 4 00443         MPY LCNTR,4
00162  -0 60000 0 00040         STQ MPYR2
00163   0 56000 0 00037         LDQ MPYR1
00164   0 20000 4 00444         MPY LCNTR+1,4
00165  -0 60000 0 00037         STQ MPYR1
00166   0 50000 0 00037         CLA MPYR1
00167   0 34000 0 00034         CAS RTMSK
00170   0 50000 0 00034         CLA RTMSK
00171   0 76100 0 00000         NOP
00172   0 62100 1 07770         STA TRATBL-3,1
00173   0 50200 0 00037         CLS MPYR1
00174   0 40000 0 00040         ADD MPYR2
00175   0 34000 0 00034         CAS RTMSK
00176   0 50000 0 00034         CLA RTMSK
00177   0 76100 0 00000         NOP
00200   0 62100 1 07772         STA TRATBL-1,1
```

```
IS THERE ANOTHER TXL TO THIS ADDR.          F4450650
                                            F4450660
NO, LOOK AT END OF THIS B.B.                F4450670
YES, INCREASE L BOX BY 1                    F4450680
SET FOR NEXT ENTRY IN TNX LIST              F4450690
GET NO. OF TIMES IN THIS DO                 F4450700
                                            F4450710
MULTIPLY NO OF TIMES IN THIS DO             F4450720
   BY NO. OF TIMES IN OUTER DOS             F4450730
STORE IN COUNTER FOR THIS DO                F4450740
SEE IF THERE IS ANOTHER TNX TO THIS         F4450750
THIS IS END OF BB IN DO WITHOUT IF          F4450760
LOOK AT ENTRY ON BB TABLE                   F4450770
GET ADDRESS IN TRA TABLE                    F4450780
LOOK AT ENDING CODE                         F4450790
ZERO INDICATES DO ENDING                    F4450800
A CERTAINTY CASE--LOOK AT TRATBL            F4450810
GET COUNTER FROM TRA TABLE                  F4450820
                                            F4450830
MULTIPLY COUNTER BY NUMBER OF TIMES         F4450840
   THIS LOOP IS DONE                        F4450850
                                            F4450860
                                            F4450870
TEST FOR COUNTER OVERFLOW                   F4450880
COUNTER HAS OVERFLOWED                      F4450890
NO OVERFLOW                                 F4450900
PUT ALL ONES IN COUNTER                     F4450910
                                            F4450920
SET FOR NEXT BB--DOES IT BEGIN A DO         F4450930
LOOK AT NEXT BB                             F4450940
DOES THIS BB START A DO                     F4450950
COMPARE TO DO LIST                          F4450960
                                            F4450970
                                            F4450980
THIS IS THE END OF A DO WITHOUT IF          F4450990
                                            F4451000
                                            F4451010
MULTIPLY COUNTER BY TOTAL NO OF             F4451020
   TIMES IN LOOP                            F4451030
STORE NO IN MPYR2                           F4451040
MULTIPLY COUNTER BY NO TIME DO IS           F4451050
   STARTED TO GET COUNTER OUT               F4451060
                                            F4451070
                                            F4451080
TEST FOR COUNTER OVERFLOW                   F4451090
COUNTER HAS OVERFLOWED-USE MAX. NO.         F4451100
NO OVERFLOW                                 F4451110
STORE NO TIMES OUT IN COUNTER OUT           F4451120
                                            F4451130
                                            F4451140
TEST FOR COUNTER OVERFLOW                   F4451150
COUNTER HAS OVERFLOWED-USE MAX. NO.         F4451160
NO OVERFLOW                                 F4451170
STORE NO TIMES BACK IN COUNT. BACK          F4451180
```

```
00201   1 77777 4 00202          TXI 9TXL,4,-1                DECREASE LEVEL COUNTER FOR DO DONE F4451190
00202   3 00000 4 00146 9TXL     TXH 6LXD,4,0                 IS THIS THE END OF OUTER DO        F4451200
D   00203  -3 00000 2 00100 9TSTND TXL LOOKDO,2               YES, IS IT END OF PROBLEM          F4451210
00204   0 76200 0 00221 READ6    RDS SYSTAP                                                      F4451220
00205   0 02000 0 00004          TRA RDFORT                   YES, GO TO NEXT ROUTINE            F4451230
                                                                                                 F4451240
                                                                                                 F4451250
                                 SECTION 4 - PART 6 OF 6                                         F4460010
                                                                                                 F4460020
                                 FORTRAN EDITOR INFORMATION                                      F4460030
                                    MASTER RECORD CARD = F0730000                                F4460040
                                    ENTRY POINT = 100                                            F4460050
                                    FIRST LOCATION = 33                                          F4460060
                                    LAST LOCATION = 1021                                         F4460070
                                                                                                 F4460080
                                                                                                 F4460090
                    00033        ORG 27                                                          F4460100
                                 CONSTANTS AND VARIABLES                                         F4460110
                                                                                                 F4460120
00033   0 00000 0 00000 L0R                                                                      F4460130
00034   0 00000 0 77777 LC1          -1                                                          F4460140
00035   0 00000 0 00005 L5           5                                                           F4460150
00036   0 00000 0 00006 L6R          6                                                           F4460160
00037   0 00000 0 00010 L8           8                                                           F4460170
00040   0 00000 0 03773 L2043        2043                                                        F4460180
00041   0 00000 0 03777 L2047        2047                                                        F4460190
00042   0 00000 0 04000 L2048        2048                                                        F4460200
00043   0 00001 0 00000 LD1R         0,0,1                                                       F4460210
00044  +000000777770     STMSK   OCT 777770                                                    F4460220
00045  +000000777777     TAGMK   OCT 777777                                                    F4460230
00046  +000033000000     TMARK   OCT 33000000                                                  F4460240
00047  +077777000000     DECMKR  OCT 77777000000                                               F4460250
00050  +037777037777     MASK    OCT 37777037777                                               F4460260
00051  +377770000000     14ONES  OCT 377770000000                                              F4460270
00052   0 00017 0 00000 LZTAG        0,0,ZTAG                                                    F4460280
                                    OPERATION CODES OF TYPES OF REFERENCES                       F4460290
00053  +036721000000              OCT 36721000000              LXA                              F4460300
00054  +036731000000              OCT 36731000000              TXI                              F4460310
00055  +033167000000              OCT 33167000000              TIX                              F4460320
00056  +036747000000              OCT 36747000000              LXP                              F4460330
00057  +042524000000              OCT 42524000000              DED                              F4460340
00060  +036724000000              OCT 36724000000              LXD                              F4460350
00061  +072167000000              OCT 72167000000              PAX                              F4460360
00062  +072467000000     LCOPS    OCT 72467000000              PDX                              F4460370
00063   0 00000 0 02260 BBLYR        BBLADD.                                                     F4460380
00064   0 00000 0 00000 BBTY                                                                     F4460390
00065   0 76600 0 00301 LA301    WDR 1                                                           F4460400
00066   0 02000 0 00575 LTRND    TRA NDDR                                                        F4460410
00067   0 00000 0 00000 ERAS1R                                                                   F4460420
00070   0 00000 0 00000 ERAS2R                                                                   F4460430
00071   0 00000 0 00001 IINBX        1                                                           F4460440
00072   0 00000 0 00000 INSX                                                                     F4460450
00073  -0 00001 0 00000 TGPBOX   MZE 0,0,1                                                       F4460460
00074   0 00114 0 00000 BLKNO        0,0,76                                                      F4460470
00075   0 00000 0 00000 BLKSIZ                                LENGTH OF BLOCK TO BE STORED
```

```
00076   0 00000 0 00000 LENGTH                                  TOTAL LENGTH OF TABLE LEFT TO STORE  F4460480
00077   0 00674 0 00000 BLKMAX      0,0,BBSIZE                      BB BLOCK SIZE IN CS              F4460490
                                                                                                     F4460500
                                    THIS ROUTINE ALTERS THE TRATBL INTO SUCC TABLE AND PUTS IT        F4460510
                                    ON THE DRUM.                                                     F4460520
                                                                                                     F4460530
00100   0 77200 0 00224 START   REW INSTTP                                                           F4460540
00101   0 50000 0 07777         CLA TTBOX=                                                           F4460550
00102  -0 73400 1 00000         PDX 0,1                         PUT LENGTH OF TABLE IN INDEX         F4460560
00103   3 00000 1 00111         TXH ISPRED,1,0                                                       F4460570
00104   0 60100 0 07776 NOPRED  STO PREDBX                                                           F4460580
00105   0 60100 0 07775         STO SUCCBX                      THERE IS NO PRED TABLE-SPACE OVER    F4460590
00106   0 62100 0 02412         STA BBTABL-1                                                         F4460600
00107   0 62100 0 02413         STA BBTABL                                                           F4460610
00110   0 02000 0 00234         TRA RDBBL                                                            F4460620
00111   0 77100 0 00023 ISPRED  ARS 19                          STORE LENGTH FOR PUTTING SUCCESSOR   F4460630
00112   0 62100 0 00126         STA TSX+1                          AND PREDECESSOR TABLES ON DRUM    F4460640
00113   0 62100 0 00217         STA TSX2+1                      MOVE SUCCESSOR ADDRESS FROM DECR.    F4460650
00114   0 56000 1 07774 1LDQ    LDQ PRED+1,1                       TO ADDRESS PART OF ENTRY WORD     F4460660
00115   0 50000 1 07774         CLA PRED+1,1                       AND COUNTER FROM ADDRESS TO       F4460670
00116   0 76700 0 00003         ALS 3                              BITS 1-14                         F4460680
00117  -0 76300 0 00022         LGL 18                          TEST FOR OVERFLOW                    F4460690
00120  -0 76000 0 00001         PBT                             NO OVERFLOW                          F4460700
00121   0 02000 0 00123         TRA 1STO                        OVERFLOW-ENTER HIGHEST POSSIBLE NO   F4460710
00122  -0 50100 0 00051         ORA 14ONES                      STORE SHIFTED ENTRY                  F4460720
00123   0 60100 1 07775 1STO    STO PRED+2,1                    DO NEXT ENTRY                        F4460730
00124   2 00002 1 00114         TIX 1LDQ,1,2                                                         F4460740
00125   0 07400 4 00633 TSX     TSX DRUM.J,4                    NUMBER OF ENTRIES ON TABLE           F4460750
A 00126 0 00000 0 00000         HTR                             CORE MEMORY ADDRESS OF LAST WORD     F4460760
00127   0 00000 0 07773         HTR PRED                        DRUM ADDRESS AUTOMATICALLY SET FOR   F4460770
00130   0 00000 0 00000         HTR 0                              NEXT TRY                          F4460780
                                                                                                     F4460790
00131   0 50000 0 00130         CLA TSX+3                                                            F4460800
00132   0 60100 0 00221         STO TSX2+3                                                           F4460810
00133   0 60100 0 07775         STO SUCCBX                                                           F4460820
                                                                                                     F4460830
                                    THIS PUTS THE BASIC BLOCK NUMBER OF THE PREDECESSOR IN THE        F4460840
                                    TRA TABLE                                                        F4460850
00134   0 50000 0 07774         CLA BBOX.=                                                           F4460860
00135   0 40200 0 00043         SUB LD1R                                                             F4460870
00136   0 62200 0 00151         STD NBOXR                                                            F4460880
00137   0 53400 2 00033         LXA L0R,2                       ONE INTO INDEX A                     F4460890
00140  -0 53400 1 00043         LXD LD1R,1                      GET ADDRESS IN TRA TABLE             F4460900
00141   0 50000 2 02412 CLABB   CLA BBTABL-1,2                                                       F4460910
00142   0 62200 0 00145         STD TXBB                        PUT PRED NO IN TRA ENTRY             F4460920
00143  -0 75400 2 00000         PXD 0,2                                                              F4460930
00144   0 77100 0 00022         ARS 18                          TEST FOR END OF TABLE                F4460940
D 00145 3 00000 1 00150 TXBB    TXH NBOXR-1,1                                                        F4460950
00146   0 62100 1 07774 1STD    STA PRED+1,1                    SET FOR NEXT TRA                     F4460960
00147   1 00002 1 00145         TXI TXBB,1,2                    SET FOR NEXT BASIC BLOCK             F4460970
00150   1 00001 2 00151         TXI NBOXR,2,1                   TEST FOR LAST BB                     F4460980
D 00151 -3 00000 2 00141 NBOXR  TXL CLABB,2                                                          F4460990
                                                                                                     F4461000
                                    THIS PART SORTS THE ALTERED SUCCESSOR TABLE INTO THE             F4461010
                                    PREDECESSOR TABLE
```

```
00152  1 77775 1 00153 2TXI   TXI 2TXI+1,1,-3          LAST ADDRESS IN PRED INTO I R A     F4461020
00153 -3 00000 1 00177         TXL PRDBB,1,0            TEST FOR ONLY ONE ENTRY IN PRED     F4461030
00154 -0 75400 1 00000 LXABB   PXD 0,1                                                      F4461040
00155 -0 73400 2 00000         PDX 0,2                                                     F4461050
00156  0 50000 1 07772         CLA PRED-1,1             TAKE ENTRIES FOR COMPARISON        F4461060
00157  0 56000 1 07773         LDQ PRED,1               FIND LARGEST ELEMENT LEFT IN TABLE F4461070
00160  0 34000 2 07774 2CAS    CAS PRED+1,2                                                F4461080
00161  0 02000 0 00173         TRA 2TIX                                                    F4461090
00162  0 02000 0 00173         TRA 2TIX                                                    F4461100
00163 -0 60000 0 00067         STQ ERAS1R                                                  F4461110
00164  0 56000 2 07774         LDQ PRED+1,2             EXCHANGE ENTRIES-- STORAGE IS GREATF4461120
00165  0 60100 2 07774         STO PRED+1,2                                                F4461130
00166  0 50000 0 00067         CLA ERAS1R                                                  F4461140
00167 -0 60000 0 00067         STQ ERAS1R                                                  F4461150
00170  0 56000 2 07775         LDQ PRED+2,2                                                F4461160
00171  0 60100 2 07775         STO PRED+2,2                                                F4461170
00172  0 50000 0 00067         CLA ERAS1R                                                  F4461180
00173  2 00002 2 00160 2TIX    TIX 2CAS,2,2             TEST FOR END OF TABLE              F4461190
00174  0 60100 1 07772         STO PRED-1,1             THIS IS LARGEST ENTRY NOT SORTED   F4461200
00175 -0 60000 1 07773         STQ PRED,1                  YET, STORE AND CONTINUE SORT    F4461210
00176  2 00002 1 00154         TIX LXABB,1,2            HAS ENTIRE TABLE BEEN SORTED YET   F4461220
                                                                                           F4461230
                               THIS PUTS THE ADDRESSES OF ENTRIES IN THE PREDECESSOR TABLE F4461240
                               INTO THE BASIC BLOCK TABLE                                  F4461250
00177 -0 53400 2 07774 PRDBB   LXD BBOX.=,2            PUT LAST BB ADDRESS INTO IR B      F4461260
00200 -0 53400 5 07777         LXD TTBOX=,5             PUT LAST PRED ADDRESS INTO A AND C F4461270
00201 -0 75400 4 00000 3PXD    PXD 0,4                  NEW BB                             F4461280
00202  0 77100 0 00022         ARS 18                                                      F4461290
00203  0 62100 2 02413         STA BBTABL,2             PUT PRED ADDR IN BB TABLE          F4461300
00204  1 77776 4 00205 3TXI    TXI 3TXI+1,4,-2          SET FOR NEXT ENTRY IN BB TABLE     F4461310
00205 -2 00001 2 00214         TNX 3END,2,1             IS THIS THE END OF THE TABLE       F4461320
00206 -0 75400 2 00000         PXD 0,2                  PUT NEW BB NO IN AC FOR COMPARISON F4461330
00207  0 34000 4 07774 CAS     CAS PRED+1,4             COMPARE BB NO IN PRED TABLE TO BB  F4461340
00210  0 02000 0 00201         TRA 3PXD                    NO IN AC                        F4461350
00211  0 76100 0 00000         NOP                      EQUALITY NOT POSSIBLE              F4461360
00212  2 00002 4 00207         TIX CAS,4,2                                                 F4461370
00213  0 62100 0 02412         STA BBTABL-1             PUT ZERO AS PRED FOR BB1           F4461380
00214 -0 75400 0 00000 3END    PXD 0,0                  PUT ZERO AS PRED ADDR INTO TABLE   F4461390
00215  0 62100 0 02413         STA BBTABL                  FOR BB ZERO                     F4461400
00216  0 07400 4 00633 TSX2    TSX DRUM.J,4             PUT PRED TABLE ON DRUM             F4461410
                                                                                           F4461420
A    00217  0 00000 0 00000    HTR                                                         F4461430
00220  0 00000 0 07773         HTR PRED                 CORE MEMORY ADDRESS OF LAST WORD   F4461440
A    00221  0 00000 0 00000    HTR                       --DRUM ADDRESS                    F4461450
00222  0 50000 0 00221         CLA TSX2+3                                                  F4461460
00223  0 60100 0 07776         STO PREDBX               SAVE DRUM ADDRESS                  F4461470
                                                                                           F4461480
                               THIS ROUTINE ADJUSTS THE ADDRESSES IN THE BB TABLE TO      F4461490
                               CORRESPOND TO ONE WORD ENTRIES IN THE PREDECESSOR AND       F4461500
                               SUCCESSOR TABLES                                            F4461510
00224 -0 53400 2 07774 SHFTBB  LXD BBOX.=,2             SET INDEX                          F4461520
00225  1 00001 2 00226         TXI CAL4,2,1                                                F4461530
00226 -0 50000 2 02414 CAL4    CAL BBTABL+1,2                                              F4461540
00227 -0 32000 0 00050         ANA MASK                                                    F4461550
00230  0 77100 0 00001         ARS 1
```

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00231   0 62200 2 02414          STD BBTABL+1,2                                          F4461560
00232   0 62100 2 02414          STA BBTABL+1,2                                          F4461570
00233   2 00001 2 00226          TIX CAL4,2,1                                            F4461580
                                                                                         F4461590
                                 THIS ROUTINE READS THE BASIC BLOCK LIST FROM THE DRUM   F4461600
00234   0 50000 0 00032 RDBBL    CLA MINUS4              INITIALIZE ERROR BOX            F4461610
00235   0 02000 0 00260          TRA SKIP14+3                                            F4461620
00236   0 76200 0 00303 BRDS     RDS BBLDRM                                              F4461630
00237   0 46000 0 00063          LDA BBLYR                                               F4461640
00240  -0 53400 3 07774          LXD BBOX,=,3                                            F4461650
00241   0 70000 1 07773 BCPY     CPY BBLIST,1                                            F4461660
00242   2 00001 1 00241          TIX BCPY,1,1                                            F4461670
00243   0 70000 0 07773          CPY BBLIST                                              F4461680
00244   0 70000 0 00067          CPY ERAS1R                                              F4461690
00245   0 36100 2 07773 BACL     ACL BBLIST,2                                            F4461700
00246   2 00001 2 00245          TIX BACL,2,1                                            F4461710
00247   0 36100 0 07773          ACL BBLIST                                              F4461720
00250   0 60200 0 00070          SLW ERAS2R                                              F4461730
00251   0 50000 0 00070          CLA ERAS2R                                              F4461740
00252   0 40200 0 00067          SUB ERAS1R                                              F4461750
00253   0 10000 0 00263          TZE TAGPAS                                              F4461760
00254   0 50000 0 00030          CLA ERRBX                                               F4461770
00255  -0 12000 0 00257 SKIP14   TMI SKIP14+2             HAVE 5 TRIES AT READING BEEN MADE F4461780
00256   0 07400 4 00004          TSX RDFORT,4              YES, GO TO DIAGNOSTIC ROUTINE F4461790
00257   0 40000 0 00031          ADD LA1                   NO, TRY READING AGAIN         F4461800
00260   0 60100 0 00030          STO ERRBX                                               F4461810
                                                                                         F4461820
T  00261  -0 75400 0 00000       PXD                                                     F4461830
00262   0 02000 0 00236          TRA BRDS                                                F4461840
                                                                                         F4461850
                                 THIS ROUTINE COMPILES THE LIST OF TAGGED INSTRUCTIONS   F4461860
00263   0 53400 2 00033 TAGPAS   LXA LOR,2               INITIALIZE INDEX REGISTERS    F4461870
00264   0 53400 4 00031          LXA LA1,4                                               F4461880
00265   0 50000 0 00032 RDINSR   CLA MINUS4               INITIALIZE ERROR BOX          F4461890
00266   0 60100 0 00030          STO ERRBX                                               F4461900
00267   0 53400 1 00045          LXA TAGMK,1                                             F4461910
00270   0 76200 0 00224 RDSIN    RDS INSTTP                                              F4461920
00271   0 70000 1 06457 CPYN     CPY INSTR-1,1             COPY BLOCK                    F4461930
00272   1 00001 1 00271          TXI CPYN,1,1                                            F4461940
00273   0 02000 0 00375          TRA OUTR                  END OF FILE-EXIT              F4461950
00274  -0 76000 0 00012 ENDRC    RTT                                                     F4461960
00275   0 02000 0 00301          TRA ERRORR                                              F4461970
00276  -0 63400 1 00363 1ALXD    SXD LZINS,1               STORE LENGTH OF RECORD TO COMPARE F4461980
00277   0 53400 1 00033          LXA LOR,1                 CONTINUE TAG PASS             F4461990
00300   0 02000 0 00364          TRA LZINS+1                                             F4462000
00301   0 50000 0 00030 ERRORR   CLA ERRBX                                               F4462010
00302  -0 12000 0 00304 SKIP15   TMI SKIP15+2             HAVE 5 TRIES AT READING BEEN MADE F4462020
00303   0 07400 4 00004          TSX RDFORT,4              YES, GO TO DIAGNOSTIC ROUTINE F4462030
00304   0 40000 0 00031          ADD LA1                   NO, TRY READING AGAIN         F4462040
00305   0 60100 0 00030          STO ERRBX                                               F4462050
00306   0 76400 0 00224          BST INSTTP                                              F4462060
00307   0 02000 0 00267          TRA RDSIN-1               TRY AGAIN TO READ IN RECORD.  F4462070
00310  -0 75400 4 00000 INTBB    PXD 0,4                   PUT TAG ADDR IN BB LIST       F4462080
00311   0 40000 0 00073          ADD TGPBOX                                              F4462090
00312   0 77100 0 00022          ARS 18
```

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00313 -0 50100 0 00046        ORA TMARK                                                    F4462100
00314  0 60100 2 06314        STO BBTAGS,2                                                 F4462110
00315  1 00001 2 00316 BGTXI  TXI BGTXI+1,2,1                                              F4462120
00316 -0 50000 1 06455        CAL INST.R-3,1      IS THIS THE INSTRUCTION TAGGED           F4462130
00317 -0 32000 0 00044        ANA STMSK                                                    F4462140
00320  0 10000 0 00362        TZE TXINS           NO                                       F4462150
00321  0 50000 1 06455        CLA INST.R-3,1      YES,                                     F4462160
00322 -0 32000 0 00045        ANA TAGMK                                                    F4462170
00323 -0 76000 0 00003        SSM                 AND A MINUS FOR 1ST INST IN A BASIC      F4462180
00324  0 60100 4 06500        STO TAG,4              BLOCK INTO TAG LIST                   F4462190
00325 -0 63400 2 00067 TSTOP  SXD ERAS1R,2        SAVE INDEX                               F4462200
00326  0 53400 2 00037        LXA L8,2            SET FOR A COMPARISON                     F4462210
00327  0 50000 1 06457        CLA INST.R-1,1      COMPARE OP CODE OF INSTRUCTION           F4462220
00330 -0 32000 0 00047        ANA DECMKR                                                   F4462230
00331  0 40200 2 00063 SUB    SUB LCOPS+1,2       OP CODES OF TYPES OF TAGGED INSTRS       F4462240
00332  0 10000 2 00346        TZE TROPS+1,2       TRANSFER WHEN FOUND                      F4462250
00333  0 40000 2 00063        ADD LCOPS+1,2       RESTORE ORIGINAL CODE TO AC              F4462260
00334  2 00001 2 00331        TIX SUB,2,1         TRY NEXT COMPARISON                      F4462270
00335  1 00005 2 00346 LD5    TXI STOCD,2,5       NOT FOUND-IS PASSIVE -WANT 6 IN IRB      F4462280
                                  GET CODE FOR TYPE OF INSTRUCTION INTO INDEX             F4462290
00336  1 77771 2 00346        TXI STOCD,2,-7      LXA--INDEX HAS 8, WANT 1                 F4462300
00337  1 77776 2 00346        TXI STOCD,2,-2      TXI--INDEX HAS 7, WANT 5                 F4462310
00340  1 77777 2 00346        TXI STOCD,2,-1      TIX--INDEX HAS 6, WANT 5                 F4462320
00341  1 77775 2 00346        TXI STOCD,2,-3      LXP--INDEX HAS 5, WANT 2                 F4462330
00342  1 77777 2 00346        TXI STOCD,2,-1      DED--INDEX HAS 4, WANT 3                 F4462340
00343  1 77776 2 00346        TXI STOCD,2,-2      LXD--INDEX HAS 3, WANT 1                 F4462350
00344  1 77777 2 00346        TXI STOCD,2,-1      PAX--INDEX HAS 2, WANT 1                 F4462360
00345  0 02000 0 00346 TROPS  TRA STOCD           PDX--INDEX HAS 1, WANT 1                 F4462370
00346 -0 75400 2 00000 STOCD  PXD 0,2             STORE CODE FOR TYPE OF OPERATION IN      F4462380
00347  0 62200 4 06500        STD TAG,4              TAG LIST                              F4462390
00350 -0 53400 2 00067        LXD ERAS1R,2                                                 F4462400
00351  1 00001 4 00352        TXI TSTTG,4,1       SET FOR NEXT WORD IN TAG LIST            F4462410
00352 -2 00017 4 00362 TSTTG  TNX TXINS,4,ZTAG    TEST FOR END OF BLOCK                    F4462420
00353  0 76600 0 00223 WRTAG  WRS TAGTAP          END OF BLOCK--WRITE ON TAPE              F4462430
00354  0 70000 4 06500 TGCPY  CPY TAG,4                                                    F4462440
00355  1 00001 4 00356 TGTXI  TXI TGTXI+1,4,1                                              F4462450
00356 -2 00017 4 00354        TNX TGCPY,4,ZTAG                                             F4462460
00357  0 50000 0 00073        CLA TGPBOX                                                   F4462470
00360  0 40000 0 00052        ADD LZTAG                                                    F4462480
00361  0 60100 0 00073 TGSTO  STO TGPBOX                                                   F4462490
00362  1 00004 1 00363 TXINS  TXI TXINS+1,1,4                                              F4462500
00363  2 00144 1 00265 LZINS  TIX RDINSR,1,ZINSTR                                          F4462510
00364  0 50000 1 06460        CLA INSTR,1         IS THIS THE BEG OF A BASIC BLOCK         F4462520
00365  0 40200 2 07773        SUB BBLIST,2                                                 F4462530
00366  0 10000 0 00310        TZE INTBB           YES                                      F4462540
00367  0 50000 1 06455        CLA INST.R-3,1      NO, IS IT TAGGED                         F4462550
00370 -0 32000 0 00044        ANA STMSK                                                    F4462560
00371  0 10000 0 00362        TZE TXINS           NO                                       F4462570
00372  0 50000 1 06455        CLA INST.R-3,1      YES                                      F4462580
00373 -0 32000 0 00045        ANA TAGMK                                                    F4462590
00374  0 02000 0 00324        TRA TSTOP-1                                                  F4462600
00375 -0 75400 4 00000 OUTR   PXD 0,4                                                      F4462610
00376  0 40000 0 00073        ADD TGPBOX                                                   F4462620
00377  0 77100 0 00022        ARS 18                                                       F4462630
```

```
00400 -0 50100 0 00046          ORA TMARK
00401  0 60100 2 06314          STO BBTAGS,2
00402  3 00001 4 00405          TXH WRTG2,4,1
00403  0 50000 0 00073          CLA TGPBOX
00404  0 12000 0 00411 TPL      TPL FINAL
00405  0 50000 0 00404 WRTG2    CLA TPL
00406  0 60100 0 00361          STO TGSTO
00407  0 53400 4 00031          LXA LA1,4
00410  0 02000 0 00353          TRA WRTAG
00411  0 50000 0 07774 FINAL    CLA BBOX,=
00412  0 40000 0 00043          ADD LD1R
00413  0 60100 0 07774          STO BBOX,=
00414  0 50000 0 07776          CLA PREDBX
00415  0 60100 0 07777          STO BBTBOX
00416  0 50000 0 00047          CLA DECMKR
00417  0 62200 0 00545          STD TXLBBT
00420  0 76600 0 00333          IOD
00421  0 56000 0 00077          LDQ BLKMAX
T      00422 -0 75400 0 00000   PXD
00423  0 22100 0 00036          DVP L6R
00424  0 76000 0 00012          DCT
00425  0 07400 4 00004          TSX RDFORT,4
00426 -0 60000 0 00074          STQ BLKNO
00427  0 56000 0 07774          LDQ BBOX,=
00430  0 20000 0 00036          MPY L6R
00431 -0 60000 0 00076          STQ LENGTH
00432 -0 53400 1 00031          LXD LA1,1
00433  0 50000 0 07777 NXTBL    CLA BBTBOX
00434 -0 32000 0 00041          ANA =2047
00435  0 62100 0 00064          STA BBTY
00436  0 50000 0 07777          CLA BBTBOX
00437  0 77100 0 00013          ARS 11
00440  0 40000 0 00065          ADD LA301
00441  0 62100 0 00525          STA WRS1
00442  0 40000 0 00031          ADD LA1
00443  0 62100 0 00576          STA NDWRS
00444  0 50000 0 00076          CLA LENGTH
00445  0 10000 0 00606          TZE OUT2
00446 -0 12000 0 00606          TMI OUT2
00447  0 40200 0 00077          SUB BLKMAX
00450  0 60100 0 00076          STO LENGTH
00451 -0 12000 0 00453          TMI LSTBLR
T      00452 -0 75400 0 00000   PXD
00453  0 40000 0 00077 LSTBLR   ADD BLKMAX
00454  0 77100 0 00022          ARS 18
00455  0 40000 0 07777          ADD BBTBOX
00456  0 40000 0 00031          ADD LA1
00457  0 60100 0 07777          STO BBTBOX
00460  0 53400 4 00071          LXA IINBX,4
00461  0 50000 0 00072          CLA INSX
00462  0 60100 4 00555          STO CPY1A,4
00463 -0 50000 0 00545          CAL TXLBBT
00464  0 40000 0 00074          ADD BLKNO
00465  0 62200 0 00545          STD TXLBBT
```

```
                                                                F4462640
                                                                F4462650
                                                                F4462660
                                                                F4462670
                                                                F4462680
                                                                F4462690
                                                                F4462700
                                                                F4462710
                                                                F4462720
                                                                F4462730
                                                                F4462740
                                                                F4462750
                                                                F4462760
                                                                F4462770
WANT TXL TO HAVE BLK-1                                          F4462780
   LATER                                                        F4462790
                                                                F4462800
COMPUTE NO. OF BB IN BLOCK                                      F4462810
                                                                F4462820
                                                                F4462830
                                                                F4462840
BAD DIVIDE                                                      F4462850
                                                                F4462860
                                                                F4462870
                                                                F4462880
STORE TOTAL LNGTH OF TABLE FOR DRUM                             F4462890
                                                                F4462900
COMPUTE WRS ADDRESSES                                           F4462910
                                                                F4462920
STORE DRUM ADDRESSES                                            F4462930
                                                                F4462940
                                                                F4462950
                                                                F4462960
                                                                F4462970
                                                                F4462980
                                                                F4462990
                                                                F4463000
                                                                F4463010
FORM NEW TABLE LENGTH                                           F4463020
                                                                F4463030
IS THIS A FULL BLOCK                                            F4463040
NO, PUT IN ACTUAL LENGTH                                        F4463050
YES, PUT IN FULL BLOCK LENGTH                                   F4463060
FORM NEXT DRUM ADDRESS                                          F4463070
                                                                F4463080
                                                                F4463090
                                                                F4463100
                                                                F4463110
RESTORE INSTRUCTION REPLACED FOR                                F4463120
   END OF PREVIOUS BLOCK                                        F4463130
                                                                F4463140
COMPUTE NEW TEST DECREMENTS FOR                                 F4463150
   TESTING END OF BLOCK--THE VALUE                              F4463160
   IS THE NUMBER OF THE LAST BASIC                              F4463170
```

```
00466   0 62200 0 00551          STD TXL2
00467   0 62200 0 00570          STD TXL3
00470  -0 32000 0 00047          ANA DECMKR
00471   0 40000 0 00043          ADD LD1R
00472   0 40200 0 07774          SUB BBOX,=
00473  -0 12000 0 00501          TMI COMB
00474   0 50000 0 07774          CLA BBOX,=
00475   0 40200 0 00043          SUB LD1R
00476   0 62200 0 00545          STD TXLBBT
00477   0 62200 0 00551          STD TXL2
00500   0 62200 0 00570          STD TXL3
00501   0 50000 0 00041 COMB     CLA L2047
00502   0 40200 0 00064          SUB BBTY
00503   0 73400 2 00000          PAX 0,2
00504   0 40000 0 00031          ADD LA1
00505   0 76500 0 00043          LRS 35
00506   0 22100 0 00036          DVP L6R


00507   0 76000 0 00012          DCT
00510   0 07400 4 00004          TSX RDFORT,4
00511   0 40200 0 00031          SUB LA1
00512  -0 12000 0 00604          TMI ZREM

00513  -0 10000 0 00515          TNZ FREM

00514   0 50000 0 00034          CLA LC1
00515   0 76700 0 00001 FREM     ALS 1
00516   0 76000 0 00006          COM
00517   0 62100 0 00071          STA IINBX
00520   0 53400 4 00071          LXA IINBX,4
00521   0 56000 4 00555          LDQ CPY1A,4


00522   0 50000 0 00066          CLA LTRND
00523   0 60100 4 00555          STO CPY1A,4
00524  -0 60000 0 00072          STQ INSX
A 00525   0 76600 0 00000 WRS1   WRS
T 00526  -0 75400 0 00000        PXD
00527  -3 00000 2 00600          TXL LDA1,2,0

00530  -2 00006 2 00573          TNX NOBK,2,6
00531   0 46000 0 00064          LDA BBTY
00532   0 70000 1 02413 CPY1R    CPY BBTABL,1
00533   0 36100 1 02413          ACL BBTABL,1
00534   0 70000 1 06314          CPY BBTAGS,1
00535   0 36100 1 06314          ACL BBTAGS,1
00536   0 70000 0 00033          CPY LOR
00537   0 60200 0 00067          SLW ERAS1R
00540   0 70000 0 00033          CPY LOR
00541   1 00001 1 00542          TXI CPY5,1,1
00542   0 70000 0 00033 CPY5     CPY LOR
00543  -2 00006 2 00550          TNX CPY6C,2,6
00544   0 70000 0 00033 CPY6     CPY LOR
```

```
   BLOCK WHICH WILL FIT IN THIS BLK          F4463180
                                             F4463190
                                             F4463200
IS THIS LARGER THAN THE NUMBER OF            F4463210
   THE LAST BASIC BLOCK                      F4463220
NO                                           F4463230
YES, TEST DECREMENT SHOULD BE                F4463240
   NUMBER OF LAST BB INSTEAD                 F4463250
                                             F4463260
                                             F4463270
                                             F4463280
                                             F4463290
SET B FOR TEST FOR END OF DRUM               F4463300
NUMBER OF WORDS LEFT ON DRUM INTO B          F4463310
                                             F4463320
ARRANGE CONNECTION TO 2ND LOOP               F4463330
FIND OUT WHICH OF THE 6 WORDS IN             F4463340
   AN ENTRY WILL OCCUPY THE LAST             F4463350
   POSITION ON THE DRUM                      F4463360
                                             F4463370
BAD DIVIDE                                   F4463380
                                             F4463390
BREAK IS BETWEEN ENTRIES (PUT 5              F4463400
   INTO AC)                                  F4463410
MORE THAN ONE WORD FITS (LEAVE               F4463420
   NO-1 IN AC)                               F4463430
EXACTLY 1 WORD FITS (PUT LC1 IN AC)          F4463440
GET ADDRESS OF INSTRUCTION TO BE             F4463450
   REPLACED BY TRA TO 2ND LOOP               F4463460
SAVE ADDRESS OF THIS ONE                     F4463470
                                             F4463480
REPLACE PROPER INSTRUCTION WITH A            F4463490
   TRANSFER TO TAKE CARE OF END              F4463500
   OF DRUM SITUATION                         F4463510
                                             F4463520
STORE A TRA NDDR                             F4463530
                                             F4463540
SELECT DRUM                                  F4463550
                                             F4463560
INDEX B HAS NO. OF WORDS LEFT ON             F4463570
   DRUM, ONLY 1 WORD FITS ON DRUM            F4463580
LESS THAN 6 WORDS FIT                        F4463590
MAIN LOOP FOR STORING BB TABLE               F4463600
WRITE SIX WORDS OF ENTRY                     F4463610
                                             F4463620
                                             F4463630
                                             F4463640
                                             F4463650
                                             F4463660
                                             F4463670
INCREASE INDEX OF POSITION IN BBT            F4463680
                                             F4463690
TEST FOR NEARING END OF DRUM                 F4463700
   (LESS THAN 6 WORDS LEFT)                  F4463710
```

```
D     00545 -3 00000 1 00532 TXLBBT TXL CPY1R,1                                                F4463720
      00546  0 70000 0 00067        CPY ERAS1R          WHOLE BLOCK FITS, COPY CHECKSUM        F4463730
      00547  0 02000 0 00433        TRA NXTBL                                                  F4463740
      00550  0 70000 0 00033 CPY6C  CPY LOR                                                   F4463750
      00551 -3 00000 1 00555 TXL2   TXL CPY1A,1,XXXXXX                                        F4463760
      00552  0 70000 0 00067        CPY ERAS1R                                                F4463770
      00553  0 02000 0 00433        TRA NXTBL                                                 F4463780
A     00554  0 00000 0 00000 DUMM   HTR                 USED IN SWITCHING AT END OF BLOCK      F4463790
                                    ONE OF THE FOLLOWING INSTRUCTIONS IS ALWAYS REPLACED BY   F4463800
                                    TRANSFER TO SECOND DRUM.                                  F4463810
                                                                                              F4463820
      00555  0 70000 1 02413 CPY1A  CPY BBTABL,1                                             F4463830
      00556  0 36100 1 02413        ACL BBTABL,1                                              F4463840
      00557  0 70000 1 06314 CPY2A  CPY BBTAGS,1                                             F4463850
      00560  0 36100 1 06314        ACL BBTAGS,1                                              F4463860
      00561  0 70000 0 00033 CPY3A  CPY LOR                                                   F4463870
      00562  0 60200 0 00067        SLW ERAS1R                                                F4463880
      00563  0 70000 0 00033 CPY4A  CPY LOR                                                   F4463890
      00564  1 00001 1 00565        TXI CPY5A,1,1                                             F4463900
      00565  0 70000 0 00033 CPY5A  CPY LOR                                                   F4463910
      00566  0 76100 0 00000        NOP                                                       F4463920
      00567  0 70000 0 00033 CPY6A  CPY LOR                                                   F4463930
      00570 -3 00000 1 00601 TXL3   TXL CPY1B,1,XXXXXX                                        F4463940
      00571  0 70000 0 00067 CPY7A  CPY ERAS1R                                              F4463950
      00572  0 02000 0 00433        TRA NXTBL                                                 F4463960
      00573  0 46000 0 00064 NOBK   LDA BBTY                                                F4463970
      00574  0 02000 0 00555        TRA CPY1A                                                 F4463980
      00575  0 53400 2 00042 NDDR   LXA L2048,2          SELECT 2ND DRUM                       F4463990
A     00576  0 76600 0 00000 NDWRS  WRS                                                       F4464000
      00577  0 02000 4 00532        TRA CPY1R,4                                               F4464010
      00600  0 46000 0 00064 LDA1   LDA BBTY                                                F4464020
      00601  0 70000 1 02413 CPY1B  CPY BBTABL,1                                            F4464030
      00602 -0 53400 4 00603        LXD LMLE,4          PRESET RETURN TO MAIN LOOP            F4464040
      00603  1 77777 0 00575 LMLE   TXI NDDR,0,-1                                          F4464050
      00604  0 50000 0 00035 ZREM   CLA L5              IF DRUM ENDS WITH LAST WORD IN AN     F4464060
      00605  0 02000 0 00515        TRA FREM               ENTRY                              F4464070
                                                                                              F4464080
                                    THIS ROUTINE WRITES BBLIST ON TAPE 3.                     F4464090
      00606  0 77000 0 00223 OUT2   WEF BLT                                                  F4464100
      00607 -0 53400 1 07774        LXD BBOX.=,1                                              F4464110
      00610  0 50000 0 07774        CLA BBOX.=                                                F4464120
      00611  0 77100 0 00022        ARS 18                                                    F4464130
      00612  0 60100 0 07774        STO BBOX.=                                                F4464140
      00613 -0 53400 2 00616        LXD WBL2,2                                                F4464150
      00614  0 76600 0 00223        WRS BLT                                                   F4464160
      00615  0 70000 2 07774 WBL1   CPY BBOX.=,2          WRITE BB LIST                         F4464170
      00616  1 00001 2 00617 WBL2   TXI WBL2+1,2,1                                          F4464180
      00617  2 00001 1 00615        TIX WBL1,1,1                                              F4464190
      00620  0 76400 0 00223        BST BLT                                                   F4464200
      00621  0 76400 0 00223        BST BLT                                                   F4464210
      00622  0 76400 0 00223        BST BLT                                                   F4464220
      00623  0 76200 0 00223        RDS BLT                                                   F4464230
      00624  0 53400 1 00032        LXA MINUS4,1        MOVES KEYS FOR SECTION 5 IN           F4464240
      00625  0 50000 1 10000 KEYS   CLA 4096,1             8-1-4-1 SYSTEM, DOES NOTHING IN    F4464250
      00626  0 60100 1 20000        STO 8192,1             4-1-4-1 SYSTEM.
```

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00627  2 00001 1 00625          TIX KEYS,1,1                                                                F4464260
00630  0 76200 0 00221          RDS SYSTAP                                                                  F4464270
00631  0 02000 0 00004          TRA RDFORT                                                                  F4464280
                                                                                                            F4464290
                                THIS DRUM SUBROUTINE TRANSFERS A TABLE TO THE DRUM,TABLE IS                 F4464300
                                BACKWARDS IN CM AND STORED EVERY OTHER WORD. GOES FORWARD ON                F4464310
                                DRUM.  CALLING SEQUENCE IS,                                                 F4464320
                                      TSX DRUM,4                                                            F4464330
                                      HTR N              N IS NUMBER OF ENTRIES IN THE TABLE                F4464340
                                      HTR A              A IS CM ADDRESS OF LAST ENTRY IN                   F4464350
                                                         TABLE                                              F4464360
                                      HTR D              D IS DRUM ADDRESS,0-8191                           F4464370
                                UPON RETURN, NEXT AVAILABLE DRUM ADDRESS HAS REPLACED THE                   F4464380
                                HTR D                                                                       F4464390
                                A CHECK SUM IS PUT AFTER EVERY B WORDS,SEE THE NEXT CARD.                   F4464400
                                A MUST BE GREATER THAN 1,N GETS REPLACED BY 0                               F4464410
00632  0 00000 0 00215 GP1..J HTR BBBB.J                 ADDRESS HAS B.                                     F4464420
00633  0 50000 4 00002 DRUM.J CLA 2,4                    SET ADDRESSES DEPENDENT ON INITIAL                 F4464430
00634  0 62100 0 00664          STA G7...J                   TABLE ADDRESS IN CORES                        F4464440
00635  0 62100 0 00757          STA G22..J                                                                 F4464450
00636  0 62100 0 00762          STA G17..J                                                                 F4464460
00637  0 62100 0 00753          STA G33..J                                                                 F4464470
00640  0 40200 0 01012          SUB TWOA.J                                                                 F4464480
00641  0 62100 0 00760          STA G14..J                                                                 F4464490
00642 -0 53400 1 01013 G1...J LXD GK6..J,1               INITIALIZE INDEX OF POSITION IN                    F4464500
00643 -0 63400 1 00666          SXD G8...J,1                TABLE.                                         F4464510
00644  0 50000 4 00001 G2...J CLA 1,4                    FORM N-B                                           F4464520
00645  0 40200 0 00632          SUB GP1..J                                                                 F4464530
00646 -0 12000 0 00733          TMI G3...J                IS N LARGER THAN B                               F4464540
00647  0 60100 4 00001          STO 1,4                   YES STORE NEW N                                  F4464550
00650  0 50000 0 00632          CLA GP1..J                PREPARE TO TRANSFER B WORDS                      F4464560
00651  0 10000 4 00004 G4...J TZE 4,4                    IF NO WORDS LEFT,RETURN                          F4464570
00652  0 60100 0 01015          STO GV2..J                                                                 F4464580
00653 -0 53400 1 00666          LXD G8...J,1              CURRENT INDEX TO A                               F4464590
00654  1 00002 1 00655 G5...J TXI G5...J+1,1,2           UP IT,IT LAGS BEHIND                             F4464600
00655 -0 63400 1 01016          SXD GV3..J,1                                                               F4464610
00656  0 76700 0 00023          ALS 19                                                                     F4464620
00657  0 40200 0 00666          SUB G8...J                THE TXL IS NEGATIVE                              F4464630
00660 -0 73400 2 00000          PDX 0,2                                                                    F4464640
00661 -0 63400 2 00666          SXD G8...J,2              SET NEW END TEST                                 F4464650
00662  0 50000 0 01014          CLA ZERO.J                                                                 F4464660
00663  1 00002 1 00664 G6...J TXI G6...J+1,1,2           CHECK                                            F4464670
00664  0 36100 1 00000 G7...J ACL TABLEJ,1                                                               F4464680
00665  3 07775 2 00667          TXH G31..J,2,4093         SUM.                                             F4464690
00666 -3 00000 1 00663 G8...J TXL G6...J,1,SET..J                                                          F4464700
00667  0 60200 0 01017 G31..J SLW GV4..J                 STORE CHECK SUM                                  F4464710
00670  0 50000 4 00003          CLA 3,4                  SPACE LEFT ON DRUM, NEGATIVE                     F4464720
00671 -0 32000 0 01004          ANA GK1..J                                                                 F4464730
00672  0 40200 0 01005          SUB GK2..J                                                                 F4454740
00673  0 40000 0 01015          ADD GV2..J               WILL BLOCK FIT                                    F4464750
00674 -0 12000 0 00721          TMI G9...J                                                                 F4464760
00675  0 60100 0 01021 G20..J STO GV6..J                 NO,STO. AMOUNT LEFT OVER                         F4464770
00676  0 40200 0 01015          SUB GV2..J                                                                 F4464780
00677  0 76000 0 00003          SSP                      IN AC IS DRUM SPACE                               F4464790
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```
00700   0 60100 0 01015          STO GV2••J
00701   0 76700 0 00023          ALS 19
00702   0 40000 0 01016          ADD GV3••J
00703  -0 73400 2 00000          PDX 0,2
00704  -0 53400 1 01016          LXD GV3••J,1
00705  -0 63400 2 01016          SXD GV3••J,2
00706   1 77776 2 00707 G30••J    TXI G30••J+1,2,-2
00707  -0 63400 2 00763          SXD G23••J,2
00710   0 50000 0 01007          CLA GK4••J
00711   0 07400 2 00770          TSX G11••J,2
00712   0 02000 0 00744          TRA G15••J
00713   0 50000 4 00003 G24••J    CLA 3,4
00714   0 40200 0 01010          SUB ONEA•J
00715   0 60100 4 00003          STO 3,4
00716   0 50000 0 01021          CLA GV6••J
00717   0 60100 0 01015          STO GV2••J
00720   0 02000 0 00737          TRA G10••J
00721   0 40000 0 01010 G9•••J   ADD ONEA•J
00722  -0 12000 0 00737          TMI G10••J
00723   0 50000 0 01006 G19••J   CLA GK3••J
00724   0 07400 2 00770          TSX G11••J,2
00725   0 40000 0 01010          ADD ONEA•J
00726   0 62100 0 00730          STA G25••J
00727   0 02000 0 00741          TRA G12••J
00730   0 76600 0 00000 G25••J   WRS SET••J
00731   0 70000 0 01017 G26••J   CPY GV4••J
00732   0 02000 0 00644          TRA G2•••J
00733   0 56000 0 01014 G3•••J   LDQ ZERO•J
00734   0 50000 4 00001          CLA 1,4
00735  -0 60000 4 00001          STQ 1,4
00736   0 02000 0 00651          TRA G4•••J
00737   0 50000 0 00731 G10••J   CLA G26••J
00740   0 07400 2 00770          TSX G11••J,2
00741   0 50000 0 00666 G12••J   CLA G8•••J
00742   0 62200 0 00763          STD G23••J
00743  -0 53400 1 01016          LXD GV3••J,1
00744   0 50000 0 01015 G15••J   CLA GV2••J
00745   0 76000 0 00001          LBT
00746   0 02000 0 00766          TRA G13••J
00747   0 56000 0 01010          LDQ ONEA•J
00750   0 04000 0 00755          TLQ G32••J
00751   0 46000 0 01020          LDA GV5••J
00752   1 00002 1 00753 G34••J   TXI G34••J+1,1,2
00753   0 70000 1 00000 G33••J   CPY TABLEJ,1
00754   0 02000 0 00764          TRA G18••J
00755   0 46000 0 01020 G32••J   LDA GV5••J
00756   1 00002 1 00757 G27••J   TXI G27••J+1,1,2
00757   0 70000 1 00000 G22••J   CPY TABLEJ,1
00760   0 70000 1 77776 G14••J   CPY TABLEJ-2,1
00761   1 00004 1 00762 G16••J   TXI G16••J+1,1,4
00762   0 70000 1 00000 G17••J   CPY TABLEJ,1
00763  -3 00000 1 00760 G23••J   TXL G14••J,1
00764   0 70000 0 01017 G18••J   CPY GV4••J
00765   0 02000 0 00644          TRA G2•••J
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                                                    F4464800
                                                    F4464810
                                                    F4464820
FORM INITIALIZING INDEX                             F4464830
   FOR 2ND HALF                                     F4464840
LOAD BEFORE STORING BACK                            F4464850
                                                    F4464860
END TEST IS 2 LESS                                  F4464870
                                                    F4464880
DRUM SELECTION ROUTINE                              F4464890
ALSO STORES SWITCH                                  F4464900
                                                    F4464910
                                                    F4464920
                                                    F4464930
SET BLOCK LENGTH TO NO. OF                          F4464940
   WORDS LEFT.                                      F4464950
                                                    F4464960
                                                    F4464970
DOES SUM CHECK FIT TOO                              F4464980
                                                    F4464990
NO                                                  F4465000
                                                    F4465010
ARRANGE TO PUT CK SUM                               F4465020
   ON NEXT DRUM                                     F4465030
                                                    F4465040
                                                    F4465050
COPY CHECK SUM.                                     F4465060
                                                    F4465070
RECORD THAT THERE ARE NO WORDS LEFT                 F4465080
                                                    F4465090
                                                    F4465100
                                                    F4465110
SUM CK. FITS TOO                                    F4465120
                                                    F4465130
                                                    F4465140
SET END TEST                                        F4465150
                                                    F4465160
                                                    F4465170
IS BLOCK LENGTH ODD                                 F4465180
NO                                                  F4465190
                                                    F4465200
IS IT EQUAL TO ONE                                  F4465210
YES, TRANSFER THE SINGLE WORD                       F4465220
                                                    F4465230
                                                    F4465240
                                                    F4465250
COPY WORDS ONTO THE DRUM                            F4465260
                                                    F4465270
                                                    F4465280
                                                    F4465290
                                                    F4465300
                                                    F4465310
                                                    F4465320
OR TRA G25 OR TRA G24                               F4465330
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00766  0 46000 0 01020 G13..J LDA GV5..J                                                F4465340
00767  0 02000 0 00760         TRA G14..J                                                F4465350
                                                                                         F4465360
                                DRUM SELECTION SUBROUTINE,COMPUTES NEW DRUM ADDRESS      F4465370
00770  0 60100 0 00764 G11..J STO G18..J                    STORE SWITCH WORD.           F4465380
00771  0 50000 4 00003         CLA 3,4                      PRESERVE DRUM ADDRESS        F4465390
00772  0 60100 0 01020         STO GV5..J                                                F4465400
00773  0 40000 0 01015         ADD GV2..J                   FORM THE NEW DRUM ADDRESS    F4465410
00774  0 40000 0 01010         ADD ONEA.J                                                F4465420
00775  0 60100 4 00003         STO 3,4                                                   F4465430
00776  0 50000 0 01020         CLA GV5..J                   SELECT THE DRUM              F4465440
00777  0 77100 0 00013         ARS 11                                                    F4465450
01000  0 40000 0 01011         ADD GK5..J                                                F4465460
01001  0 60100 0 01002         STO G21..J                                                F4465470
A      01002  0 76600 0 00000 G21..J WRS                                                F4465480
01003  0 02000 2 00001         TRA 1,2                                                   F4465490
                                                                                         F4465500
                                FOLLOWING ARE THE CONSTANTS USED                         F4465510
01004  0 00000 0 03777 GK1..J      2047                                                 F4465520
01005  0 00000 0 04000 GK2..J      2048                                                 F4465530
01006  0 02000 0 00730 GK3..J TRA G25..J                                                F4465540
01007  0 02000 0 00713 GK4..J TRA G24..J                                                F4465550
01010  0 00000 0 00001 ONEA.J      1                                                    F4465560
01011  0 76600 0 00301 GK5..J WDR 1                                                     F4465570
01012  0 00000 0 00002 TWOA.J      2                                                    F4465580
01013  0 77774 0 00000 GK6..J      0,0,-4                                               F4465590
01014  0 00000 0 00000 ZERO.J                                                           F4465600
                                VARIABLES OR TEMPORARY STORAGE                           F4465610
01015  0 00000 0 00000 GV2..J                               LENGTH OF BLOCK             F4465620
01016  0 00000 0 00000 GV3..J                               INDEX OF LAST WORD IN BLOCK F4465630
01017  0 00000 0 00000 GV4..J                               SUM CHECK                   F4465640
01020  0 00000 0 00000 GV5..J                               OLD DRUM ADDRESS            F4465650
01021  0 00000 0 00000 GV6..J                               REMAINING BLOCK LENGTH      F4465660
                       00000 TABLEJ SYN 0                                                F4465670
                       00000 SET..J SYN 0                                                F4465680
                                                                                         F4465690
                                                                                         F4465700
A                      00000         END                                                 F4465710
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REM 704 FORTRAN II, SECTION V, TAG ANALYSIS, 4-1-6-2              F5G00010
                    704 FORTRAN II, SECTION V, TAG ANALYSIS, 4-1-6-2          F5G00010
                    DAVID STERNLIGHT      I.B.M. WORLD HEADQUARTERS  5 NOV 58. F5G00020
                                          INTRODUCTION                        F5G00030
                    THE GENERAL PHILOSOPHY OF SECTION 5 IS TO REDUCE A PROGRAM F5G00040
                    USING AS MANY INDEX REGISTERS AS NEEDED TO ONE USING 3 INDEX F5G00050
                    REGISTERS IN AS EFFICIENT A MEANS AS POSSIBLE, CALLING ON  F5G00060
                    INDEX CELLS WHICH ARE STORAGE LOCATIONS, TO RETAIN DISPLACED F5G00070
                    INFORMATION WHEN THE CONTENTS OF AN INDEX REGISTER MUST BE  F5G00080
                    REPLACED.  THUS THE INDEX CELLS CORRESPOND TO ORIGINAL INDEX F5G00090
                    REGISTERS USED IN THE FORTRAN OBJECT PROGRAM BEFORE SECTION5.F5G00100
                    THE MAIN PROBLEMS SECTION 5 HANDLES ARE THOSE OF KEEPING   F5G00110
                    INDEX CELLS UP TO DATE, AND EFFICIENTLY SEEING TO IT THAT THEF5G00120
                    3 INDEX REGISTERS CONTAIN THE PROPER INFORMATION AT ALL     F5G00130
                    TIMES FOR THE CORRECT EXECUTION OF TAGGED INSTRUCTIONS.     F5G00140
                    GENERALLY, SECTION 5 COMPILES SX,S WHENEVER AN INDEX CELL   F5G00150
                    MUST BE UPDATED SO THAT IF AN INDEX QUANTITY IS NEEDED AND  F5G00160
                    NOT PRESENT IN AN INDEX REGISTER, AN LX CAN BE USED WITHOUT F5G00170
                    CONCERN ABOUT WHAT IS WIPED OUT.  THE SKILLFUL PLACEMENT OF F5G00180
                    THESE SX,S IS ONE OF THE MAJOR JOBS OF SECTION 5.           F5G00190
                    THE PROGRAM IS ANALYZED USING THE CONCEPT OF BASIC BLOCKS,  F5G00200
                    PROGRAM UNITS HAVING A SINGLE ENTRY AND EXIT POINT, AS DEFIN-F5G00210
                    ED BY SECTION 4.  THE LINKS BETWEEN BASIC BLOCKS ARE LABELED F5G00220
                    BY FREQUENCY IN SECTION 4, BY ACTUAL PROGRAM SIMULATION.    F5G00230
                    SECTION 5 ANALYSES THE OBJECT PROGRAM BY STARTING WITH THE  F5G00240
                    HIGHEST FREQUENCY LINK BETWEEN BB,S AND EXPANDING OUTWARD   F5G00250
                    ALONG PREDECESSOR AND SUCCESSOR BASIC BLOCKS.  THE AREA FORM-F5G00260
                    ED IN THIS MANNER IS A PORTION OF THE OBJECT PROGRAM AND IS F5G00270
                    CALLED A LOOPLIST.  THIS IS TREATED TO REDUCE THE NUMBER OF F5G00280
                    INDEX REGISTERS TO 3, IS THEN CALLED A REGION, AND CAN ENTER F5G00290
                    FUTURE LOOPLISTS.  THE LOOPLIST PROCESS IS CONTINUED,       F5G00300
                    CONSTANTLY EXPANDING THE TREATED AREA OF THE OBJECT PROGRAM F5G00310
                    BY THE INCLUSION OF ALREADY TREATED REGIONS IN  THE CURRENT F5G00320
                    LOOPLIST WHERE APPROPRIATE TO THE FLOW OF THE PROGRAM.  THESEF5G00330
                    REGIONS BECOME A PART OF THIS LATEST LOOPLIST,S REGION AT THEF5G00340
                    END OF THE LOOPLIST TREATMENT, FORMING A NEW, SINGLE REGION. F5G00350
                    FINALLY THE ENTIRE PROGRAM HAS BEEN TREATED.  A FURTHER PRIN-F5G00360
                    CIPLE USED BY SECTION 5 IS TO COMPILE THE UPDATING SX,S AS  F5G00370
                    LATE AS POSSIBLE TO TRADE OBJECT PROGRAM SPACE FOR TIME,    F5G00380
                    SINCE THE LATER THE SX IS COMPILED, THE LOWER THE FREQUENCY F5G00390
                    OF TRANSFERS BETWEEN BLOCKS, HENCE THE FEWER THE EXECUTIONS F5G00400
                    OF THE SX.                                                  F5G00410
                    LPLST IS FORMED IN CORES BY SECTION 5 PART 1.  IT SUMMARIZES F5G00420
                    EACH NEW REGION TO BE TREATED.  PREFIX CODES ARE 2=OPAQUE   F5G00430
                    REGION,  1=TRANSPARENT REGION (AT LEAST ONE INDEX REGISTER  F5G00440
                    FREE) AND PREFIX CODE 0=BASIC BLOCKS.  THE BB NUMBER        F5G00450
                    IS CONTAINED IN THE DECREMENT OR ADDRESS.  77777 INDICATES  F5G00460
                    LPLST ENTRY IS AT END OF REGION OR LPLST EXIT IS AT BEGINNINGF5G00470
                    OF REGION, SPECIFIED BY BB NUMBER.  000000 INDICATES NOTHING F5G00480
                    INTERVENING BETWEEN THAT POINT AND THE NEXT DECREMENT OR    F5G00490
                    ADDRESS.  A WORD OF FULL BITS, CALLED SENTINEL, TERMINATES  F5G00500
                    LPLST.  THUS A NEW REGION TO BE TREATED MIGHT HAVE A LPLST  F5G00510
                    BEFORE TREATMENT LIKE                                       F5G00520
                    277777 000014                                               F5G00530
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000023 000000                                                          F5G00540
100026 000033                                                          F5G00550
200003 777777                                                          F5G00560
777777 777777.                                                         F5G00570
THIS MEANS ENTRY IN OPAQUE REGION ENDING IN BB 14, THEN COMESF5G00580
BB23, THEN IMMEDIATELY FOLLOWS A TRANSPARENT REGION FROM      F5G00590
BB 26 TO BB 33, THEN AN OPAQUE REGION ENTERING AT BB 3,       F5G00600
TERMINATING THIS LPLST.  WHEN TREATED, THIS ENTIRE LPLST      F5G00610
BECOMES A NEW, SINGLE REGION, ENCOMPASSING THE OLD REGIONS    F5G00620
AND BB,S IN IT, WHICH WILL DISAPPEAR.                         F5G00630
REG TABLE, IN CORES, HAS 1 WORD PER EXISTING REGION.  PREFIX F5G00640
INDICATES EXISTENCE IN REGION OF LX,S TO THE IR,S ,           F5G00650
DECREMENT=FIRST BB NO. IN REGION,  TAG BITS=EMPTINESS         F5G00660
THROUGHOUT REGION OF IR,S.                                    F5G00670
     INPUT TABLES INCLUDE PRED, SUCC, BBB, ALL ON DRUM.       F5G00680
SUCC IS FIRST DRUM TABLE.  IT IS PREPARED BY SECTION 4,       F5G00690
ORDERED ON BB NUMBER.  IT IS PING PONGED BETWEEN DRUM AND     F5G00700
CORES BY THE SE6 ROUTINE.                                     F5G00710
THE WORD FORMAT IS SIGN BIT MADE NEGATIVE BY X89 WHEN A LINK F5G00720
IS TREATED.  BITS 1-14=FREQUENCY OF LINK,  ADDRESS=NO. OF     F5G00730
SUCCESSOR BASIC BLOCK.                                        F5G00740
PRED IS THE SECOND DRUM TABLE.  IT IS PREPARED BY SECTION 4. F5G00750
PRED IS ORDERED ON BB NUMBER AND PING PONGED BETWEEN DRUM ANDF5G00760
CORES BY THE SE5 ROUTINE.                                     F5G00770
WORD FORMAT IS SIGN BIT NEGATIVE WHEN LINK TREATED.           F5G00780
BITS 1-14=FREQUENCY OF LINK.  BITS 15-17 CALL FOR LX,S TO     F5G00790
THE 3 INDEX REGISTERS AND BITS 18-20 CALL FOR SX,S TO APPRO-  F5G00800
PRIATE INDEX CELLS.  THESE SX,S WILL LATER BE COMPILED        F5G00810
BETWEEN BASIC BLOCKS BY PART 4 OF SECTION 5.  THE ADDRESS     F5G00820
CONTAINS THE NUMBER OF THE PREDECESSOR BASIC BLOCK.           F5G00830
BBB IS THE THIRD DRUM TABLE, AND IS PREPARED BY SECTION 4.    F5G00840
THERE IS A 6 WORD ENTRY FOR EACH BB, AND A FINAL DUMMY ENTRY.F5G00850
THE SE AND SE1 ROUTINES PING PONG BBB BETWEEN DRUM AND CORES.F5G00860
WORD FORMAT FROM SECTION 4.  FIRST WORD DECR=STARTING POINT   F5G00870
IN SUCC,  ADDRESS=STARTING POINT IN PRED OF ENTRIES           F5G00880
REFERRING TO THIS BASIC BLOCK.  FIRST WORD PREFIX CONTAINS    F5G00890
CODE DESCRIBING TYPE OF ENDING BB HAS.  CODING IS....         F5G00900
000=DO WITH AN IF,  001=MSE,  010=PROBABILITY BRANCH          F5G00910
011=CERTAINTY BRANCH,  100=DO WITHOUT AN IF,  101=GO TO N,    F5G00920
110=STOP.  SECOND WORD, BITS 12-17=PERMUTATION NUMBERS,       F5G00930
INITIALIZED TO 33 BY SECTION 4.  ADDRESS=ORDINAL NUMBER OF    F5G00940
FIRST TAGLIST ENTRY BELONGING TO THIS BB.  REMAINING WORDS    F5G00950
INITIALIZED TO ZEROES BY SECTION 4.                           F5G00960
IN SECTION 5 PART 1, FURTHER ENTRIES ARE MADE.  SECOND WORD   F5G00970
BITS S-2 INDICATE IR ACTIVITY IN THIS BB.  PERMUTATION NOS.   F5G00980
MAY UNDERGO CHANGE.  WORDS 3-5 RECORD ENTRY AND EXIT CONDS.   F5G00990
FOR THE 3 INDEX REGISTERS IN THE DECREMENT AND ADDRESS.       F5G01000
WORD 6 DECR=REGION NUMBER BB CURRENTLY BELONGS TO.            F5G01010
ADDRESS=NUMBER OF NEXT BB IN REGION.                          F5G01020
STAG IS THE FOURTH DRUM TABLE.  INITIALIZED TO ZEROES AT SEC.F5G01030
5 PART 1 START.  ONE 4 BIT ENTRY FOR EACH TAGLIST INSTRUCTIONF5G01040
IS MADE IN SECTION 5 PART 1 AND READ IN PART 4.  BITS S-8     F5G01050
CALL FOR AN SX PRECEDING THE TAGLIST INSTRUCTION,  BITS 9-17 F5G01060
FOR AN LX FOLLOWING.  BITS 18-35 IN PAIRS SPECIFY THE INDEX   F5G01070
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REGISTER TAGLIST INSTRUCTION IS TO USE.  THUS PRED RECORDS    F5G01080
INTER BB LX,S AND SX,S AND STAG RECORDS INTRA-BB LX,S AND     F5G01090
SX,S.  STAG IS HANDLED BY THE SE4 ROUTINE.                    F5G01100
CMTAG, THE CORE BUFFER FOR TAGLIST, HAS THE SAME WORD         F5G01110
FORMAT, THAT IS, THE DECREMENT CONTAINS THE INSTRUCTION       F5G01120
CLASS, CODED FROM 0 TO 6, AND THE ADDRESS CONTAINS THE        F5G01130
SYMBOLIC ADDRESS, AS FOLLOWS,   BITS 24-26 CONTAIN TAU 1,2,   F5G01140
OR 3, AND BITS 27-35 CONTAIN THE NUMBER OF THE ENTRY IN THAT  F5G01150
TAU TABLE.  NOTE THAT IN THE OUTPUT, THE SYMBOLIC ADDRESS OF  F5G01160
INDEX CELLS IS, TAU 1=G,  TAU 2=10, TAU 3=1G, AND THIS        F5G01170
SYMBOL IS FOLLOWED BY THE NUMBER OF THE ENTRY.  THUS A        F5G01180
TAGLIST ENTRY IN THE ADDRESS OF 003005 BECOMES 1G5, THAT IS,  F5G01190
TAU 3, ENTRY 5.  THE INSTRUCTION CLASSES AS FOLLOWS,  IN DECRF5G01200
L=LXA,LXD,PAX,PDX.   2=LXP.  3=DED.  4 IS UNUSED BUT AVAIL.   F5G01210
FOR TNX.  5=ACTIVE INSTR LIKE TIX AND TXI.  6=PASSIVE INSTR.  F5G01220
A PASSIVE INSTR IS A TAGGED INSTR THAT DOES NOT CHANGE THE    F5G01230
CONTENTS OF THE INDEX REGISTER.  7=UNUSED BUT AVAIL. FOR TIX.F5G01240
WHEN 7 IS USED FOR A TIX, IT REPRESENTS A TIX USED AS A       F5G01250
TRANSFER, NOT AN ACTIVE TIX.  ACTIVE INSTRUCTIONS MAY         F5G01260
BE RECOGNIZED BY THEIR ADDRESSES, WHICH ARE OF THE FORM *+Q   F5G01270
WHERE Q IS SOME CONSTANT.                                     F5G01280
CORE INFORMATION TRANSFERRED BETWEEN SECTION 4 AND SECTION 5  F5G01290
IS IN THE LAST 4 CORE LOCATIONS, CALLED KEYS.                 F5G01300
GIVING DRUM TABLE LENGTHS.  TAPE TABLES USED FOR INPUT        F5G01310
INCLUDE TAGLIST AND CIT.  INTERMEDIATE TABLES INCLUDE THE     F5G01320
ABOVE AND STAG, LPLST, CMTAG, AND REG.  CMTAG IS A CORE       F5G01330
BUFFER FOR TAGLIST.  THE DRUM TABLES ALSO APPEAR IN CORE      F5G01340
IN BUFFER LOADS WHEN THE SOURCE PROGRAM EXCEEDS A CERTAIN     F5G01350
COMBINATION OF THE FACTORS OF LENGTH AND COMPLEXITY OF        F5G01360
TRANSFER STRUCTURE.  OUTPUT TABLES INCLUDE CIT ON TAPE.       F5G01370
TAGLIST, ON TAPE 3, IS HANDLED BY THE S4 SUBROUTINE.  IT IS AF5G01380
SEQUENTIAL LIST OF ALL TAGGED OBJECT PROGRAM INSTRUCTIONS     F5G01390
RESULTING FROM SECTION 3.  EACH ENTRY IS ONE WORD.  THE       F5G01400
PREFIX DESCRIBES THE TYPE OF INSTRUCTION AND THE ADDRESS      F5G01410
CONTAINS SYMBOLIC INDEX REGISTER,S NAME.                      F5G01420
     BY USING LARGER MACHINE SIZE THAN 4K, THE PROGRAM        F5G01430
TABLE SPACE IN CORE CAN BE INCREASED, PROVIDING FASTER        F5G01440
COMPILING AND REDUCING THE AMOUNT OF DRUM PING PONGING.       F5G01450
IN ADDITION, SENSE SWITCH 4, WHEN DOWN, PROVIDES UP TO        F5G01460
20 PER CENT FASTER COMPILING ON LARGER SOURCE PROGRAMS, AT     F5G01470
A NEGLIGIBLE LOSS, IN MOST CASES, IN OBJECT PROGRAM           F5G01480
EFFICIENCY.  THIS SENSE SWITCH HAS NO EFFECT ON SHORTER       F5G01490
PROGRAMS.                                                     F5G01500
     IN ORDER TO INCREASE TABLE SPACE AS DESCRIBED ABOVE,     F5G01510
SECTION IV OF FORTRAN, THE FLOW PASS OF TAG ANALYSIS, MUST    F5G01520
BE ADJUSTED AS TO LENGTHS OF DRUM TABLE BUFFER LOADS PASSED   F5G01530
ON TO SECTION V, AND THE POSITION OF INFORMATION AT THE END   F5G01540
OF CORES , HERE SAID TO BE IN KEYS, MUST BE CHANGED.          F5G01550
IN SECTION V, MSIZE AS WELL AS OTHER ITEMS SPECIFIED IN       F5G01560
THE FOLLOWING PARAMETER LIST MUST BE CHANGED.                 F5G01570
                    4-1-6-2 PARAMETER LIST                    F5G01580
10000  MSIZE EQU 4096          4-1-6-2 MEMORY SIZE            F5G01590
00062    FP1 EQU 50            4-1-6-2 REG TABLE SIZE         F5G01600
00036   S3P1 EQU 30            4-1-6-2 LPLST TABLE SIZE       F5G01610
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                    00062     STL EQU 50                    4-1-6-2 STAG LENGTH                                F5G01620
                                                  FIXED PARAMETER LIST, INDEP. OF CORESIZE                     F5G01670
                    07774    KEYS SYN MSIZE-4               CONSTANTS TO RELATE PROGRAM TO TABLES              F5G01680
                                      ORDER OF DRUM TABLES IS SUCC STARTING AT ZERO, FOLLOWED BY              F5G01690
                                      PRED, BBB, AND STAG, WHICH IS FILLED IN BY SECTION V.                   F5G01700
                                      THE ORDER OF INFORMATION IN KEYS IS ... KEYS=NUMBER OF BBS,             F5G01710
                                      KEYS+1=START OF PRED, KEYS+2=START OF BBB, AND KEYS+3=STAG.             F5G01720
                    00004 INSTTP EQU 4                      COMPILED INST ON TAPE 4                           F5G01730
                    00003   TAPE EQU 3                      OUTPUT TAPE IS 3                                  F5G01740
                    00003  OTAPE EQU 3                      OUTPUT TAPE IS 3                                  F5G01750
                    00003    BLT EQU 3                      BLOCK LIST ON TAPE 3                              F5G01760
                    00002  ACTPE EQU 2                      ASSIGN CONSTANTS ON TAPE 2                        F5G01770
                    00001  RECNO EQU 1                      NO OF CIT RECORDS IN AT ONE TIME                  F5G01780
                    00144  ZINST EQU RECNO*100              LENGTH OF INST TABLE                              F5G01790
                    00144  LCLST EQU 100                    LENGTH OF OUTPUT BLOCK, COMPILED INSTR            F5G01800
                    00200   NSXD EQU 128                    NO. OF SXD CASES IN SXD LIST                      F5G01810
                    00024   PTL1 EQU 20                     SPACE FOR PATCHES, PART 1                         F5G01811
                    00051   PTL2 EQU 41                     SPACE FOR PATCHES, PART 2.                        F5G01812
                    00052   PTL3 EQU 42                     SPACE FOR PATCHES, PART 3                         F5G01813
                    00042   PTL4 EQU 34                     SPACE FOR PATCHES, PART 4.                        F5G01814
                    00000    SET EQU 0                      INITIAL DRUM ADDRESS                              F5G01820
                    00000      K EQU 0                      INITIAL DRUM ADDRESS                              F5G01830
                                                  EDITOR RECORD NO. 75                                         F5G01840
                                      FOR CONTROL CARD INFORMATION, SEE END OF ASSEMBLY.                       F5G01850
                                            NO DIAGNOSTIC CALLER FOLLOWS                                       F5G01870
                                                  PART 1A                                                      F5G01880
                                      OPTIMIZE INDEXING EXCEPT FOR PERMUTATION, GO TO N,                       F5G01890
                                      INSTRUCTION COMPILATION.                                                 F5G01900
                    00030          ORG 24                                                                      F5G01910
                                       ROUTINE TO TRANSFER NEXT                                                F5G01920
                                         PROGRAM PART                                                          F5G01930
00030  0 76200 0 00221 R        RTB 1  SKIP DIAGNOSTIC                                                        F5G01940
00031  0 02000 0 00004          TRA 4   READ NEXT PROGRAM RECORD                                              F5G01950
                                      THE ROUTINES SE, SE1, SE4, SE5, SE6 MANIPULATE DRUM TABLES              F5G01960
                                      SUCC, PRED, BBB, AND STAG.  THEY ARE ENTERED WITH THE WANTED            F5G01970
                                      ITEM IN THE AC.  THEY LOAD IX1 FOR IMMEDIATE REFERENCE TO THE           F5G01980
                                      STATED ITEM.  AFTER SAVING CORES ON THE DRUM WHERE NECESSARY,           F5G01990
                                      THEY BRING IN THE APPROPRIATE PART OF DRUM TABLES.  IF THE              F5G02000
                                      ITEM IS ALREADY IN CORES, OF COURSE NO SAVING OR DRUM                   F5G02010
                                      MANIPULATION IS NECESSARY.                                              F5G02020
00032  0 76700 0 00022 SE4      ALS 18                                                                        F5G02030
00033 -0 32000 0 00303          ANA SEK4                                                                      F5G02040
00034  0 07400 2 00101          TSX SE21,2                                                                    F5G02050
                                       PARAMETERS FOR STAG TABLE                                             F5G02060
00035  0 00000 0 00000 STAGP    HTR 0 N(0)                                                                    F5G02070
00036  0 00000 0 00000          HTR 0 N(1)                                                                    F5G02080
00037  0 00062 0 00000          HTR 0,0,STAGL N(S)                                                            F5G02090
00040  0 00000 0 00000          HTR 0,0,SET N(L)                                                              F5G02100
00041  0 00000 0 00001          HTR 1 S                                                                       F5G02110
00042  0 00000 0 00000          HTR SET D(0)                                                                  F5G02120
00043  0 00000 0 05061          HTR STAG A                                                                    F5G02130
                                       PARAMETERS FOR SUCC. TABLE                                            F5G02140
00044 -0 32000 0 00303 SE6      ANA SEK4                                                                      F5G02150
00045  0 07400 2 00101          TSX SE21,2                                                                    F5G02160
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00046  0 00000 0 00000  SUCCP HTR 0                N(0)                    F5G02170
00047 -000000000001           OCT -1 N(1)                                  F5G02180
00050  0 00215 0 00000        HTR 0,0,SUCCL N(S)                           F5G02190
00051  0 00000 0 00000        HTR SET N(L)                                 F5G02200
00052  0 00000 0 00001        HTR 1 S                                      F5G02210
00053  0 00000 0 00000        HTR 0 D(0)                                   F5G02220
00054  0 00000 0 07555        HTR SUCC A                                   F5G02230
                                PARAMETERS FOR PRED. TABLE                F5G02240
                                                                          F5G02250
00055  0 76700 0 00022 SE5    ALS 18                                       F5G02260
00056 -0 32000 0 00303        ANA SEK4                                     F5G02270
00057  0 07400 2 00101        TSX SE21,2                                   F5G02280
00060  0 00000 0 00000  PREDP HTR 0                N(0)                    F5G02290
00061 -000000000001           OCT -1 N(1)                                  F5G02300
00062  0 00215 0 00000        HTR 0,0,PREDL N(S)                           F5G02310
00063  0 00000 0 00000        HTR SET N(L)                                 F5G02320
00064  0 00000 0 00001        HTR 1 S                                      F5G02330
00065  0 00000 0 00000        HTR SET D(0)                                 F5G02340
00066  0 00000 0 07337        HTR PRED A                                   F5G02350
                                PARAMETERS FOR BBB TABLE                  F5G02360
00067  0 76700 0 00022 SE1    ALS 18 BB NO. IN ADDR.                       F5G02370
00070 -0 32000 0 00303 SE     ANA SEK4 BB NO. IN DECR.                     F5G02380
00071  0 07400 2 00101        TSX SE21,2                                   F5G02390
00072  0 00000 0 00000  BBBP  HTR 0                N(0) IN DECR. 1ST BB IN CM F5G02400
00073 -000000000001           OCT -1 N(1) IN DECR,LAST BB IN CM +1         F5G02410
00074  0 00112 0 00000        HTR 0,0,BBBL N(S) IN DECR,NO.+ BBS POS. IN CM F5G02420
00075  0 00000 0 00000        HTR SET N(L) IN DECR,NO. OF BBS              F5G02430
00076  0 00000 0 00006        HTR 6 S IN ADDR.,NO. OF WDS PER BB           F5G02440
00077  0 00000 0 00000        HTR SET D(0) IN ADDR.,INITIAL DRUM ADDR.     F5G02450
00100  0 00000 0 06442        HTR BBB A IN ADDR.,INITIAL CM ADDR           F5G02460
                                2 ED PARAMETER IS + OR - ACCORDING        F5G02470
                                AS CM BLOCK IS FULL OR EMPTY              F5G02480
                                SR FOR SHUFFLING TABLES TO AND FROM DRUM  F5G02490
00101  0 60100 0 00306 SE21   STO SEV2 STORE ITEM NO.,N                    F5G02500
00102  0 34000 2 00002        CAS 2,2 IS N IN CM                           F5G02510
00103  3 00000 0 00000        TXH -,-,-                                    F5G02520
00104 -3 00000 0 00106        TXL SE42,0,-                                 F5G02530
00105  0 02000 0 00156        TRA SE41 POSSIBLY                            F5G02540
00106 -0 63400 4 00311 SE42   SXD SEV5,4 NO,STORE RETURN INDEX             F5G02550
00107  0 50000 2 00002        CLA 2,2                                      F5G02560
00110 -0 12000 0 00120        TMI SE35 IS CM BLOCK EMPTY                   F5G02570
00111  0 07400 4 00262        TSX SE22,4 NO,FORM CHECK SUM                 F5G02580
00112  0 50000 0 00273        CLA SE23                                     F5G02590
00113  0 62100 0 00115        STA SE24 STORE                               F5G02600
00114  0 50000 0 00307        CLA SEV3 CHECK                               F5G02610
00115  0 60100 0 00000 SE24   STO SET SUM                                  F5G02620
00116  0 50000 0 00277        CLA SEK                                      F5G02630
00117  0 07400 4 00166        TSX SE26,4                                   F5G02640
00120  0 50000 0 00314 SE35   CLA ZERO                                     F5G02650
00121  0 56000 0 00306        LDQ SEV2 N(0)=(INT. PT. (N/N(S)).N(S)        F5G02660
00122  0 22100 2 00003        DVP 3,2                                      F5G02670
00123  0 20000 2 00003        MPY 3,2                                      F5G02680
00124 -0 60000 2 00001        STQ 1,2 N(1)=MIN (N (0)+N(S),N(L))           F5G02690
00125  0 50000 2 00001        CLA 1,2                                      F5G02700
00126  0 40000 2 00003        ADD 3,2
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00127  0 56000 2 00004        LDQ 4,2                                                                F5G02710
00130 -0 60000 2 00002        STQ 2,2                                                                F5G02720
00131  0 04000 0 00133        TLQ SE36                                                               F5G02730
00132  0 60100 2 00002        STO 2,2                                                                F5G02740
00133  0 50000 0 00300 SE36   CLA SEK1 TRANSFER IN A                                                 F5G02750
00134  0 07400 4 00166        TSX SE26,4 BLOCK OF THE TABLE                                          F5G02760
00135  0 07400 4 00262        TSX SE22,4 CHECK SUM                                                   F5G02770
00136  0 50000 0 00273        CLA SE23 COMPARE                                                       F5G02780
00137  0 62100 0 00140        STA SE37 CHECK                                                         F5G02790
00140  0 50000 0 00000 SE37   CLA SET SUMS                                                          F5G02800
00141  0 34000 0 00307        CAS SEV3                                                               F5G02810
00142  0 02000 0 00144 SE45   TRA SE43                                                               F5G02820
00143  0 02000 0 00152        TRA SE40 AGREE                                                         F5G02830
00144 -0 53400 4 00151 SE43   LXD TPCT,4     REPEAT 5 TIMES                                         F5G02840
00145  1 00001 4 00146        TXI SE44,4,1                                                           F5G02850
00146 -0 63400 4 00151 SE44   SXD TPCT,4                                                            F5G02860
00147 -3 00004 4 00133        TXL SE36,4,4           TRY AGAIN                                       F5G02870
00150  0 07400 4 00004        TSX 4,4      TRIED 5 TIMES GO TO DIAGNOSTIC                            F5G02880
                              NOTE ON THIS 150 STOP.  THIS DRUM CHECKSUM STOP MAY BE CAUSED          F5G02890
                              BY MACHINE ERROR.                                                      F5G02900
                              IF IX 2 CONTAINS       TABLE IS  AND CHECK                             F5G02910
                              77744                  STAG      40                                    F5G02920
                              77732                  SUCC      51          ALL                       F5G02930
                              77721                  PRED      63         OCTAL                      F5G02940
                              77707                  BBB       75                                    F5G02950
                              TO SEE IF THE CHECKED LOCATION CONTENTS ARE LESS                       F5G02960
                              THAN THE CONTENTS OF 306 OCTAL.  IF SO, SOURCE PROGRAM, RATH-          F5G02970
                              ER THAN MACHINE ERROR IS LIKELY.  THE ERROR COULD BE                   F5G02980
                              A.  TRANSFER TO A NON-EXECUTABLE INSTRUCTION.                          F5G02990
                              B.  UNREACHABLE EXECUTABLE INSTRUCTION IN PROGRAM.                     F5G03000
                              C.  LAST STATEMENT OF A DO IS A TRANSFER.                              F5G03010
                              D.  INCORRECT NUMBER OF ENTRIES IN A FREQUENCY STATEMENT.              F5G03020
00151  0 00000 0 00000  TPCT  HTR -                                                                  F5G03030
00152 -0 63400 0 00151 SE40   SXD TPCT,0     RESET TAPECOUNT                                        F5G03040
00153 -0 53400 4 00311        LXD SEV5,4 RESTORE RETURN INDEX                                        F5G03050
00154  0 50000 0 00306        CLA SEV2 GET N AGANIN                                                  F5G03060
00155  0 02000 0 00156        TRA SE41                                                               F5G03070
                               THE ITEM MIGHT BE IN STORAGE                                          F5G03080
00156  0 40200 2 00001 SE41   SUB 1,2 N-N(0)                                                         F5G03090
00157 -0 12000 0 00106        TMI SE42 DOES IT LIE IN STORAGE                                        F5G03100
00160  0 76500 0 00043        LRS 35 YES,INDEX=                                                      F5G03110
00161  0 20000 2 00005        MPY 5,2 COM((N-N(0).S)                                                 F5G03120
00162  0 76300 0 00021        LLS 17                                                                 F5G03130
00163  0 40200 0 00304        SUB SEK5                                                               F5G03140
00164  0 73400 1 00000        PAX 0,1                                                                F5G03150
00165  0 02000 4 00001        TRA 1,4                                                                F5G03160
                               DRUM TRANSFER SUBROUTINE PROPER                                       F5G03170
00166 -0 63400 4 00310 SE26   SXD SEV4,4 STORE RETURN INDEX AND ITEM NO. TO BE TRANSFERRED          F5G03180
00167  0 60100 0 00260        STO SE25 STORE READ-WRITE INDICATOR                                    F5G03190
00170  0 56000 2 00003        LDQ 3,2 FORM                                                           F5G03200
00171  0 20000 2 00005        MPY 5,2 N(S)*S+1                                                       F5G03210
00172  0 76300 0 00021        LLS 17 AND                                                             F5G03220
00173  0 40000 0 00315        ADD ONEA STORE                                                         F5G03230
00174  0 60100 0 00305        STO SEV1 IT                                                            F5G03240
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00175   0 50000 0 00314          CLA ZERO FORM                                  F5G03250
00176   0 56000 2 00001          LDQ 1,2 ((N(0)/N(S))                           F5G03260
00177   0 22100 2 00003          DVP 3,2     (N(S)(S+1))                        F5G03270
00200   0 20000 0 00305          MPY SEV1                                       F5G03280
00201  -0 60000 0 00305          STQ SEV1 INITIAL DRUM ADDRESS                  F5G03290
00202   0 50000 2 00006          CLA 6,2 =D(0)+(NON(S))$(N(S).S=1)              F5G03300
00203   0 40000 0 00305          ADD SEV1                                       F5G03310
00204   0 60100 0 00313          STO SEV7 SET LDA INSTRUCTIONS                  F5G03320
00205   0 76700 0 00007          ALS 7 COMPUTE THE                              F5G03330
00206   0 76000 0 00006          COM  DRUM SELECTION                            F5G03340
00207  -0 73400 1 00000          PDX 0,1 INDEX                                  F5G03350
00210   0 07400 4 00260          TSX SE25,4 SELECT DRUM                         F5G03360
00211   0 50000 2 00002          CLA 2,2                                        F5G03370
00212   0 40200 2 00001          SUB 1,2 (N(1)-N(0))S                           F5G03380
00213   0 76500 0 00065          LRS 53 INTO MQ                                 F5G03390
00214   0 20000 2 00005          MPY 5,2                                        F5G03400
00215   0 50000 0 00313          CLA SEV7 FORM NO. OF                           F5G03410
00216  -0 32000 0 00301          ANA SEK2 WORDS LEFT ON                         F5G03420
00217   0 40200 0 00302          SUB SEK3 DRUM GROUP                            F5G03430
00220   0 76000 0 00003          SSP                                            F5G03440
00221   0 04000 0 00247          TLQ SE31 MUST BLOCK BE SPLIT                   F5G03450
00222   0 73400 4 00000          PAX 0,4 YES                                    F5G03460
00223   0 40000 2 00007          ADD 7,2 SET INDEX AND                          F5G03470
00224   0 62100 0 00236          STA SE27 COMPUTE ADDRESS OF 1ST CPY            F5G03480
00225   0 40200 2 00007          SUB 7,2 COMPUTE NO.                            F5G03490
00226  -0 60000 0 00305          STQ SEV1 OF WORDS IN                           F5G03500
00227   0 40200 0 00305          SUB SEV1 2 ED TRANSFER                         F5G03510
00230   0 40200 0 00315          SUB ONEA                                       F5G03520
00231   0 76000 0 00003          SSP                                            F5G03530
00232   0 60100 0 00305          STO SEV1                                       F5G03540
00233   0 40000 0 00236          ADD SE27                                       F5G03550
00234   0 62100 0 00243          STA SE29 SET 2 ED CPY                          F5G03560
00235   0 46000 0 00313 SE28     LDA SEV7                                       F5G03570
00236   0 70000 4 00000 SE27     CPY SET,4 TRANSFER                             F5G03580
00237   2 00001 4 00236          TIX SE27,4,1 1ST BLOCK OF WORDS                F5G03590
00240   2 00001 1 00241          TIX SE30,1,1 DECREASE C(1) BY 1                F5G03600
00241   0 07400 4 00260 SE30     TSX SE25,4 SELECT DRUM                         F5G03610
00242   0 53400 4 00305          LXA SEV1,4                                     F5G03620
00243   0 70000 4 00000 SE29     CPY SET,4 TRANSFER                             F5G03630
00244   2 00001 4 00243          TIX SE29,4,1 2 EDBLOCK                         F5G03640
00245  -0 53400 4 00310 SE34     LXD SEV4,4                                     F5G03650
00246   0 02000 4 00001          TRA 1,4 RETURN                                 F5G03660
00247   0 76300 0 00043 SE31     LLS 35 (N(1)-N(0)).S+1                         F5G03670
00250   0 40000 0 00315          ADD ONEA WORDS ARE TO                          F5G03680
00251   0 73400 4 00000          PAX 0,4 BE TRANSFERED                          F5G03690
00252   0 40000 2 00007          ADD 7,2                                        F5G03700
00253   0 62100 0 00255          STA SE32                                       F5G03710
00254   0 46000 0 00313 SE33     LDA SEV7                                       F5G03720
00255   0 70000 4 00000 SE32     CPY SET,4                                      F5G03730
00256   2 00001 4 00255          TIX SE32,4,1                                   F5G03740
00257   0 02000 0 00245          TRA SE34                                       F5G03750
00260   0 76200 1 00300 SE25     RDS 192,1 (OR WRS) DRUM                        F5G03760
00261   0 02000 4 00001          TRA 1,4 SELECTION SUBROUTINE.                  F5G03770
                                      CHECK SUM SUBROUTINE                      F5G03780
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00262  0 50000 2 00002 SE22   CLA 2,2                                                    F5G03790
00263  0 40200 2 00001        SUB 1,2 COMPUTE                                            F5G03800
00264  0 76500 0 00043        LRS 35 (N(1)-N(0)).S                                       F5G03810
00265  0 20000 2 00005        MPY 5,2 THE NUMBER OF WORDS                                F5G03820
00266  0 76300 0 00021        LLS 17 TO BE SUM                                           F5G03830
00267  0 73400 1 00000        PAX 0,1 CHECKED                                            F5G03840
00270  0 40000 2 00007        ADD 7,2 COMPUTE AND STORE                                  F5G03850
                                ADDRESS OF WORD                                       F5G03860
00271  0 62100 0 00273        STA SE23 FOLLOWING LAST TABLE WORD.                        F5G03870
00272  0 50000 0 00314        CLA ZERO CLEAR SUM CHECK.                                  F5G03880
00273  0 36100 1 00000 SE23   ACL -,1     FORM THE                                       F5G03890
00274  2 00001 1 00273        TIX SE23,1,1 SUM CHECK.                                    F5G03900
00275  0 60200 0 00307        SLW SEV3                                                   F5G03910
00276  0 02000 4 00001        TRA 1,4                                                    F5G03920
00277  0 76600 1 00300 SEK    WRS 192,1 WRS,192,1                                        F5G03930
00300  0 76200 1 00300 SEK1   RDS 192,1 RDS,192,1                                       F5G03940
00301  0 00000 0 03777 SEK2   HTR 2047 MASK TO EXTRACT LAST 11 BIT                      F5G03950
00302  0 00000 0 04000 SEK3   HTR 2048 2048 IN ADDR.                                    F5G03960
00303  0 77777 0 00000 SEK4   HTR 0,0,-1          IN DECR. PART                         F5G03970
00304  0 00000 1 00000 SEK5   HTR 0,1 2 15                                              F5G03980
00305  0 00000 0 00000  SEV1       NS.S+1 TEMP STORAGE                                 F5G03990
00306  0 00000 0 00000  SEV2       STORAGE OF N (DECR.)                                F5G04000
00307  0 00000 0 00000  SEV3       STORAGE OF CK SUM.                                  F5G04010
00310  0 00000 0 00000  SEV4       RETURN FROM SE 26                                   F5G04020
00311  0 00000 0 00000  SEV5       RETURN FROM SE                                      F5G04030
00312  0 00000 0 00000  SEV6       STORE N TO BE TRANSFERRED                           F5G04040
00313  0 00000 0 00000  SEV7       INITIAL DRUM ADDR.                                  F5G04050
00314 +000000000000     ZERO   OCT 0                                                   F5G04060
00315  0 00000 0 00001 ONEA   HTR 1                                                    F5G04070
00316  0 00001 0 00000 ONED   HTR 0,0,1                                                F5G04080
                                CONSTANTS USED IN S1                                  F5G04090
00317  0 00006 0 00000 S1K2   HTR 0,0,6 CONSTANT WHICH LOOKS LIKE PASS. REF.          F5G04100
00320  0 00000 0 00010 S1K3   HTR 8 NO. OF S3 VARIABLES SAVED.                        F5G04110
                     00317 C  SYN S1K2                                                F5G04120
00321  0 77777 0 00000 S2K1   HTR 0,0,-1 ONES IN DECR. PART.                          F5G04130
00322  0 00001 0 00000 S2K2   HTR 0,0,1 CONST. USED TO TEST FOR LX.                   F5G04140
00323 -377777777777     S3K1   OCT -377777777777 END LOOP LIST SENTENIAL            F5G04150
00324  0 77777 7 77777 S3K2   HTR -1,-1,-1 USED FOR CF TO FIND OUT IF THIS     IS BB  F5G04160
00325  0 00036 0 00000 S3K3   HTR 0,0,S3P1 INITIALIZING CONST. FOR LOOP LIST          F5G04170
00326 +000000777777     S3K4   OCT 777777 MASK TO EXTRACT LAST 1/2 WORD.            F5G04180
00327  0 77777 0 00000 S3K5   HTR 0,0,-1 MASK TO EXTRACT INST. TYPE                   F5G04190
                                CONSTANTS OF S4                                       F5G04200
00330  0 00000 0 01224 S4K1       CMTL SIZE OF STORAGE FOR TAG TABLE.                 F5G04210
00331  0 00000 0 00017 S4K2   HTR 15 NO OF TAGS PER RECORD.                           F5G04220
00332  0 00000 0 05216 S4K3   HTR CMTAG                                               F5G04230
                                THE L CONSTANTS MUST BE AHEAD OF THOSE FOR S5         F5G04240
00333 +000000777776     LK1    OCT 777776 E,HASH SYMBOL                            F5G04250
00334 -200000000000     LK2    OCT -200000000000 CONSTANTS FOR EXTRACTING          F5G04260
00335 -300000000000     LK3    OCT -300000000000 1ST 2,3 BITS OF WORD RESPT.       F5G04270
                                CONSTANTS FOR MATCHING SUBROUTINE                     F5G04280
00336 +000000777777     S5K1   OCT 777777 PHI,EMPTINESS                            F5G04290
00337 +000000777775     S5K2   OCT 777775 CONSTANT USED TO TEST FOR REAL TAGS       F5G04300
00340 -000000000000     S5K3   OCT -0 -0                                           F5G04310
00341  0 00000 0 00002 S5K4   HTR 2 +2                                              F5G04320
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00342   0 00000 0 00003 S5K5    HTR 3 +3                                                F5G04330
00343   0 00000 0 00010 S5K6    HTR 8 +8                                                F5G04340
00344   0 00000 0 00004 S9K1    HTR 4 +4                                                F5G04350
00345   0 00000 1 00000 S9K2        0,1 MASK FOR PHI DIGIT NO. 1                        F5G04360
00346   0 00000 2 00000             0,2 MASK FOR PHI DIGIT NO. 2                        F5G04370
00347   0 00000 4 00000             0,4 MASK FOR PHI DIGIT NO. 3                        F5G04380
00350   0 00003 0 00000 S9K3    HTR 0,0,3 MASK TO EXTRACT 2 BITS IN DECR.               F5G04390
00351   0 00000 0 07776 SAK1        4094            CONST  USED TO TEST NON EXISTENT BB F5G04400
                                    CONSTANTS OF SB                                     F5G04410
00352 +001000000000     SBK1    OCT +001000000000 CONST. USED TO GENERATE SX BIT. AD.   F5G04420
00353   0 00000 0 77777 SBK2    HTR -1 USED TO EXTRACT ADDR.                            F5G04430
00354   0 00004 0 00000 SBK3    HTR 0,0,4 CONST. TO GENERATE SX BIT FOR TRANSFER        F5G04440
00355   0 04741 0 00000 SCK1    HTR 0,0,LPLST                                           F5G04450
00356 +177777077777     FK1     OCT 177777077777            TRANSPARANT REGION CONST    F5G04460
00357 +277777077777     FK2     OCT 277777077777        OPAQUE REGION CONST             F5G04470
00360   0 00000 7 00000 FK3     HTR 0,7 MASK TO EXTRACT TAG.                            F5G04480
00361 +177777777777     FK4     OCT 177777777777 CONST TO TEST FOR OPAQUE REG.          F5G04490
00362   0 00000 0 00062 FK5     HTR FP1 LENGTH OF REGION LIST                           F5G04500
00363 -000000000000     XK3     OCT -0 3 CONSTANTS USED TO                              F5G04510
00364 +200000000000             OCT 200000000000 CHANGE REGION WDS.                     F5G04520
00365 +100000000000             OCT 100000000000 TO INDICATE IRS LX ED.                 F5G04530
00366 -377776000000     XK4     OCT -377776000000 E,HASH SYMBOL,IN LQT HALF             F5G04540
00367 -300000000000     XK5     OCT -300000000000 MASK FOR PREFIX                       F5G04550
00370 +200000000000     XK6     OCT 200000000000                                        F5G04560
00371   0 00000 0 00011 XK9     HTR 9                                                   F5G04570
                  00363 XK10    SYN XK3 MASK TO EXTRACT 1ST IN BB FIT.                  F5G04580
00372 +000001000000     XK11    OCT 1000000 CONST. TO GENERAGE LX BIT.                  F5G04590
00373   0 00005 0 00000 XK12    HTR 0,0,5 4 CONSTS. USED TO TEST FOR ACTIVE             F5G04600
00374   0 00004 0 00000 XK13    HTR 0,0,4 TNX                                           F5G04610
00375   0 00007 0 00000 XK14    HTR 0,0,7 TIX                                           F5G04620
00376   0 00002 0 00000 XK15    HTR 0,0,2 LXP                                           F5G04630
00377   0 00000 4 00000 XK16    HTR 0,4 CONST. TO GENERATE LX BIT.                      F5G04640
00400   1 00000 0 00000 XK17    PON             CONST. TO SEPARATE TYPES                F5G04650
                  00366 XK18    SYN XK4 E IN LEFT HALF WORD.                            F5G04660
00401 -377777000000     XK19    OCT -377777000000 MASK LEFT HALF WORD.                  F5G04670
00402 -377700777777     XK20    OCT -377700777777 CONST. TO DELETE PERM. NOS.           F5G04680
00403   0 00003 0 00000 XK21    HTR 0,0,3 CONST. TO TEST FOR DED INST.                  F5G04690
00404 -377777077777     XK22    OCT -377777077777 CONST. TO DELETE PHIS.                F5G04700
00405   0 00000 1 00000 XK23    HTR 0,1                                                 F5G04710
00406   0 00000 2 00000         HTR 0,2                                                 F5G04720
00407   0 00000 4 00000         HTR 0,4                                                 F5G04730
00410   0 00000 0 00000  S1V1       TEMP. STORAGE FOR                                   F5G04740
00411   0 00000 0 00000         HTR -                                                   F5G04750
00412   0 00000 0 00000         HTR -               1ST 9 VARIABLES                     F5G04760
00413   0 00000 0 00000         HTR -               IN S3                               F5G04770
00414   0 00000 0 00000         HTR -                                                   F5G04780
00415   0 00000 0 00000         HTR -                                                   F5G04790
00416   0 00000 0 00000         HTR -                                                   F5G04800
00417   0 00000 0 00000         HTR -                                                   F5G04810
00420   0 00000 0 00000  S1V3                       THE CLA IN S3                       F5G04820
00421   0 00000 0 00000  S1V4                       RETURN INDEX                        F5G04830
00422   0 00000 0 00000  S1V5                       (+/-)=DECIDE ON (MOST/LEAST) REPL. I.R. F5G04840
00423   0 00000 0 00000  S1V6                       TEMP                                F5G04850
00424   0 00000 0 00000  S1V7                       STORAGE                             F5G04860
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00425  0 00000 0 00000  IR1
00426  0 00000 0 00000  IR2
00427  0 00000 0 00000  IR3
00430  0 00000 0 00000  IRR
00431  0 00000 0 00000 IND1
00432  0 00000 0 00000 IND2
00433  0 00000 0 00000 IND3
00434  0 00000 0 00000  IN4

00435  0 00000 0 00000  S3V1
00436  0 00000 0 00000  S3V2
00437  0 00000 0 00000  S3V3
00440  0 00000 0 00000  S3V4
00441  0 00000 0 00000  1TAG
00442  0 00000 0 00000  TPE
00443  0 00000 0 00000  INTAG
00444  0 00000 0 00000  S3V5
00445  0 00000 0 00000  S3V8
00446  0 00000 0 00000  S3V6
00447  0 00000 0 00000  S3V7
00450  0 00000 0 00000  S3V9

00451  0 00000 0 00000  S4V1
00452  0 00000 0 00000  S4V2
00453  0 00000 0 00000  S4V3

00454  0 00000 0 00000  S4V4

00455  0 00000 0 00000 IR4
00456  0 00000 0 00000 IR5
00457  0 00000 0 00000 IR6
00460  0 00000 0 00000 ENC
00461  0 00000 0 00000 IRC

00462  0 00000 0 00000 IN1
00463  0 00000 0 00000 IN2
00464  0 00000 0 00000 IN3
00465  0 00000 0 00000 EN4
00466  0 00000 0 00000 EN5
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THE IR1,2,3 CELLS SIMULATE OBJECT MACHINE INDEX REGISTERS,   F5G04870
AND CONTAIN A REAL TAG, THE EMPTY SYMBOL 777777, OR THE HASH F5G04880
SYMBOL 777776. (HASH MEANS THE REGISTER IS NOT EMPTY BUT     F5G04890
ITS CONTENTS HAVE NO VALUE, I.E. LXP COMPILED IN SECTION 3 ORF5G04900
DED COMPILED IN SECTION 2. (LXP IS A WARNING THAT ALTHOUGH IRF5G04910
IS VALUELESS, IT WILL BE LOADED VERY SOON WITH A NEW VALUE.))F5G04920
                                                             F5G04930
              THE 3 I.R.S IN                                 F5G04940
              THE LAST 1/2 OF REGISTER                       F5G04950
                                                             F5G04960
              HOLDS 3,2,1 IF IR1,2,3 SELECTED                F5G04970
 + OR - ACCORDING AS IR1 FOUND OR IR1 NOT FOUND              F5G04980
+ OR - ACCORDING AS IR2 FOUND OR IR2 NOT FOUND               F5G04990
+ OR - ACCORDING AS IR3 FOUND OR IR3 NOT FOUND               F5G05000
          +F OR - IF IR HAS OR HASNT BEEN FOUND              F5G05010
 VARIABLES OF S3 SUBROUTINE                                  F5G05020
 LOCATION OF 1ST TAG IN BB                                   F5G05030
 TAG COUNTER,IN DECR. PART.                                  F5G05040
 + NO. OF TAGS LEFT IN BB AFTER T1X,OR-                      F5G05050
 LOOP LIST INDEX.                                            F5G05060
 THE TAN-TAG                                                 F5G05070
 THE TYPE OF INSTR.                                          F5G05080
 TAG + INSTR. TYPE (ENTRY IN TAG LIST)                       F5G05090
 LOOP LIST QUANTITY                                          F5G05100
 RETURN INDEX                                                F5G05110
 (1ST TAG IN BB-1ST TAG IN C.M.)                             F5G05120
 NO. OF WORDS LEFT IN C.M.                                   F5G05130
 (+/-)= (THIS IS NOT NEW BB/THIS IS NEW BB)                  F5G05140
 VARIABLES OF S4                                             F5G05150
 LOC OF 1ST TAG IN CMTAG                                     F5G05160
 LOC OF 1ST TAG IN NEXT RECORD (TAPE POS.)                   F5G05170
 (LOC OF LAST TAG)+ 1                                        F5G05180
 ABOVE MUST BE SET AT START.                                 F5G05190
 (LOC. OF 1ST TAG IN BB-POS OF TAPE)                         F5G05200
 VARIABLES FOR MATCHING SUBROUTINE S5                        F5G05210
 TEMP. STORAGE FOR C (IR1)                                   F5G05220
 TEMP. STORAGE FOR C (IR2)                                   F5G05230
 TEMP. STORAGE FOR C (IR3)                                   F5G05240
 COUNTER OF =                                                F5G05250
 COUNTER OF =                                                F5G05260
THE IN 1,2,3,  EN4,5,6 CELLS ARE LOADED BY THE S5 ROUTINE    F5G05270
FOR PERMUTATION OF INDEX REGISTER ASSIGNMENT THROUGHOUT AN    F5G05280
ALREADY TREATED REGION UPON ENTRY TO THIS REGION IN LPLST.    F5G05290
OPTIMIZED MATCH TO CURRENT CONTENTS OF IR1,2,3 IS SECURED BY  F5G05300
PERMUTING THE ENTIRE REGION AS NECESSARY.  THE IN1,2,3        F5G05310
AND EN4,5,6 CELLS LINK THE OUTMODED SYSTEM EN1,2,3,  EX1,2,3  F5G05320
ACT1,2,3 FOR THIS REGION WITH THE ABSOLUTE SYSTEM IR1,2,3,    F5G05330
AC1,2,3,  LX1,2,3.  FOR EXAMPLE EN4 IS 3,2,OR1 DEPENDING ON  F5G05340
WHETHER THE CORRESPONDENT OF EN1 IS IR 1,2,OR 3.  INVERSELY, F5G05350
IN1 IS 3,2,OR1 FOR THE CORRESPONDENT OF IR1 EQUAL TO EN1,2,3.F5G05360
 INDEX OF CORRES OF IR1                                      F5G05370
 INDEX OF CORRES OF IR2                                      F5G05380
 INDEX OF CORRES OF IR3                                      F5G05390
 INDEX OF CORRES OF EN1                                      F5G05400
 INDEX OF CORRES OF EN2
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00467  0 00000 0 00000 EN6        INDEX OF CORRES OF EN3                                                    F5G05410
00470  0 00000 0 00000 EN1        THE ENTRANCE REQUIREM                                                     F5G05420
00471  0 00000 0 00000 EN2        ENTS EN1,ENZ,EN3.                                                         F5G05430
00472  0 00000 0 00000 EN3                                                                                  F5G05440
00473  0 00000 0 00000 S5V1       TEMP. STORE FOR RETURN INDEX.                                             F5G05450
00474  0 00000 0 00000 S5V2       TEMP STORE FOR LOOP LIST QUANT.                                           F5G05460
00475  0 00000 0 00000 S9V1       TEMP. STORE FOR BB NO.                                                    F5G05470
00476  0 00000 0 00000 S9V2       TEMP. STORE FOR RETURN INDEX                                              F5G05480
00477  0 00000 0 00000 S9V4       TEMP. STORE FOR REGION WORD.                                              F5G05490
                                  VARIABLES OF SA SUBROUTINE (WHICH GETS EXIT CONDTITIONS)                  F5G05500
00500  0 00000 0 00000 SAV1       TEMP STORE FOR PERMUTATION NOS.                                           F5G05510
00501  0 00000 0 00000 SAV2       RETURN INDEX.                                                             F5G05520
00502  0 00000 0 00000 SAV3       TEMP. STORE FOR REGION WORD.                                              F5G05530
                                 THE EX1,2,3 CELLS CONTAIN THE EXIT REQUIREMENTS FOR A BB THATF5G05540
                                 HAS ALREADY BEEN TREATED.                                                 F5G05550
00503  0 00000 0 00000 EX1        3 EXIT CONDITIONS                                                         F5G05560
00504  0 00000 0 00000 EX2                                                                                  F5G05570
00505  0 00000 0 00000 EX3                                                                                  F5G05580
                                  THE ACT 1,2,3 CELLS CONTAIN ACTIVITY OF AN ALREADY TREATED BBF5G05590
00506  0 00000 0 00000 ACT1       3 ACTIVE                                                                  F5G05600
00507  0 00000 0 00000      HTR -            INDICATORS                                                    F5G05610
00510  0 00000 0 00000      HTR -                                                                          F5G05620
                                  VARIABLES OF SB                                                          F5G05630
00511  0 00000 0 00000 SBV1       RETURN INDEX                                                              F5G05640
00512  0 00000 0 00000 SBV2       TEMP. STORAGE.                                                            F5G05650
00513  0 00000 0 00000 SBV3       TEMP. STORAGE.                                                            F5G05660
00514  0 00000 0 00000 SBV4       INDEX OF REGISTER WHICH IS ACTIVE.                                        F5G05670
00515  0 00000 0 00000 SBV5       STORAGE FOR PERMUTATION NOS.                                              F5G05680
00516  0 00000 0 00000 SCV1       RETURN INDEX                                                              F5G05690
00517  0 00000 0 00000 SCV2       INDEX OF BB.                                                              F5G05700
00520  0 00000 0 00000 SCV3       INDEX OF POSITION IN LOOP LIST                                            F5G05710
00521  0 00000 0 00000 ACIND                + OR - MEANS 2ED OR ACTIVE PASS                               F5G05720
00522  0 00000 0 00000 SDV1       STORE FOR RETURN INDEX.                                                   F5G05730
00523  0 00000 0 00000 SDV2       INDEX OF ACTIVE I.R.                                                      F5G05740
00524  0 00000 0 00000 SDV3       THE PERMUTATION NOS.                                                      F5G05750
00525  0 00000 0 00000 SDV4       TEMP. STORE FOR INDEX OF BB                                               F5G05760
00526  0 00000 0 00000 SFV1       ACTIVE INDICATOR FORMED HERE.                                             F5G05770
00527  0 00000 0 00000 SFV2       RETURN INDEX.                                                             F5G05780
00530  0 00000 0 00000 SGV1                 RETURN INDEX                                                    F5G05790
00531  0 00000 0 00000 SGV2                 PERMUTED REGION WORD                                            F5G05800
00532  0 00000 0 00000 FV1        HIGHEST FREQ. IN REGION (I.C. PRED. TABLE ENTRY)                          F5G05810
00533  0 00000 0 00000 FV2        BB NO. OF BB HAVING HIGHEST FREQ. (ADDR.)                                 F5G05820
00534  0 00000 0 00000 FV3        PRED. NO. (I.C. 0TH WORD FROM BB. (ADDR.)                                 F5G05830
00535  0 00000 0 00000 FV4        WORD HAVING REGION NO. (5TH BB WORD)                                      F5G05840
00536  0 00000 0 00000 FV5        CURRENT BB NO. BEING CONSIDERED. (ADDR.)                                  F5G05850
00537  0 00000 0 00000 FV6        RETURN INDEX OF F1,F80                                                    F5G05860
00540  0 00000 0 00000 FV7        PRED. NO. BEING CONSIDERED IN B.B. (ADDR.)                                F5G05870
00541  0 00000 0 00000 FV8        FIRST PRED. FROM NEXT B.B. (ADDR.)                                        F5G05880
00542  0 00000 0 00000 FV9      0,0,-    TEMP STORE FORCURRENT SUCC IN DECR ONLY                           F5G05890
00543  0 00000 0 00000 FV10     0,0,-     TEMP STORE IN DECR ONLY, CURRENT SUCC                            F5G05900
00544  0 00000 0 00000 FV101      HIGHEST FREQ. IN BB (PRED. TABLE ENTRY)                                   F5G05910
00545  0 00000 0 00000 FV102      BB NO. BEING CONSIDERED. (ADDR.)                                          F5G05920
00546  0 00000 0 00000 FV103      PRED. NO. (0TH WORD FROM BB) (ADDR.)                                      F5G05930
00547  0 00000 0 00000 FV104      WORD HAVING REGION. NO.                                                   F5G05940
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00550  0 00000 0 00000 LPIND          + OR - IF IT ISNT OF IS A LOOP                                    F5G05950
00551  0 00000 0 00000 LV1             THE CONDITIONS OF THE I.R.S                                      F5G05960
00552  0 00000 0 00000 LV2             AT END OF THE                                                    F5G05970
00553  0 00000 0 00000 LV3             1ST LXING PASS.                                                  F5G05980
00554  0 00000 0 00000 LV4             THE LOOP LIST QUANTITY                                           F5G05990
00555  0 00000 0 00000 LV5             WORD FROM BB WITH PRED. AND SUCC. LOCS                           F5G06000
                                       VARIABLES OF 2ED LXING PASS.                                     F5G06010
                                      ACTIVITY.  WHEN SIMULATING A NEW BB IN THE 2ND LXING PASS,        F5G06020
                                      IF AN LX, TXI, OR TIX IS ENCOUNTERED, THE APPROPRIATE INDEX       F5G06030
                                      REGISTER BECOMES ACTIVE.  THIS IS PLUS ACTIVITY.  IF THE SAME     F5G06040
                                      REGISTER MUST BE DISPLACED IN THE SAME LPLST, SB IS ENTERED       F5G06050
                                      TO RECORD AN SX NECESSARY.  SINCE THE ACTIVITY IS PLUS, THE       F5G06060
                                      SX WILL BE COMPILED IN STAG IMMEDIATELY AFTER THE ACTIVE          F5G06070
                                      INSTRUCTION.  THIS SX ENDS THE ACTIVITY, COMPLETELY TAKING        F5G06080
                                      CARE OF THE PROBLEM.  AT THE END OF LPLST, IF THE INDEX           F5G06090
                                      REGISTER IS STILL ACTIVE, OR IF, DURING LPLST, AN ACTIVE          F5G06100
                                      REGISTER FALLS OBSOLETE BY A DED OR LXD, THEN ALL THE BLOCKS      F5G06110
                                      IN WHICH IT IS ACTIVE ARE MARKED BY SC, MAKING THIS ACTIVITY      F5G06120
                                      MINUS.  THIS, UNLIKE PLUS ACTIVITY, CAN NEVER BE ENDED.  THE      F5G06130
                                      APPEARANCE OF A MINUS BB IN A FUTURE LPLST CAUSES THE             F5G06140
                                      APPROPRIATE AC1,2,OR3 TO CONTAIN MINUS ACTIVITY AND WHENEVER      F5G06150
                                      THE CORRESPONDING INDEX REGISTER MUST BE DISPLACED, AN SB         F5G06160
                                      ENTRY WILL CAUSE AN SX TO BE COMPILED IN THE PRED LINK FROM       F5G06170
                                      THAT BB.  THIS POSTPONEMENT OF SX COMPILATION AFTER AN ACTIVE     F5G06180
                                      INSTRUCTION FOR AS LONG AS POSSIBLE PRODUCES A LARGER NUMBER      F5G06190
                                      OF SX,S THAN STRICTLY NECESSARY, BUT PLACES THEM IN LOW           F5G06200
                                      FREQUENCY PATHS, TRADING OBJECT PROGRAM SPACE FOR OBJECT          F5G06210
                                      PROGRAM TIME.                                                     F5G06220
                                      THE AC1,2,3 CELLS DESCRIBE THE ACTIVITY STATUS OF IR1,2,3.        F5G06230
                                      ZERO...NOT ACTIVE,  PLUS ACTIVITY...ACTIVE INSTRUCTION IN A       F5G06240
                                      BB NOT TREATED UNTIL THIS LPLST.  AC1,2,3 CONTAINS INFO.          F5G06250
                                      FOR SB TO MAKE A STAG ENTRY AT THE ACTIVE INSTRUCTION.            F5G06260
                                      MINUS ACTIVITY...ACTIVE INSTR. IN BB ALREADY IN A REGION.         F5G06270
                                      AC1,2,3 CONTAINS INFO. FOR SB TO MAKE A PRED ENTRY AT LINK        F5G06280
                                      OUT OF THE REGION.                                                F5G06290
00556  0 00000 0 00000 AC1              3 ACTIVE INDICATORS,+0 MEANS NOT ACTIVE                          F5G06300
00557  0 00000 0 00000 AC2              IF + VE,THEN ACTIVE THING IS INSTR., DECR. IS                    F5G06310
00560  0 00000 0 00000 AC3              LOC. OF BB IN LOOP LIST,ADDR. IS LOC. OF Y-TAG. IF-VE,           F5G06320
00561  0 00000 0 00000          HTR 0 ACTIVE THING IS TRANSFER, LOC. IN LP LST IN DECR.                  F5G06330
                                      THE LX1,2,3 CELLS CONTAIN THE ENTRANCE REQUIREMENTS FOR A BB.     F5G06340
00562  0 00000 0 00000 LX1              3 ENTRANCE REQUIREMENTS OF A BB                                  F5G06350
00563  0 00000 0 00000 LX2              BUILT UP HERE. +0 MEANS                                          F5G06360
00564  0 00000 0 00000 LX3              NO ENTRANCE REQU. DETERMINED.                                    F5G06370
00565  0 00000 0 00000 XV1              IN DECR., INDEX OF CURRENT REGION                                F5G06380
00566  0 00000 0 00000 XV2              THE NEW REGION WORD.                                             F5G06390
00567  0 00000 0 00000 XV3              THE WORD POSITION IN STAG                                        F5G06400
00570  0 00000 0 00000 XV4              THE DIGIT INDEX WITHIN THE WORD.                                 F5G06410
00571  0 00000 0 00000 XV5              THE LOCATION OF CURRENT TAG (INSTR.)                             F5G06420
00572  0 00000 0 00000 XV6              NEAR X07,C.F. OF TNX BRANCH,NEAR X85, TAG                        F5G06430
00573  0 00000 0 00000 XV7              X07 TO X09+,INDEX OF BB,NEAR X85,TAG                             F5G06440
00574  0 00000 0 00000 XV8              INDEX OF BB NEAR X33                                             F5G06450
                                      PERMUTATION.  WHEN INDEX REGISTER ASSIGNMENTS THROUGHOUT AN       F5G06460
                                      ALREADY TREATED REGION ARE PERMUTED, STAG, PRED AND BBB MUST      F5G06470
                                      BE UPDATED.  INSTEAD, WORD 2 OF BBB CONTAINS PERMUTATION          F5G06480
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00575   0 00000 0 00000 XV9
00576   0 00000 0 00000 XV10
00577   0 00000 0 00000 XV11
00600   0 00000 0 00000 XV12
00601   0 00000 0 00000 XV13
00602   0 00000 0 00000 XV14
00603   0 00000 0 00000 XV15
00604   0 00000 0 00000 XV16
00605   0 00000 0 00000 XV17
00606   0 00000 0 00000 XV18
00607   0 00000 0 00000 XV19
00610   0 00000 0 00000 XV20
00611   0 00000 0 00000 XV21
00612   0 00000 0 00000 XV22
00613   0 00000 0 00000 XV23
00614   0 00000 0 00000 XV24
00615   0 00000 0 00000 AV1
00616   0 00000 0 00000 AV2
00617   0 00000 0 00000 AV3
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NUMBERS THROUGH WHICH THESE TABLES ARE READ, AND UPDATING     F5G06490
REQUIRES ONLY THESE NUMBERS TO BE CHANGED.  IN SECTION 5 PART F5G06500
2 WHEN THE FINAL CONFIGURATION HAS BEEN REACHED, THE TABLES   F5G06510
THEMSELVES ARE ACTUALLY UPDATED.                              F5G06520
 THE PERMUTATION NOS.                                         F5G06530
 INDEX OF I.R. IN BB CONSIDERED.                              F5G06540
                                                              F5G06550
                                                              F5G06560
 INDEX OF PARTICULAR BB X40 ON                                F5G06570
 TEMP. STORE FOR 2 INDEXES                                    F5G06580
 WHILE USING SUBROUTINE.                                      F5G06590
 TEMP. STORE FOR PRED.=,X91-2+X90,X92 X97 ON                  F5G06600
 TEMP. STORE FOR OLD REGION WD.,X74                           F5G06610
 IN ADDR.,X111,NO. OF SUCC. WE SEARCH FOR.                    F5G06620
    TEMP STORE FOR PREVIOUS LPLST QUANTITY                    F5G06630
       TEMP STORE IN DECR. ONLY                               F5G06640
       TEMP STORE FOR TAG NEAR X43                            F5G06650
     NUMBER OF LAST BB FOR WHICH REGION NO. WAS ADDED         F5G06660
    DECR ONLY , TEMP STORE FOR REGION INDEX                   F5G06670
             0 OR NOT0 IF IS OR ISNT SAME AS 1ST REGION       F5G06680
 TEMP. STORE FOR PRED. TABLE ENTRY.                           F5G06690
 TEMP. STORE FOR INDEX OF I.R.                                F5G06700
 TEMP. STORE FOR PERM. NOS.                                   F5G06710
THE S1 AND S111 ROUTINES SELECT THE MOST (S1) OR THE LEAST    F5G06720
(S111) REPLACEABLE INDEX REGISTERS BY SCANNING AHEAD          F5G06730
THROUGH LPLST.  THE IR WHOSE CONTENTS ARE REQUIRED AGAIN      F5G06740
SOONEST (LAST) IS THE LEAST (MOST) REPLACEABLE.  THESE        F5G06750
ROUTINES USE THE S2 SUBROUTINE, WHICH ACTUALLY TRIES TO       F5G06760
SELECT AN IR.                                                 F5G06770
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00620  -0 76000 0 00003 S111   SSM  SET INDICATOR TO-MEANING                F5G06780
00621   0 02000 0 00623        TRA S109 SEARCH FOR LEAST REPLACEABLE I.R.    F5G06790
00622   0 76000 0 00003 S1     SSP  SET INDICATOR TO + MEANING               F5G06800
00623   0 60100 0 00422 S109   STO S1V5 SEARCH FOR MOST REPLACEABLE I.R.      F5G06810
00624  -0 63400 4 00421        SXD S1V4,4 STORE RETURN INDEX.                F5G06820
00625  -0 76000 0 00003        SSM  SET                                      F5G06830
00626   0 60100 0 00431        STO IND1 INDICATORS                           F5G06840
00627   0 60100 0 00432        STO IND2 TO                                   F5G06850
00630   0 60100 0 00433        STO IND3 NOT                                  F5G06860
00631   0 60100 0 00434        STO IN4 FOUND.                                F5G06870
00632  -0 53400 2 00641        LXD S123,2 SET TO LOOP FOR EMPTY I.R.         F5G06880
00633   0 53400 1 00342 S119   LXA S5K5,1        SET COUNT TO 3, N TO 1      F5G06890
00634   0 50000 1 00430 S120   CLA IR1+3,1 IS IRN EMPTY OR                   F5G06900
00635   0 34000 2 00000        CAS 0,2 (FILLED WITH HASH)                    F5G06910
00636  -3 77445 0 00640 S121   TXL S122,0,-LK1 NO, COM(LOC. OF HASH) IN DECR. F5G06920
00637   0 02000 0 00644        TRA S124 YES,                                 F5G06930
00640   2 00001 1 00634 S122   TIX S120,1,1 NO,COUNT TO 3,N=N+1               F5G06940
00641   3 77442 2 00662 S123   TXH S127,2,-S5K1 HAVE WE LOOKED FOR HASH      F5G06950
00642  -0 53400 2 00636        LXD S121,2 NO,SET TO LOOP FOR HASH.           F5G06960
00643   0 02000 0 00633        TRA S119                                      F5G06970
00644   0 50200 0 00422 S124   CLS S1V5 LOOKING FOR MOST REPLACEABLE          F5G06980
00645  -0 12000 0 00656        TMI S129 I.R.                                 F5G06990
00646   0 60100 1 00434        STO IND1+3,1 NO, RECORD IRN ELIMINATED        F5G07000
00647   0 56000 0 00434        LDQ IN4                                       F5G07010
00650   0 60100 0 00434        STO IN4 RECORD SOME IR ELIMINATED             F5G07020
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00651   0 16200 0 00653         TQP S128 HAS AN IR BEEN ELIMINATED BEFORE                F5G07030
00652   0 02000 0 00640         TRA S122                                 NO,             F5G07040
00653   0 53400 1 00342 S128    LXA S5K5,1 SET COUNT TO 3,N=1                            F5G07050
00654   0 50000 1 00434 S126    CLA IND1+3,1 HAS IRN                                     F5G07060
00655   0 12000 0 00660         TPL S125 BEEN ELIMINATED                                 F5G07070
00656  -0 63400 1 00430 S129    SXD IRR,1 NO,SELECT IRN                                  F5G07080
00657   0 02000 4 00001         TRA 1,4 AND RETURN.                                      F5G07090
00660   2 00001 1 00654 S125    TIX S126,1,1 COUNT TO 3,N=N+1                            F5G07100
00661   0 07400 4 00004 S130    TSX 4,4 DIAGNOSTIC, THERE IS AN ERROR.                   F5G07110
00662   0 50000 0 01122 S127    CLA S39                                                  F5G07120
00663   0 60100 0 00420         STO S1V3 STORE ASIDE                                     F5G07130
00664   0 53400 4 00320         LXA S1K3,4 THE                                           F5G07140
00665   0 50000 4 00445 S112    CLA S3V1+8,4 STATE                                       F5G07150
00666   0 60100 4 00420         STO S1V1+8,4 OF THE                                      F5G07160
00667   2 00001 4 00665         TIX S112,4,1 S3 ROUTINE.                                 F5G07170
00670   0 07400 4 01023 S11     TSX S3,4 GET NEXT TAG                                    F5G07180
00671   0 02000 0 00706         TRA S103 COME HERE IF TAG NOT GOT.                       F5G07190
00672   0 50000 0 00410         CLA S1V1                                                 F5G07200
00673   0 34000 0 00435         CAS S3V1 IS THE LOOP COMPLETED                           F5G07210
00674   0 02000 0 00676         TRA S104 NO                                              F5G07220
00675   0 02000 0 00701         TRA S135 PERHAPS                                         F5G07230
00676   0 07400 4 00766 S104    TSX S2,4 NO                                              F5G07240
00677   0 02000 0 00745         TRA S16 COME HERE IF IR DECIDED ON                       F5G07250
00700   0 02000 0 00670         TRA S11 COME HERE IF NOT DECIDED ON                      F5G07260
00701   0 50000 0 00411 S135    CLA S1V1+1 IS THE LOOP COMPLETED                         F5G07270
00702   0 34000 0 00436         CAS S3V2                                                 F5G07280
00703   0 02000 0 00676         TRA S104                                                 F5G07290
00704   0 02000 0 00741         TRA S102 YES                                             F5G07300
00705   0 02000 0 00676         TRA S104                                                 F5G07310
00706   0 34000 0 00323 S103    CAS S3K1 IS THIS AN END LOOP LIST                        F5G07320
00707   0 02000 0 00711         TRA S105 NO                                              F5G07330
00710   0 02000 0 00763         TRA S101 YES                                             F5G07340
00711   0 50000 0 00444 S105    CLA S3V5 GET LOOP LIST QUANTITY AGAIN.                   F5G07350
00712   0 34000 0 00324         CAS S3K2 IS IT A BB                                      F5G07360
00713   0 76100 0 00000         NOP  NO,IT IS EITHER A TRANSPARENT                       F5G07370
00714   0 02000 0 00716         TRA P001                 OR OPAQUE REGION                F5G07380
00715   0 02000 0 00670         TRA S11 YES                                              F5G07390
00716   0 34000 0 00417   P001  CAS S1V1+7                                               F5G07400
00717   0 02000 0 00721         TRA S136                                                 F5G07410
00720   0 02000 0 00741         TRA S102                                                 F5G07420
00721   0 07400 4 00070 S136    TSX SE,4 GET BB WHICH CONTAINS ENTR. REQU.               F5G07430
00722   0 56000 0 00317         LDQ S1K2 MAKE THIS LOOK LIKE A                           F5G07440
00723  -0 60000 0 00442         STQ TPE PASSIVE REFERENCE.                               F5G07450
00724   0 53400 4 00342         LXA S5K5,4 SET COUNT TO 3.                               F5G07460
00725  -0 50000 1 06444 S115    CAL BBB+2,1      PUT THIS TAU TAG                        F5G07470
00726   0 77100 0 00022         ARS 18 IN LOCATION                                       F5G07480
00727   0 60200 0 00441         SLW 1TAG                 TAG                             F5G07490
00730  -0 63400 1 00423         SXD S1V6,1 STORE THE                                     F5G07500
00731  -0 63400 4 00424         SXD S1V7,4 INDEXES.                                      F5G07510
00732   0 07400 4 00766         TSX S2,4 TRY TO SELECT AN I.R.                           F5G07520
00733   0 02000 0 00745         TRA S16 COME HERE IF I.R. SELECTED.                      F5G07530
00734  -0 53400 1 00423         LXD S1V6,1 AND HERE IF NOT. RESTORE                      F5G07540
00735  -0 53400 4 00424         LXD S1V7,4 THE INDEXES.                                  F5G07550
00736   1 77777 1 00737         TXI S114,1,-1      DECREASE ENTR. INDEX                  F5G07560
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00737   2 00001 4 00725 S114    TIX S115,4,1 COUNT TO 3.                                                    F5G07570
00740   0 02000 0 00670         TRA S11                                                                     F5G07580
00741   0 50000 0 00431 S102    CLA IND1 HAS C(IR1) BEEN                                                    F5G07590
00742   0 12000 0 00756         TPL S13 FOUND (ELIMINATED)                                                  F5G07600
00743   0 53400 4 00342 S18     LXA S5K5,4 NO,SELECT                                                        F5G07610
00744  -0 63400 4 00430 S15     SXD IRR,4 IR1.                                                              F5G07620
00745   0 53400 4 00320 S16     LXA S1K3,4 RESTORE S3 (GET NEXT TAG SR)                                     F5G07630
00746   0 50000 4 00420 S113    CLA S1V1+8,4 TO STATE                                                       F5G07640
00747   0 60100 4 00445         STO S3V1+8,4 BEFORE                                                         F5G07650
00750   2 00001 4 00746         TIX S113,4,1 S1 WAS USED.                                                   F5G07660
00751   0 50000 0 00420         CLA S1V3                                                                    F5G07670
00752   0 60100 0 01122         STO S39                                                                     F5G07680
00753   0 07400 4 01133         TSX S4,4 MAKE SURE SAME TAGS ARE IN CM.                                     F5G07690
00754  -0 53400 4 00421         LXD S1V4,4                                                                  F5G07700
00755   0 02000 4 00001 S14     TRA 1,4 RETURN                                                              F5G07710
00756   0 50000 0 00432 S13     CLA IND2 HAS IR2 BEEN                                                       F5G07720
00757   0 12000 0 00762         TPL S107 FOUND (ELIMINATED)                                                 F5G07730
00760   0 53400 4 00341 S108    LXA S5K4,4 NO,SELECT                                                        F5G07740
00761   0 02000 0 00744         TRA S15 IR2.                                                                F5G07750
00762   0 07400 4 00004 S107    TSX 4,4 DIAGNOSTIC, THERE IS AN ERROR                                       F5G07760
                                 OF SOME KIND.                                                           F5G07770
00763   0 56000 0 00550 S101    LDQ LPIND IS THIS                                                           F5G07780
00764   0 16200 0 00741         TQP S102 A LOOP                                                             F5G07790
00765   0 02000 0 00670         TRA S11 YES                                                                 F5G07800
00766   0 50000 0 00441  S2     CLA 1TAG            PUT TAU-TAG IN AC.                                      F5G07810
00767   0 53400 1 00342         LXA S5K5,1 SET COUNT TO 3.                                                  F5G07820
00770   0 56000 1 00434 S22     LDQ IND1+3,1                                                                F5G07830
00771   0 16200 0 00775         TQP S21 BEEN FOUND                                                          F5G07840
00772   0 34000 1 00430         CAS IR1+3,1     NO, IS TAU TAG EQUAL                                        F5G07850
00773   0 02000 0 00775         TRA S21 NO,TO C(IRN)                                                        F5G07860
00774   0 02000 0 00777         TRA S24 YES                                                                 F5G07870
00775   2 00001 1 00770 S21     TIX S22,1,1 NO.                                                             F5G07880
00776   0 02000 4 00002         TRA 2,4 RETURN TO L(TSX)+2                                                  F5G07890
00777   0 50000 0 00442    S24  CLA TPE                 IS IT A DED, LXP, OR LX CLASS.                     F5G07900
01000   0 34000 0 00403         CAS XK21                IF SO, MAKE P=1, MAKING TEST=TMI S25                F5G07910
01001  -0 50100 0 00340         ORA S5K3                WHILE IF SO MAKE TEST TPL S25.                      F5G07920
01002   0 76100 0 00000         NOP                     THUS GO TO S23 AND USE IT IF LXP,DED,LX             F5G07930
01003   0 63000 0 01005         STP TEST                AND TAGS LEFT IN BB AFTER TIX, OR                   F5G07940
01004   0 50200 0 00422         CLS S1V5                IF OTHER AND NO TAGS LEFT IN BB AFTER TIX.          F5G07950
01005  -0 12000 0 01010   TEST  TMI S25                 THIS MIGHT BE A TPL S25.                            F5G07960
01006  -0 63400 1 00430 S23     SXD IRR,1 RECORD IRN INDEX.                                                 F5G07970
01007   0 02000 4 00001         TRA 1,4                                                                     F5G07980
01010   0 56000 0 00314 S25     LDQ ZERO       RECORD IRN FOUND OR ELIM                                     F5G07990
01011  -0 60000 1 00434         STQ IND1+3,1                                                                F5G08000
01012   0 50200 0 00434         CLS IN4        HAS ONE OTHER I R BEEN                                       F5G08010
01013  -0 12000 0 01016         TMI S26 (FOUND/ELIM)                                                        F5G08020
01014   0 60100 0 00434         STO IN4                                                                     F5G08030
01015   0 02000 4 00002         TRA 2,4                                                                     F5G08040
01016   0 53400 1 00342 S26     LXA S5K5,1 SEARCH FOR THE                                                   F5G08050
01017   0 50000 1 00434 S27     CLA IND1+3,1 I.R. WHICH HASNT                                               F5G08060
01020  -0 12000 0 01006         TMI S23 BEEN (FOUND/ELIM) YET.                                              F5G08070
01021   2 00001 1 01017         TIX S27,1,1                                                                 F5G08080
01022   0 07400 4 00004         TSX 4,4   NOT FOUND, DIAGNOSTIC                                             F5G08090
                                THE S3 SUBROUTINE EXISTS IN FEED TAG OR FEED LPLST STATES.                  F5G08100
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                                IN THE FORMER IT FEEDS THE NEXT ITEM FROM TAGLIST AND TAKES  F5G08110
                                THE TAG FEED EXIT.  IN THE LATTER IT FEEDS THE NEXT ITEM FROMF5G08120
                                LPLST AND TAKES THE LPLST FEED EXIT.  WHEN IT COMES TO A     F5G08130
                                LPLST ITEM  WHICH IS A BB AND NOT IN A REGION, IT GOES TO    F5G08140
                                FEED TAG STATE AND STAYS THERE UNTIL THE LAST TAGLIST ITEM INF5G08150
                                THAT BB HAS BEEN FED.  THEN IT RETURNS TO LPLST FEED.  WHEN  F5G08160
                                SENTINEL IS FED THE ROUTINE RE-INITIALIZES ITSELF TO THE     F5G08170
                                BEGINNING OF LPLST AND STAYS IN FEED LPLST STATE.  IT USES   F5G08180
                                THE S4 SUBROUTINE FOR HANDLING TAPE 3 DURING TAGLIST FEEDING.F5G08190
01023 -0 53400 1 00436 S3    LXD S3V2,1 ARE THERE ANY                                        F5G08200
01024  2 00001 1 01122       TIX S39,1,1                                                     F5G08210
01025 -0 63400 4 00445       SXD S3V8,4 NO,STORE RETURN INDEX                                F5G08220
01026  0 50000 0 00437       CLA S3V3                                                        F5G08230
01027  0 60100 0 00450       STO S3V9                                                        F5G08240
01030  0 12000 0 01114       TPL S300 ARE THERE ANY MORE TAGS IN BB                          F5G08250
01031 -0 53400 1 00440       LXD S3V4,1 NO                                                   F5G08260
01032  0 50000 0 00444       CLA S3V5        WAS THE LAST THING                              F5G08270
01033  0 12000 0 01035       TPL S306        AN END LPLST                                    F5G08280
01034 -0 53400 1 00325       LXD S3K3,1      YES, RESET LPLST INDEX                          F5G08290
01035  0 50000 1 04777 S306  CLA LPLST+S3P1,1      GET LOOP LIST QUANTITY                   F5G08300
01036  0 60100 0 00444       STO S3V5 QUANTITY.                                              F5G08310
01037  1 77777 1 01040       TXI S31,1,-1                                                    F5G 8320
01040 -0 63400 1 00440 S31   SXD S3V4,1 THE INDEX.                                          F5G08330
01041  0 34000 0 00323       CAS S3K1 IS THIS END OF LOOP LIST                               F5G08340
01042  0 02000 0 01044       TRA S32 NO,                                                     F5G08350
01043  0 02000 0 01052       TRA S35 YES,                                                    F5G08360
01044  0 34000 0 00324 S32   CAS S3K2                                                        F5G08370
01045  0 76100 0 00000       NOP  NO                                                         F5G08380
01046  0 02000 0 01050       TRA S305                                                        F5G08390
01047  0 02000 0 01053       TRA S34 YES                                                     F5G08400
01050 -0 53400 4 00445 S305  LXD S3V8,4                                                      F5G08410
01051  0 50000 0 00444       CLA S3V5 RETURN WITH LOOP                                       F5G08420
01052  0 02000 4 00001 S35   TRA 1,4         LIST QUANTITY                                   F5G08430
01053  0 07400 4 00070 S34   TSX SE,4 GET INDEX OF BB                                       F5G08440
01054  0 50000 1 06443       CLA BBB+1,1                                                     F5G08450
01055 -0 32000 0 00326       ANA S3K4 GET AND STORE THE                                      F5G08460
01056  0 60100 0 00435 S303  STO S3V1 TAG LOCATION.                                         F5G08470
01057  0 07400 4 01133       TSX S4,4 GO TO PUT TAG IN CM.                                   F5G08480
01060  0 60100 0 00446       STO S3V6 STORE (1ST BB TAG-1ST TAG IN C.M.)                     F5G08490
01061  0 40200 0 00330       SUB S4K1 FORM NO. OF                                            F5G08500
01062  0 76000 0 00003       SSP  WDS LEFT IN C.M.                                           F5G08510
01063  0 60100 0 00447       STO S3V7                                                        F5G08520
01064  0 50000 0 00444       CLA S3V5 GET THE                                                F5G08530
01065  0 40000 0 00316       ADD ONED LOC. OF 1ST                                            F5G08540
01066  0 07400 4 00070       TSX SE,4 TAG IN                                                 F5G08550
01067  0 50000 1 06443       CLA BBB+1,1 NEXT BB.                                            F5G08560
01070 -0 32000 0 00326       ANA S3K4                                                        F5G08570
01071  0 40200 0 00435       SUB S3V1 IS NO. OF TAGS IN BB LESS                              F5G08580
01072  0 34000 0 00447       CAS S3V7 THAN OR EQUAL TO SPACE IN C.M.                         F5G08590
01073  0 02000 0 01076       TRA S304                                                        F5G08600
01074  0 02000 0 01117       TRA S36 YES,                                                    F5G08610
01075  0 02000 0 01117       TRA S36 YES,                                                    F5G08620
01076  0 40200 0 00447 S304  SUB S3V7        STORE S  EXCESS OF TAGS                       F5G08630
01077  0 60100 0 00437       STO S3V3                                                        F5G08640
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01100   0 50000 0 00447          CLA S3V7                                    F5G08650
01101   0 73400 1 00000 S302     PAX 0,1 SET COUNT OF NO. OF TAGS.           F5G08660
01102   1 00001 1 01103 S37      TXI S38,1,1                                 F5G08670
01103  -0 63400 1 00436 S38      SXD S3V2,1                                  F5G08680
01104   0 40000 0 00332          ADD S4K3 SET ADDRESS OF                     F5G08690
01105   0 40000 0 00446          ADD S3V6 CLA                                F5G08700
01106   0 62100 0 01122          STA S39 INSTRUCTION.                        F5G08710
01107  -0 53400 4 00445          LXD S3V8,4                                  F5G08720
01110   0 50000 0 00450          CLA S3V9 IS THIS A                          F5G08730
01111   0 12000 0 01023          TPL S3 NEW BB                               F5G08740
01112   0 50000 0 00444          CLA S3V5 YES,RETURN WITH                    F5G08750
01113   0 02000 4 00001          TRA 1,4 LOOP LIST QUANTITY.                 F5G08760
01114   0 50000 0 00451 S300     CLA S4V1 NEXT TAG NEEDED HAS                F5G08770
01115   0 40000 0 00330          ADD S4K1 LOC. (S+1ST TAG IN C.M.)           F5G08780
01116   0 02000 0 01056          TRA S303                                    F5G08790
01117   0 56000 0 00323 S36      LDQ S3K1                                    F5G08800
01120  -0 60000 0 00437          STQ S3V3                                    F5G08810
01121   0 02000 0 01101          TRA S302                                    F5G08820
01122   0 50000 1 00000 S39      CLA -,1 GET TAG WORD                        F5G08830
01123  -0 63400 1 00436          SXD S3V2,1                                  F5G08840
01124   0 60100 0 00443          STO INTAG AND                               F5G08850
01125  -0 32000 0 00326          ANA S3K4 SEPARATE TYPE                      F5G08860
01126   0 60100 0 00441          STO 1TAG            FROM                    F5G08870
01127  -0 50000 0 00327          CAL S3K5 TAU-TAG.                           F5G08880
01130  -0 32000 0 00443          ANA INTAG                                   F5G08890
01131   0 60100 0 00442          STO TPE                                     F5G08900
01132   0 02000 4 00002          TRA 2,4                                     F5G08910
01133   0 50000 0 00435 S4       CLA S3V1 FORM (LOC. OF 1ST TAG IN BB        F5G08920
01134   0 40200 0 00451          SUB S4V1 -LOC. OF 1ST TAG IN CM)            F5G08930
01135  -0 12000 0 01142          TMI S41 IS TAG IN C.M.                      F5G08940
01136   0 34000 0 00330          CAS S4K1 POSSIBLY,IS IT FOR SURE            F5G08950
01137   0 76100 0 00000          NOP  NO                                     F5G08960
01140   0 02000 0 01142          TRA S41       NO                            F5G08970
01141   0 02000 4 00001          TRA 1,4 YES. RETURN.                        F5G08980
01142   0 50000 0 00435 S41      CLA S3V1 NO,FORM (LOC. OF 1ST TAG IN BB     F5G08990
01143   0 40200 0 00452          SUB S4V2 -POSITION OF TAPE)                 F5G09000
01144  -0 12000 0 01166          TMI S42 MUST WE RUN TAPE BACK WORDS         F5G09010
01145   0 60100 0 00454          STO S4V4 NO,                                F5G09020
01146   0 50000 0 00453          CLA S4V3 CAN ALL THE FOLLOWING TAGS         F5G09030
01147   0 40200 0 00452          SUB S4V2 BE PUT IN C.M.                     F5G09040
01150   0 34000 0 00330          CAS S4K1                                    F5G09050
01151   0 02000 0 01154          TRA S401    NO                              F5G09060
01152   0 02000 0 01173          TRA S45 YES,GO TO SET COUNT                 F5G09070
01153   0 02000 0 01173          TRA S45 YES,TO NO. OF TAGS IN BB.           F5G09080
01154   0 50000 0 00454 S401     CLA S4V4                                    F5G09090
01155   0 34000 0 00331          CAS S4K2 IS TAG IN NEXT RECORD              F5G09100
01156   0 76100 0 00000          NOP  NO                                     F5G09110
01157   0 02000 0 01161          TRA S47                                     F5G09120
01160   0 02000 0 01172          TRA S44 YES                                 F5G09130
01161   0 76200 0 00223 S47      RTB TAPE       NO, SPACE FWD 1 REC.         F5G09140
01162   0 50000 0 00452          CLA S4V2 ADJUST TAPE POSITION               F5G09150
01163   0 40000 0 00331          ADD S4K2                                    F5G09160
01164   0 60100 0 00452 S43      STO S4V2                                    F5G09170
01165   0 02000 0 01142          TRA S41                                     F5G09180
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01166   0 76400 0 00203 S42    BST TAPE ADJUST TAPE POSITION                                                    F5G09190
01167   0 50000 0 00452        CLA S4V2 AFTER BACKSPACING                                                       F5G09200
01170   0 40200 0 00331        SUB S4K2 ONE RECORD.                                                             F5G09210
01171   0 02000 0 01164        TRA S43                                                                          F5G09220
01172   0 50000 0 00330 S44    CLA S4K1 SET COUNT TO STORAGE SIZE.                                              F5G09230
01173   0 73400 2 00000 S45    PAX 0,2                                                                          F5G09240
01174   0 40000 0 00332        ADD S4K3 SET CPY                                                                 F5G09250
01175   0 62100 0 01207        STA S46 ADDRESS.                                                                 F5G09260
01176   0 50000 0 00452        CLA S4V2                                                                         F5G09270
01177   0 60100 0 00451        STO S4V1                                                                         F5G09280
01200   0 76200 0 00223 S49    RTB TAPE                                                                         F5G09290
01201  -0 63400 2 01210        SXD S407,2 STORE (2) IN CASE OF TAPE CHECK                                       F5G09300
01202  -0 76000 0 00012        RTT  TURN OFF TAPE                                                               F5G09310
01203   0 76100 0 00000        NOP  CHECK.                                                                      F5G09320
01204   0 50000 0 00452        CLA S4V2 ADJUST                                                                  F5G09330
01205   0 40000 0 00331        ADD S4K2 TAPE                                                                    F5G09340
01206   0 60100 0 00452        STO S4V2 POSITION                                                                F5G09350
01207   0 70000 2 00000 S46    CPY -,2                                                                          F5G09360
01210   1 00000 0 01216 S407   TXI S48,0,- VALUE OF (2) STORED HERE                                            F5G09370
01211   0 07400 4 00004        TSX 4,4 END OF FILE OCCURRED,DIAGNOSTIC                                          F5G09380
01212  -0 63400 4 01244        SXD S405,4                                                                       F5G09390
01213   0 07400 4 01226        TSX S406,4 CHECK REDUNDANCY BITS                                                 F5G09400
01214  -0 53400 4 01244        LXD S405,4                                                                       F5G09410
01215   0 02000 0 01200        TRA S49                                                                          F5G09420
01216   2 00001 2 01207 S48    TIX S46,2,1 COUNT NO. OF WORDS CPYED.                                            F5G09430
01217   0 70000 0 00454 S409   CPY S4V4 COPY OUT TO                                                             F5G09440
01220   0 02000 0 01217        TRA S409 END OF RECORD.                                                          F5G09450
01221   0 07400 4 00004        TSX 4,4 ERRONEOUS END OF FILE,DIAGNOSTIC                                         F5G09460
01222  -0 63400 4 01244        SXD S405,4 CHECK REDUNDANCY BITS                                                 F5G09470
01223   0 07400 4 01226        TSX S406,4                                                                       F5G09480
01224  -0 53400 4 01244        LXD S405,4                                                                       F5G09490
01225   0 02000 0 01133        TRA S4                                                                           F5G09500
01226   0 76600 0 00333 S406   IOD                                                                             F5G09510
01227  -0 76000 0 00012        RTT                                                                              F5G09520
01230   0 02000 0 01233        TRA S402  TRY AGAIN                                                              F5G09530
01231  -0 63400 0 00151        SXD TPCT,0   RESETS REPEAT COUNT                                                 F5G09540
01232   0 02000 4 00001 S404   TRA 1,4 RETURN                                                                   F5G09550
01233   0 76400 0 00203 S402   BST TAPE PREPARE TO READ AGAIN                                                   F5G09560
01234  -0 53400 2 00151        LXD TPCT,2 FIVE TIMES                                                            F5G09570
01235   1 00001 2 01236        TXI S402A,2,1                                                                    F5G09580
01236  -0 63400 2 00151 S402A  SXD TPCT,2                                                                      F5G09590
01237  -3 00004 2 01241        TXL S402B,2,4 GO ON                                                              F5G09600
01240   0 07400 4 00004        TSX 4,4  NO GOOD,DIAGNOSTIC                                                      F5G09610
01241  -0 53400 2 01210 S402B  LXD S407,2 RESET INDEX                                                           F5G09620
01242   0 76200 0 00223        RTB TAPE                                                                         F5G09630
01243  -0 53400 4 01244        LXD S405,4                                                                       F5G09640
01244   1 00000 0 01207 S405   TXI S46,0,- RETURN ADDR. STORED HERE                                            F5G09650
                               THE S5 SUBROUTINE LOADS EN1,2,3 FROM THE ENTRANCE CONDITIONS                     F5G09660
                               OF THE ENTRY BB IN A REGION WHEN THE REGION IS ENCOUNTERED                       F5G09670
                               IN LPLST.  IN ADDITION, THE PERMUTATION OF INDEX REGISTERS IN                    F5G09680
                               THE REGION PROVIDING THE BEST MATCH BETWEEN IR1,2,3 AND                          F5G09690
                               EN1,2,3 IS LEFT IN CELLS IN1,2,3 AND EN4,5,6 BY S5.  S5 USES                     F5G09700
                               S1,S111,S6,S7,S9, AS SUBROUTINES.                                                F5G09710
01245  -0 63400 4 00473 S5     SXD S5V1,4     STORE RETURN INDEX                                                F5G09720
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01246  0 60100 0 00474        STO S5V2 STORE LOOP LIST QUANTITY                          F5G09730
01247  0 07400 4 01466        TSX S9,4 GET THE ENTRANCE                                  F5G09740
                                   REQUIREMENTS                                         F5G09750
01250  0 50000 0 00340        CLA S5K3                                                   F5G09760
01251  0 53400 2 00343        LXA S5K6,2 STORE -0S IN THE COUNTER OF PHIS + OF REAL      F5G09770
01252  0 60100 2 00470 S51    STO ENC+8,2       STORE -0S IN THE                         F5G09780
01253  2 00001 2 01252        TIX S51,2,1 REGISTERS.                                     F5G09790
01254  0 53400 1 00342        LXA S5K5,1 SET INDEX FOR EN1,N=1                           F5G09800
01255  0 53400 2 00342 S54    LXA S5K5,2      SET INDEX FOR IR1, M EQUALS 1              F5G09810
01256  0 50000 1 00473        CLA EN1+3,1                                                F5G09820
01257  0 34000 0 00336        CAS S5K1 IS ENN EMPTY                                      F5G09830
01260  0 02000 0 01262        TRA S55 NO                                                 F5G09840
01261  0 02000 0 01427        TRA S58 YES                                                F5G09850
01262  0 56000 2 00465 S55    LDQ IN1+3,2 NO                                             F5G09860
01263  0 16200 0 01267        TQP S56 IS IRM ASSIGNED                                    F5G09870
01264  0 34000 2 00430        CAS IR1+3,2 NO,IS C(ENM)=C(IRM)                            F5G09880
01265  0 02000 0 01267        TRA S56 NO.                                                F5G09890
01266  0 02000 0 01433        TRA S59 YES.                                               F5G09900
01267  2 00001 2 01262 S56    TIX S55,2,1 NO. THRU WITH IRS                              F5G09910
01270  2 00001 1 01255 S57    TIX S54,1,1 YES. THRU WITH ENS                             F5G09920
01271  0 53400 2 00342        LXA S5K5,2 YES,SET INDEX FOR IR1,M=1                       F5G09930
01272  0 53400 1 00342 S510   LXA S5K5,1 SET INDEX FOR EN1,N=1                           F5G09940
01273  0 50000 2 00430        CLA IR1+3,2                                                F5G09950
01274  0 34000 0 00336        CAS S5K1 IS IRM EMPTY                                      F5G09960
01275  0 02000 0 01277        TRA S511 NO                                                F5G09970
01276  0 02000 0 01310        TRA S513 YES                                               F5G09980
01277  0 56000 2 00465 S511   LDQ IN1+3,2 NO                                             F5G09990
01300  0 16200 0 01320        TQP S514 IS IRM ASSIGNED                                   F5G10000
01301  0 34000 0 00337        CAS S5K2 NO,IS C(IRM)REAL                                  F5G10010
01302  0 02000 0 01320        TRA S514 NO,                                               F5G10020
01303  0 02000 0 01320        TRA S514 NO,                                               F5G10030
01304  0 50000 0 00461 S512   CLA IRC INCREASE REAL                                      F5G10040
01305  0 40000 0 00315        ADD ONEA UNASSIGNED TAG                                    F5G10050
01306  0 60100 0 00461        STO IRC COUNTER.                                           F5G10060
01307  0 02000 0 01320        TRA S514                                                   F5G10070
01310  0 50000 1 00470 S513   CLA EN4+3,1 HAS ENN                                        F5G10080
01311  0 12000 0 01317        TPL S537 BEEN ASSIGNED                                     F5G10090
01312  0 56000 0 00337        LDQ S5K2 NO,IS C(ENN)                                      F5G10100
01313  0 50000 1 00473        CLA EN1+3,1 REAL                                           F5G10110
01314  0 04000 0 01317        TLQ S537                                                   F5G10120
01315  0 07400 4 01443        TSX S6,4 YES,MAKE IRM=ENN                                  F5G10130
01316  0 02000 0 01320        TRA S514                                                   F5G10140
01317  2 00001 1 01310 S537   TIX S513,1,1 ARE WE THRU WITH EN S                         F5G10150
01320  2 00001 2 01272 S514   TIX S510,2,1 YES, ARE WE THRU WITH IRS                     F5G10160
01321  0 50000 0 00460        CLA ENC YES.                                               F5G10170
01322 -0 12000 0 01327        TMI S515 ARE THERE NO EMPTY ENS                            F5G10180
01323  0 34000 0 00341        CAS S5K4 HOW MANY EMPTY ENS.                               F5G10190
01324  0 02000 0 01327        TRA S515     3  OR 0                                       F5G10200
01325  0 02000 0 01343        TRA S520 2 EMPTY EN                                        F5G10210
01326  0 02000 0 01366        TRA S526 1 EMPTY EN                                        F5G10220
01327  0 53400 1 00342 S515   LXA S5K5,1 3 OR 0 EMPTY EN,N=1                             F5G10230
01330  0 53400 2 00342 S519   LXA S5K5,2 M=1                                             F5G10240
01331  0 50000 1 00470        CLA EN4+3,1                                                F5G10250
01332  0 12000 0 01340        TPL S516 ENN ASSIGNED                                      F5G10260
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01333   0 50000 2 00465 S518    CLA IN1+3,2 NO,IRM                                                      F5G10270
01334   0 12000 0 01337         TPL S517 ASSIGNED                                                       F5G10280
01335   0 07400 4 01443         TSX S6,4 NO,MAKE IRM=IRN                                                F5G10290
01336   0 02000 0 01340         TRA S516                                                                F5G10300
01337   2 00001 2 01333 S517    TIX S518,2,1                                                            F5G10310
01340   2 00001 1 01330 S516    TIX S519,1,1                                                            F5G10320
01341  -0 53400 4 00473         LXD S5V1,4                                                              F5G10330
01342   0 02000 4 00001         TRA 1,4 RETURN                                                          F5G10340
01343   0 50000 0 00461 S520    CLA IRC                                                                 F5G10350
01344   0 34000 0 00341         CAS S5K4 ARE THERE 3 REAL UNASSNED TAGS IN THE IRS                      F5G10360
01345   0 02000 0 01350         TRA S536                                                                F5G10370
01346   0 02000 0 01405         TRA S531 1,NO,GO MATCH EMPTY ENS                                        F5G10380
01347   0 02000 0 01405         TRA S531 2,NO. WITH ANY REAL UNASS. IRS                                 F5G10390
01350   0 07400 4 01450 S536    TSX S7,4    3, YES, TO COPY  IRS, ETC.                                  F5G10400
01351   0 07400 4 00622         TSX S1,4 SELECT MOST REPLACEABLE I.R.                                   F5G10410
01352   0 53400 1 00342         LXA S5K5,1                                                              F5G10420
01353   0 07400 4 01435         TSX S595,4                                                              F5G10430
01354   0 50000 1 00473 S521    CLA EN1+3,1 IS EN                                                       F5G10440
01355   0 34000 0 00336         CAS S5K1 EMPTY                                                          F5G10450
01356   0 02000 0 01360         TRA S522 NO                                                             F5G10460
01357   2 00001 1 01354         TIX S521,1,1 INDEX COUNTER OF IR S                                      F5G10470
01360   0 07400 4 01443 S522    TSX S6,4 MADE ENN = IRM                                                 F5G10480
01361   0 53400 1 00342 S529    LXA S5K5,1                                                              F5G10490
01362   0 50000 1 00460 S525    CLA IR4+3,1    REPLACE THE IRS                                          F5G10500
01363   0 60100 1 00430         STO IR1+3,1                                                             F5G10510
01364   2 00001 1 01362         TIX S525,1,1                                                            F5G10520
01365   0 02000 0 01327         TRA S515                                                                F5G10530
01366   0 56000 0 00461 S526    LDQ IRC                                                                 F5G10540
01367   0 50000 0 00341         CLA S5K4 ARE THERE 2 OR 3 REAL                                          F5G10550
01370   0 04000 0 01403         TLQ S530 UNASSNED TAGS                                                  F5G10560
01371   0 07400 4 01450         TSX S7,4 YES,COPY IRS                                                   F5G10570
01372   0 07400 4 00620         TSX S111,4 LOOK FOR LEAST REPLACEABLE I.R.                              F5G10580
01373   0 07400 4 01435         TSX S595,4                                                              F5G10590
01374   0 53400 1 00342         LXA S5K5,1 ASSIGN THE EMPTY                                             F5G10600
01375   0 50000 1 00473 S527    CLA EN1+3,1 EN TO THE IR                                                F5G10610
01376   0 34000 0 00336         CAS S5K1 SELECTED                                                       F5G10620
01377   0 02000 0 01401         TRA S528                                                                F5G10630
01400   0 07400 4 01443         TSX S6,4 BY                                                             F5G10640
01401   2 00001 1 01375 S528    TIX S527,1,1 S111.                                                      F5G10650
01402   0 02000 0 01361         TRA S529                                                                F5G10660
01403   0 16200 0 01405 S530    TQP S531 IS THERE ONE REAL TAG                                          F5G10670
01404   0 02000 0 01327         TRA S515 NO,GO MATCH ARBITRARILY.                                       F5G10680
01405   0 53400 1 00342 S531    LXA S5K5,1 SET COUNT TO 3,N=1                                           F5G10690
01406   0 53400 2 00342         LXA S5K5,2 SET COUNT TO 3,M=1                                           F5G10700
01407   0 50000 1 00473 S532    CLA EN1+3,1 IS ENN                                                      F5G10710
01410   0 34000 0 00336         CAS S5K1 EMPTY                                                          F5G10720
01411   0 02000 0 01413         TRA S533 NO,                                                            F5G10730
01412   0 02000 0 01415         TRA S534 YES,                                                           F5G10740
01413   2 00001 1 01407 S533    TIX S532,1,1 NO,THRU WITH ENS                                           F5G10750
01414   0 02000 0 01327         TRA S515 YES.                                                           F5G10760
01415   0 50000 2 00465 S534    CLA IN1+3,2                                                             F5G10770
01416   0 12000 0 01425         TPL S535                                                                F5G10780
01417   0 50000 2 00430         CLA IR1+3,2 NO                                                          F5G10790
01420   0 34000 0 00337         CAS S5K2 IS C (IRM) REAL                                                F5G10800
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01421   0 76100 0 00000          NOP  NO                                  F5G10810
01422   0 02000 0 01425          TRA S535                                 F5G10820
01423   0 07400 4 01443          TSX S6,4 YES                             F5G10830
01424   0 02000 0 01327          TRA S515                                 F5G10840
01425   2 00001 2 01415 S535     TIX S534,2,1 NO                          F5G10850
01426   0 02000 0 01413          TRA S533                                 F5G10860
01427   0 50000 0 00460 S58      CLA ENC YESENM EMPTY                     F5G10870
01430   0 40000 0 00315          ADD ONEA INCREASE COUNTER                F5G10880
01431   0 60100 0 00460          STO ENC OF NO. OF EMPTY ENS.             F5G10890
01432   0 02000 0 01270          TRA S57                                  F5G10900
01433   0 07400 4 01443 S59      TSX S6,4 MAKE IRM=ENN                    F5G10910
01434   0 02000 0 01270          TRA S57                                  F5G10920
01435  -0 53400 2 00430 S595     LXD IRR,2                                F5G10930
01436   0 50000 2 00430          CLA IR1+3,2                              F5G10940
01437   0 34000 0 01465          CAS S7K1                                 F5G10950
01440   0 02000 4 00001          TRA 1,4                                  F5G10960
01441   0 02000 0 01361          TRA S529                                 F5G10970
01442   0 02000 4 00001          TRA 1,4                                  F5G10980
01443  -0 75400 1 00000 S6       PXD 0,1                                  F5G10990
01444   0 60100 2 00465          STO IN1+3,2                              F5G11000
01445  -0 75400 2 00000          PXD 0,2                                  F5G11010
01446   0 60100 1 00470          STO EN4+3,1                              F5G11020
01447   0 02000 4 00001          TRA 1,4                                  F5G11030
01450   0 53400 1 00342 S7       LXA S5K5,1 SET COUNT TO 3,M=1            F5G11040
01451   0 50000 1 00430 S71      CLA IR1+3,1 COPY ASIDE C(IRM)            F5G11050
01452   0 60100 1 00460          STO IR4+3,1                              F5G11060
01453   0 56000 1 00465          LDQ IN1+3,1 IRM ASSIGNED                 F5G11070
01454   0 16200 0 01461          TQP S72                                  F5G11080
01455   0 34000 0 00337          CAS S5K2 NO, IS C(IRM) REAL              F5G11090
01456   0 76100 0 00000          NOP                                      F5G11100
01457   0 02000 0 01461          TRA S72 NO                               F5G11110
01460   0 02000 0 01463          TRA S73 YES.                             F5G11120
01461   0 50000 0 01465 S72      CLA S7K1 NO,REPLACE C(IRM)               F5G11130
01462   0 60100 1 00430          STO IR1+3,1 BY IMPOSSIBLE TAG.           F5G11140
01463   2 00001 1 01451 S73      TIX S71,1,1 COUNT TO 3,M=M+1             F5G11150
01464   0 02000 4 00001          TRA 1,4 RETURN                           F5G11160
01465 +000000777760     S7K1     OCT 777760 IMPOSSIBLE TAG VALUE.        F5G11170
                                      THE S9 SUBROUTINE LOADS EN1,2,3.    F5G11180
                                                                          F5G11190
01466  -0 63400 4 00476 S9       SXD S9V2,4 STORE RETURN INDEX.           F5G11200
01467   0 07400 4 00070          TSX SE,4 MAKE SURE BB IS IN C+M+         F5G11210
01470   0 50000 1 06447          CLA BBB+5,1 GET AND                      F5G11220
01471  -0 73400 2 00000          PDX 0,2 STORE THE                        F5G11230
01472   0 50000 2 05061          CLA REG,2 REGION                         F5G11240
01473   0 60100 0 00477          STO S9V4 WORD+                           F5G11250
01474   0 53400 2 00342          LXA S5K5,2 SET COUNT TO 3,N=1            F5G11260
01475   0 50000 1 06443          CLA BBB+1,1 STORE THE WORD               F5G11270
01476   0 60100 0 00475          STO S9V1 CONTAINING THE PERMATATION NOS. F5G11280
01477   0 50000 0 00475 S92      CLA S9V1 EXTRACT THE N TH                F5G11290
01500   0 77100 2 00003          ARS 3,2 PERMUTATION NO.                  F5G11300
01501   0 77100 2 00003          ARS 3,2 AND PUT IT                       F5G11310
01502  -0 32000 0 00350          ANA S9K3 IN                              F5G11320
01503  -0 73400 4 00000          PDX 0,4 INDEX 4.                         F5G11330
01504  -0 50000 0 00477          CAL S9V4 IS THIS                         F5G11340
01505  -0 32000 4 00350          ANA S9K2+3,4 AN EMPTY
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01506  0 10000 0 01515        TZE S93 I,R.                                                    F5G11350
01507  0 50000 0 00336        CLA S5K1 YES,STORE EMPTINESS SYMBOL                             F5G11360
01510  0 60100 4 00473 S94    STO EN1+3,4                                                     F5G11370
01511  1 77777 1 01512        TXI S91,1,-1      DOWN THE ENTR. INDEX                          F5G11380
01512  2 00001 2 01477 S91    TIX S92,2,1 COUNT TO 3                                          F5G11390
01513 -0 53400 4 00476        LXD S9V2,4                                                      F5G11400
01514  0 02000 4 00001        TRA 1,4 RETURN                                                  F5G11410
01515 -0 50000 1 06444 S93    CAL BBB+2,1 SET THE                                             F5G11420
01516  0 77100 0 00022        ARS 18 ENTRANCE REQUIREMENT.                                    F5G11430
01517  0 34000 0 00336        CAS S5K1 IS IT AN EMPTINESS SYMBOL                              F5G11440
01520  0 02000 0 01510        TRA S94 NO,                                                     F5G11450
01521  0 50000 0 00333        CLA LK1 YES,STORE E,(HASH SYMBOL).                              F5G11460
01522  0 02000 0 01510        TRA S94 NO,                                                     F5G11470
                                  THE SA SUBROUTINE LOADS EX1,2,3 AND ACT1,2,3 FROM EXIT    F5G11480
                                  CONDITIONS AND ACTIVITY BITS (PREFIX, WORD 2, BBB) OF THE F5G11490
                                  EXIT BB IN A REGION.                                      F5G11500
01523 -0 63400 4 00501 SA     SXD SAV2,4 STORE RETURN INDEX.                                  F5G11510
01524 -0 32000 0 00353        ANA SBK2          IF THIS IS AN IMPOSSIBLE BB,                  F5G11520
01525  0 56000 0 00351        LDQ SAK1          RETURN AT ONCE, DOING NOTHING                 F5G11530
01526  0 04000 4 00001        TLQ 1,4                                                         F5G11540
01527  0 07400 4 00067        TSX SE1,4 MAKE SURE BB IS IN CM.                                F5G11550
01530  0 50000 1 06447        CLA BBB+5,1 GET AND                                             F5G11560
01531 -0 73400 2 00000        PDX 0,2 STORE                                                   F5G11570
01532  0 50000 2 05061        CLA REG,2 REGION                                                F5G11580
01533  0 60100 0 00502        STO SAV3 WORD.                                                  F5G11590
01534  0 50000 1 06443        CLA BBB+1,1 GET AND STORE THE                                   F5G11600
01535  0 60100 0 00500        STO SAV1 WORD HAVING PERMUTATION NOS.                           F5G11610
01536  0 53400 2 00342        LXA S5K5,2 SET COUNT TO 3,N=N+1                                 F5G11620
01537 -0 50000 0 00500 SA1    CAL SAV1 PUT PERMUTATION                                        F5G11630
01540  0 77100 2 00003        ARS 3,2 NUMBER                                                  F5G11640
01541  0 77100 2 00003        ARS 3,2 IN                                                      F5G11650
01542 -0 32000 0 00350        ANA S9K3 INDEX 4                                                F5G11660
01543 -0 73400 4 00000        PDX 0,4                                                         F5G11670
01544 -0 50000 0 00502        CAL SAV3 IS THIS                                                F5G11680
01545 -0 32000 4 00350        ANA S9K2+3,4 AN EMPTY                                           F5G11690
01546  0 10000 0 01560        TZE SA2 EXIT                                                    F5G11700
01547  0 50000 0 00336        CLA S5K1 YES,STORE EMPTINESS SYMBOL.                            F5G11710
01550  0 60100 4 00506 SA4    STO EX1+3,4                                                     F5G11720
01551 -0 50000 0 00500 SA5    CAL SAV1          STORE THE                                     F5G11730
01552  0 76700 2 00003        ALS 3,2 ACTIVE                                                  F5G11740
01553  0 60200 4 00511        SLW ACT1+3,4          INDICATOR                                 F5G11750
01554  1 77777 1 01555        TXI SA3,1,-1                                                    F5G11760
01555  2 00001 2 01537 SA3    TIX SA1,2,1 COUNT TO 3                                          F5G11770
01556 -0 53400 4 00501        LXD SAV2,4                                                      F5G11780
01557  0 02000 4 00001        TRA 1,4           RETURN                                        F5G11790
01560 -0 50000 1 06444 SA2    CAL BBB+2,1                                                     F5G11800
01561 -0 32000 0 00326        ANA S3K4 IS THIS                                                F5G11810
01562  0 34000 0 00336        CAS S5K1 AN EMPTY SYMBOL                                        F5G11820
01563  0 02000 0 01550        TRA SA4 NO                                                      F5G11830
01564  0 50000 0 00333        CLA LK1 YES REPLACE BY E.                                       F5G11840
01565  0 02000 0 01550        TRA SA4 NO                                                      F5G11850
                                  THE SB SUBROUTINE ENTERS A BIT IN PRED OR STAG TO REQUEST SX F5G11860
                                  COMPILATION.  THE APPROPRIATE ACTIVITY CELL AC1,2, OR 3 IS  F5G11870
                                  EXAMINED.  IF IT IS NEGATIVE (ACTIVE INSTRUCTION IN A BB    F5G11880
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                                ALREADY IN A REGION), THE SX BIT IS PLACED IN PRED IN THE    F5G11890
                                LINK OUT OF THE REGION.  IF IT IS POSITIVE (ACTIVE INSTRUC.  F5G11900
                                IN A BB IN THIS LPLST), THE SX BIT IS PLACED IN THE STAG     F5G11910
                                TABLE AT THE ACTIVE INSTRUCTION.  THE APPROPRIATE AC1,2, OR 3F5G11920
                                IS ALSO TURNED OFF BY SB.                                    F5G11930
                                                                                             F5G11940
01566 -0 63400 1 00514 SB       SXD SBV4,1 STORE INDEX OF ACTIVE I.R+                        F5G11950
01567 -0 63400 4 00511          SXD SBV1,4 STORE INDEX OF RETURN,                            F5G11960
01570  0 50000 1 00561          CLA AC1+3,1 IS THE ACTIVE THING                              F5G11970
01571  0 12000 0 01641          TPL SB1 AN INSTRUCTION                                       F5G11980
01572 -0 73400 1 00000          PDX 0,1 NO                                                   F5G11990
01573  0 50000 1 04777          CLA LPLST+S3P1,1 GET + STORE                                 F5G12000
01574  0 34000 0 00324          CAS S3K2 PRED. BB                                            F5G12010
01575  0 76100 0 00000          NOP                                                          F5G12020
01576  0 02000 0 01600          TRA SB01                                                     F5G12030
01577  0 77100 0 00022          ARS 18 NO                                                    F5G12040
01600  0 62100 0 00513 SB01     STA SBV3                                                     F5G12050
01601  0 50000 1 05000          CLA LPLST+S3P1+1,1                                           F5G12060
01602  0 34000 0 00323          CAS S3K1 END LOOP LIST SENTINEL                              F5G12070
01603  0 02000 0 01605          TRA SB7 NO,                                                  F5G12080
01604  0 50000 0 04741          CLA LPLST YES,SUCCESSOR IS 1ST ENTRY.                        F5G12090
01605  0 07400 4 00070 SB7      TSX SE,4 NO,GET ADDR. OF                                     F5G12100
01606  0 50000 1 06443          CLA BBB+1,1 PRED.                                            F5G12110
01607  0 60100 0 00515          STO SBV5 STORE PERMUTATION NOS.                              F5G12120
01610  0 50000 1 06442          CLA BBB,1 GET ADDR OF 1ST PRED.                              F5G12130
01611  0 60200 0 00512 SB4      SLW SBV2                                                     F5G12140
01612  0 07400 4 00055          TSX SE5,4                                                    F5G12150
01613 -0 50000 1 07337          CAL PRED,1                                                   F5G12160
01614 -0 32000 0 00353          ANA SBK2                                                     F5G12170
01615  0 34000 0 00513          CAS SBV3 IS THIS THE RIGHT TRANSFER                          F5G12180
01616  0 02000 0 01620          TRA SB2 NO                                                   F5G12190
01617  0 02000 0 01623          TRA SB5 YES                                                  F5G12200
01620  0 50000 0 00512 SB2      CLA SBV2 NO TRY NEXT PRED.                                   F5G12210
01621  0 40000 0 00315          ADD ONEA                                                     F5G12220
01622  0 02000 0 01611          TRA SB4                                                      F5G12230
01623  0 53400 2 00342 SB5      LXA S5K5,2                                                   F5G12240
01624 -0 50000 0 00515 SB00     CAL SBV5 SEARCH PERMUTATION                                  F5G12250
01625  0 77100 2 00003          ARS 3,2 NOS. FOR THE INDEX                                   F5G12260
01626  0 77100 2 00003          ARS 3,2 STORED IN SBV4                                       F5G12270
01627 -0 32000 0 00350          ANA S9K3                                                     F5G12280
01630  0 34000 0 00514          CAS SBV4 IS THIS PERMUTATION NO.                             F5G12290
01631  0 02000 0 01633          TRA SB8 NO EQUAL TO THE ACTIVE                               F5G12300
01632  0 02000 0 01635          TRA SB9 YES IR                                               F5G12310
01633  2 00001 2 01624 SB8      TIX SB00,2,1 NO                                              F5G12320
01634  0 07400 4 00004          TSX 4,4 DIAGNOSTIC,ERROR                                     F5G12330
01635  0 50000 0 00354 SB9      CLA SBK3 GENERATE NO STORE                                   F5G12340
01636  0 77100 2 00003          ARS 3,2 THE                                                  F5G12350
01637 -0 60200 1 07337          ORS PRED,1 SX FIT IN                                         F5G12360
01640  0 02000 0 01654          TRA SB6 PRED. TABLE.                                         F5G12370
01641 -0 32000 0 00326 SB1      ANA S3K4                                                     F5G12380
01642  0 76500 0 00043          LRS 35 COMPUTE NO. OF WORD IN                                F5G12390
01643  0 22100 0 00371          DVP XK9 STAG AND POSITION OF SX                              F5G12400
01644  0 73400 2 00000          PAX 0,2 FIT IN WORD.                                         F5G12410
01645 -0 50000 0 00352          CAL SBK1 GENERATE                                            F5G12420
01646  0 76700 2 00010          ALS 8,2 THE BIT
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01647   0 60200 0 00512          SLW SBV2 TO                                                    F5G12430
                                     STORE.                                                     F5G12440
01650   0 76300 0 00043          LLS 35 GET NO. OF WORD OUT OF MQ.                              F5G12450
01651   0 07400 4 00032          TSX SE4,4 MAKE SURE THE WD IS IN C.M.                          F5G12460
01652  -0 50000 0 00512          CAL SBV2                                                       F5G12470
01653  -0 60200 1 05061          ORS STAG,1                                                     F5G12480
01654   0 50000 0 00314 SB6      CLA ZERO SET IR                                                F5G12490
01655  -0 53400 1 00514          LXD SBV4,1 TO                                                  F5G12500
01656   0 60100 1 00561          STO AC1+3,1 NOT ACTIVE.                                        F5G12510
01657  -0 53400 4 00511          LXD SBV1,4 RE-                                                 F5G12520
01660   0 02000 4 00001          TRA 1,4 TURN                                                   F5G12530
                                 THE SC SUBROUTINE HANDLES THE PROBLEM OF AN ACTIVE INDEX       F5G12540
                                 REGISTER WITH NO SUBSEQUENT LX IN THE PRESENT REGION.  THIS    F5G12550
                                 POSTPONES THE NECESSITY OF AN SX UNTIL A LATER LX IS FOUND.    F5G12560
                                 THE ACTIVITY IS TRANSFERRED FROM AC1,2,3 TO PREFIX, WORD 2,    F5G12570
                                 BBB TABLE FOR ALL BB,S DURING WHICH INDEX REGISTER IS ACTIVE.  F5G12580
                                 THIS PERPETUATION OF ACTIVITY WHEN NOT TURNED OFF DURING THE   F5G12590
                                 TREATMENT OF THE SAME LPLST IN WHICH IT AROSE IS CALLED MARK-  F5G12600
                                 ING A SECTION OF LPLST ACTIVE.  ALL BB,S BETWEEN THE ORIGIN    F5G12610
                                 OF THE ACTIVITY AND THE PRESENT POINT OF LPLST WHEN SC IS       F5G12620
                                 ENTERED ARE MARKED ACTIVE, AND THE DESIGNATED AC1,2,3 IS       F5G12630
                                 TURNED OFF.  SD IS USED AS A SUBROUTINE, DOING THE ACTUAL      F5G12640
                                 MARKING OF BB,S ACTIVE.                                        F5G12650
                                                                                                F5G12660
01661   0 50000 1 00561 SC       CLA AC1+3,1 IS IR                                              F5G12670
01662   0 10000 4 00001          TZE 1,4 ACTIVE                                                 F5G12680
01663  -0 63400 4 00516          SXD SCV1,4 YES,STORE RETURN                                    F5G12690
01664  -0 63400 1 01736          SXD SC9,1 AND INDEX OF ACTIVE I.R+                             F5G12700
01665   0 62200 0 00520          STD SCV3 STORE INDEX OF LOOP LIST.                             F5G12710
01666   0 50000 0 00520          CLA SCV3 IS THIS THE CURRENT                                   F5G12720
01667   0 40200 0 00316          SUB ONED                                                       F5G12730
01670  -0 40000 0 00440          SBM S3V4        IS THIS THE CURRENT LPLST INDEX                F5G12740
01671  -0 10000 0 01674          TNZ SC40                                                       F5G12750
01672   0 50000 0 00521          CLA ACIND       YES                                            F5G12760
01673   0 12000 4 00001          TPL 1,4         IS THIS THE ACTIVE PASS                        F5G12770
01674  -0 53400 2 00520 SC40     LXD SCV3,2      YES                                            F5G12780
01675   0 50000 2 04777          CLA LPLST+S3P1,2                                               F5G12790
01676   0 34000 0 00324          CAS S3K2        IS 1ST AACTIVE QUANTITY A BB                   F5G12800
01677   0 02000 0 01721          TRA SC02                                                       F5G12810
01700   0 02000 0 01721          TRA SC02        NO                                             F5G12820
01701   0 02000 0 01734          TRA SC8         YES                                            F5G12830
01702   0 40200 0 00316 SC4      SUB ONED        IS THIS CURRENT                                F5G12840
01703   0 34000 0 00440          CAS S3V4        LOOP LIST INDEX                                F5G12850
01704   0 02000 0 01706          TRA SC2 NO,                                                    F5G12860
01705   0 02000 0 01725          TRA SC5 YES,                                                   F5G12870
01706  -0 53400 2 00520 SC2      LXD SCV3,2 NO,                                                 F5G12880
01707   0 50000 2 04777          CLA LPLST+S3P1,2                                               F5G12890
01710   0 34000 0 00323          CAS S3K1 IS IT END LOOP LIST                                   F5G12900
01711   0 02000 0 01713          TRA SC3 NO,                                                    F5G12910
01712   0 02000 0 01732          TRA SC6 YES,                                                   F5G12920
01713   0 34000 0 00324 SC3      CAS S3K2 NO,IS IT A BB                                         F5G12930
01714   0 76100 0 00000          NOP  NO,                                                       F5G12940
01715   0 02000 0 01717          TRA SC04                                                       F5G12950
01716   0 02000 0 01734          TRA SC8 YES,                                                   F5G12960
01717  -0 53400 2 01736 SC04     LXD SC9,2       NO, PUT INDEX OF ACTIVE IR
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01720   0 07400 4 01753         TSX SD,4 IN 2. GO TO RECORD REGION ACTIVE.                  F5G12970
01721   0 50000 0 00520 SC02    CLA SCV3 PREPARE TO GET                                     F5G12980
01722   0 40200 0 00316         SUB ONED        NEXT                                        F5G12990
01723   0 62200 0 00520 SC7     STD SCV3 LOOP LIST QUANTITY.                                F5G13000
01724   0 02000 0 01702         TRA SC4                                                     F5G13010
01725  -0 53400 1 01736 SC5     LXD SC9,1                                                   F5G13020
01726   0 50000 0 00314         CLA ZERO RECORD I.R. NOT                                    F5G13030
01727   0 60100 1 00561         STO AC1+3,1 ACTIVE ANYMORE.                                 F5G13040
01730  -0 53400 4 00516         LXD SCV1,4                                                  F5G13050
01731   0 02000 4 00001         TRA 1,4 RETURN.                                             F5G13060
01732   0 50000 0 00325 SC6     CLA S3K3            ARRANGE TO GET 1ST LPLST QUANTITY       F5G13070
01733   0 02000 0 01723         TRA SC7 QUANTITY NEXT.                                      F5G13080
01734   0 07400 4 00070 SC8     TSX SE,4                                                    F5G13090
01735  -0 63400 1 00517         SXD SCV2,1 GET INDEX OF BB                                  F5G13100
01736   1 00000 1 01737 SC9     TXI SC01,1,0 INCREASE INDEX BY INDEX OF OCT. I.R.           F5G13110
01737   0 50000 1 06447 SC01    CLA BBB+5,1 GET THE                                         F5G13120
01740  -0 32000 0 00326         ANA S3K4 EXIT CONDITION.                                    F5G13130
01741  -0 53400 2 01736         LXD SC9,2 IS EXIT COND. SAME                                F5G13140
01742   0 34000 2 00430         CAS IR1+3,2 AS TAG IN ACTIVE I.RH                           F5G13150
01743   0 02000 0 01721         TRA SC02 NO,                                                F5G13160
01744   0 02000 0 01746         TRA SC03 YES,                                               F5G13170
01745   0 02000 0 01721         TRA SC02 NO,                                                F5G13180
01746  -0 50000 0 00340 SC03    CAL S5K3 RECORD THAT BB IS                                  F5G13190
01747   0 77100 2 00003         ARS 3,2 ACTIVE                                              F5G13200
01750  -0 53400 1 00517         LXD SCV2,1 WO THIS                                          F5G13210
01751  -0 60200 1 06443         ORS BBB+1,1 I+R.                                            F5G13220
01752   0 02000 0 01721         TRA SC02                                                    F5G13230
01753  -0 63400 2 00523 SD      SXD SDV2,2                                                  F5G13240
01754  -0 63400 4 00522         SXD SDV1,4 STORE RETURN.                                    F5G13250
01755   0 07400 4 00070         TSX SE,4 GET INDEX OF BB                                    F5G13260
01756   0 50000 1 06447         CLA BBB+5,1 GET                                             F5G13270
01757  -0 73400 1 00000         PDX 0,1 REGION                                              F5G13280
01760   0 50000 1 05061         CLA REG,1 WORD.                                             F5G13290
01761   0 07400 4 00070         TSX SE,4 GET BB INDEX.                                      F5G13300
01762  -0 63400 1 00525 SD7     SXD SDV4,1                                                  F5G13310
01763   0 50000 1 06443         CLA BBB+1,1 STORE                                           F5G13320
01764   0 60100 0 00524         STO SDV3 AWAY THE PERMUTATION NOS.                          F5G13330
01765   0 53400 2 00342         LXA S5K5,2 SET COUNT TO 3,N=1                               F5G13340
01766  -0 50000 0 00524 SD3     CAL SDV3 IS                                                 F5G13350
01767   0 77100 2 00003         ARS 3,2 PERMUTATION NO.                                     F5G13360
01770   0 77100 2 00003         ARS 3,2                                                     F5G13370
01771  -0 32000 0 00350         ANA S9K3 N EQUAL                                            F5G13380
01772   0 34000 0 00523         CAS SDV2 TO I.R. INDEX                                      F5G13390
01773   0 02000 0 01775         TRA SD1 NO                                                  F5G13400
01774   0 02000 0 02000         TRA SD4 YES                                                 F5G13410
01775   1 77777 1 01776 SD1     TXI SD1+1,1,-1     NO                                       F5G13420
01776   2 00001 2 01766 SD2     TIX SD3,2,1 COUNT TO 3                                      F5G13430
01777   0 07400 4 00004         TSX 4,4                                                     F5G13440
02000  -0 50000 1 06444 SD4     CAL BBB+2,1                                                 F5G13450
02001  -0 32000 0 00326         ANA S3K4 IS TAG IN                                          F5G13460
02002  -0 53400 4 00523         LXD SDV2,4 EXIT CONDITION                                   F5G13470
02003  -0 53400 1 00525         LXD SDV4,1 SAME AS IN ACTIVE I.R.                           F5G13480
02004   0 34000 4 00430         CAS IR1+3,4                                                 F5G13490
02005   0 02000 0 02007         TRA SD5 NO                                                  F5G13500
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02006  0 02000 0 02020          TRA SD9 YES,IS                                          F5G13510
02007 -0 50000 1 06447 SD5      CAL BBB+5,1 NO THIS LAST                                F5G13520
02010 -0 32000 0 00353          ANA SBK2 BB                                             F5G13530
02011  0 34000 0 00353          CAS SBK2 IN REGION                                      F5G13540
02012  0 02000 0 02014          TRA SD6 NO                                              F5G13550
02013  0 02000 0 02016          TRA SD8 YES                                             F5G13560
02014  0 07400 4 00067 SD6      TSX SE1,4 NO                                            F5G13570
02015  0 02000 0 01762          TRA SD7                                                 F5G13580
02016 -0 53400 4 00522 SD8      LXD SDV1,4 RETURN                                       F5G13590
02017  0 02000 4 00001          TRA 1,4                                                 F5G13600
02020 -0 50000 0 00340 SD9      CAL S5K3 RECORD THIS BB                                 F5G13610
02021  0 77100 2 00003          ARS 3,2 ACTIVE                                          F5G13620
02022 -0 60200 1 06443          ORS BBB+1,1 WO THIS IR                                  F5G13630
02023  0 02000 0 02007          TRA SD5                                                 F5G13640
                                THE SF SUBROUTINE FORMS APPROPRIATE AC1,2,3 ENTRY WHEN AN F5G13650
                                ACTIVE INSTRUCTION IS ENCOUNTERED.                      F5G13660
02024  0 50000 0 00442 SF       CLA TPE IS THIS                                         F5G13670
02025  0 34000 0 00322          CAS S2K2 AN LX                                          F5G13680
02026  0 02000 0 02030          TRA SF1 NO,                                             F5G13690
02027  0 02000 0 02034          TRA SF4 YES,                                            F5G13700
02030  0 34000 0 00373 SF1      CAS XK12 NO,IS IT AN ACTIVE INSTR                       F5G13710
02031  0 02000 4 00001          TRA 1,4 NO RETURN                                       F5G13720
02032  0 02000 0 02034          TRA SF4 YES,                                            F5G13730
02033  0 02000 4 00001          TRA 1,4 NO                                              F5G13740
02034  0 50000 0 00571 SF4      CLA XV5 FORM QUANTITY TO                                F5G13750
02035  0 60100 0 00526          STO SFV1 BE PUT                                         F5G13760
02036 -0 53400 2 00440          LXD S3V4,2 INTO                                         F5G13770
02037  1 00001 2 02040          TXI SF5,2,1 ACTIVE                                      F5G13780
02040 -0 63400 2 00526 SF5      SXD SFV1,2        INDICATOR                             F5G13790
02041  0 02000 4 00002          TRA 2,4                                                 F5G13800
                                  PERMUTE THE PHI AND LX BITS  SUBROUTINE               F5G13810
                                THE SG SUBROUTINE PERMUTES AS INDICATED BY EN4,5,6 ON A REG F5G13820
                                ENTRY.                                                  F5G13830
02042 -0 63400 4 00530 SG       SXD SGV1,4          SAVE RETURN                         F5G13840
02043  0 56000 0 00315          LDQ ONEA            SET NEW LX AND PHI BITS TO ONEA     F5G13850
02044 -0 60000 0 00531          STQ SGV2                                                F5G13860
02045  0 50000 0 00444          CLA S3V5            GET INDEX OF REGION WORD            F5G13870
02046  0 07400 4 00070          TSX SE,4                                                F5G13880
02047  0 50000 1 06447          CLA BBB+5,1                                             F5G13890
02050 -0 73400 2 00000          PDX 0,2                                                 F5G13900
02051  0 53400 4 00342          LXA S5K5,4          SET COUNT TO 3                      F5G13910
02052  0 50000 4 00470 SG1      CLA EN4+3,4         FIND INDEX OF IR                    F5G13920
02053 -0 73400 1 00000          PDX 0,1                                                 F5G13930
02054 -0 50000 2 05061          CAL REG,2           PERMUTE THE LX BIT                  F5G13940
02055  0 76700 4 00003          ALS 3,4                                                 F5G13950
02056 -0 32000 0 00340          ANA S5K3                                                F5G13960
02057  0 77100 1 00003          ARS 3,1                                                 F5G13970
02060 -0 60200 0 00531          ORS SGV2                                                F5G13980
02061 -0 50000 2 05061          CAL REG,2           PERMUTE THE PHI BIT                 F5G13990
02062  0 77100 4 00003          ARS 3,4                                                 F5G14000
02063 -0 32000 0 00405          ANA XK23                                                F5G14010
02064  0 76700 1 00003          ALS 3,1                                                 F5G14020
02065 -0 60200 0 00531          ORS SGV2                                                F5G14030
02066  2 00001 4 02052          TIX SG1,4,1       COUNT TO 3                            F5G14040
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02067 -0 50000 2 05061        CAL REG,2                                                    F5G14050
02070 -0 32000 0 00303        ANA SEK4                                                     F5G14060
02071 -0 50100 0 00531        ORA SGV2                                                     F5G14070
02072  0 60200 2 05061        SLW REG,2                                                    F5G14080
02073 -0 53400 4 00530        LXD SGV1,4          RETURN                                   F5G14090
02074  0 02000 4 00001        TRA 1,4                                                      F5G14100
                                  THE F1 SUBROUTINE FINDS THE HIGHEST FREQUENCY PRED ENTRY FOR F5G14110
                                  A GIVEN BB AND STORES IT IN FV 101.                      F5G14120
                                                                                           F5G14130
02075 -0 63400 4 00537 F1     SXD FV6,4 STORE RETURN                                       F5G14140
02076  0 56000 0 00314        LDQ ZERO SET HIGHEST                                         F5G14150
02077 -0 60000 0 00544        STQ FV101 FREQ. TO 0.                                        F5G14160
02100  0 60100 0 00545        STO FV102 STORE BB NO+                                       F5G14170
02101  0 07400 4 00067        TSX SE1,4 GET INDEX OF BB                                    F5G14180
02102  0 50000 1 06447        CLA BBB+5,1 STORE REGION                                     F5G14190
02103  0 60100 0 00547        STO FV104 NO. WORD.                                          F5G14200
02104 -0 50000 1 06442        CAL BBB,1 GET PRED.                                          F5G14210
02105  0 62100 0 00540        STA FV7 NO. AND STORE IT                                     F5G14220
02106 -0 50000 0 00545        CAL FV102           GET AND STORE                            F5G14230
02107  0 40000 0 00315        ADD ONEA FIRST PRED. IN                                      F5G14240
02110  0 07400 4 00067        TSX SE1,4 NEXT B.B.                                          F5G14250
02111  0 50000 1 06442        CLA BBB,1                                                    F5G14260
02112  0 62100 0 00541        STA FV8                                                      F5G14270
02113  0 50000 0 00540        CLA FV7 IS THIS PRED.                                        F5G14280
02114  0 34000 0 00541 F4     CAS FV8 IN SAME BB                                           F5G14290
02115  0 02000 0 02117        TRA F2                                                       F5G14300
02116  0 02000 0 02134        TRA F5 NO                                                    F5G14310
02117  0 07400 4 00055 F2     TSX SE5,4 GET INDEX OF PRED                                  F5G14320
02120  0 50000 1 07337        CLA PRED,1                                                   F5G14330
02121  0 34000 0 00544        CAS FV101 IS THIS FREQ. GREATER                              F5G14340
02122  0 02000 0 02125        TRA F92                                                      F5G14350
02123  0 76100 0 00000        NOP                                                          F5G14360
02124  0 02000 0 02130        TRA F3 NO                                                    F5G14370
02125  0 60100 0 00544 F92    STO FV101      STORE NEW MAX.                                F5G14380
02126  0 50000 0 00540        CLA FV7 STORE NEW                                            F5G14390
02127  0 60100 0 00546        STO FV103 PRED. NO.                                          F5G14400
02130  0 50000 0 00540 F3     CLA FV7 ARRANGE TO                                           F5G14410
02131  0 40000 0 00315        ADD ONEA CONSIDER NEXT PRED.                                 F5G14420
02132  0 62100 0 00540        STA FV7                                                      F5G14430
02133  0 02000 0 02114        TRA F4                                                       F5G14440
02134 -0 53400 4 00537 F5     LXD FV6,4                                                    F5G14450
02135  0 02000 4 00001        TRA 1,4 RETURN                                               F5G14460
                                  THE F30 SUBROUTINE FINDS THE HIGHEST FREQUENCY SUCC ENTRY FORF5G14470
                                  A GIVEN BB AND STORES IT IN FV 101.                      F5G14480
02136 -0 63400 4 00537 F30    SXD FV6,4                                                    F5G14490
02137  0 56000 0 00314        LDQ ZERO SET HIGHEST FREQH                                   F5G14500
02140 -0 60000 0 00544        STQ FV101 TO 0.                                              F5G14510
02141  0 60100 0 00545        STO FV102 STORE BB NO.                                       F5G14520
02142  0 07400 4 00070        TSX SE,4                                                     F5G14530
02143  0 50000 1 06447        CLA BBB+5,1                                                  F5G14540
02144  0 60100 0 00547        STO FV104                                                    F5G14550
02145 -0 50000 1 06442        CAL BBB,1 GET SUCC. NO.                                      F5G14560
02146  0 62200 0 00542        STD FV9           AND STORE IT                               F5G14570
02147 -0 50000 0 00545        CAL FV102            GET AND STORE                           F5G14580
02150  0 40000 0 00316        ADD ONED SUCC.
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02151   0 07400 4 00070          TSX SE,4 NO.                                    F5G14590
02152   0 50000 1 06442          CLA BBB,1 OF 1ST SUCC.                          F5G14600
02153   0 62200 0 00543          STD FV10       IN NEXT BB                       F5G14610
02154   0 50000 0 00542          CLA FV9                                         F5G14620
02155   0 34000 0 00543 F31      CAS FV10     IS SUCC IN SAME BB                 F5G14630
02156   0 02000 0 02160          TRA F32                                         F5G14640
02157   0 02000 0 02175          TRA F34 NO.                                     F5G14650
02160   0 07400 4 00044 F32      TSX SE6,4 GET INDEX OF SUCC.                    F5G14660
02161   0 50000 1 07555          CLA SUCC,1                                      F5G14670
02162   0 34000 0 00544          CAS FV101 IS THIS FREQ. GREATER                 F5G14680
02163   0 02000 0 02166          TRA F93                                         F5G14690
02164   0 76100 0 00000          NOP                                             F5G14700
02165   0 02000 0 02171          TRA F33 NO                                      F5G14710
02166   0 60100 0 00544 F93      STO FV101      STORE NEW MAX.                   F5G14720
02167   0 50000 0 00542          CLA FV9       STORE NEW                        F5G14730
02170   0 60100 0 00546          STO FV103 SUCC. NO.                             F5G14740
02171   0 50000 0 00542 F33      CLA FV9       ARRANGE TO CONSIDER               F5G14750
02172   0 40000 0 00316          ADD ONED NEXT SUCC.                             F5G14760
02173   0 62200 0 00542          STD FV9                                         F5G14770
02174   0 02000 0 02155          TRA F31                                         F5G14780
02175  -0 53400 4 00537 F34      LXD FV6,4                                       F5G14790
02176   0 02000 4 00001          TRA 1,4 RETURN                                  F5G14800
02177   0 50000 0 00314 F        CLA ZERO SET INDICATOR TO SAY                   F5G14810
02200   0 60100 0 00550          STO LPIND THIS ISNT A LOOP.                     F5G14820
02201   0 60100 0 00532          STO FV1 SET HIGHEST FREQ. TO 0.                 F5G14830
02202   0 60100 0 00536          STO FV5         SET TO CONSIDER 0TH BB          F5G14840
02203   0 50000 0 00536 F7       CLA FV5                                         F5G14850
02204   0 07400 4 02075          TSX F1,4 FIND MOST FREQ. UNCONSIDERED TRANSFER  F5G14860
02205   0 50000 0 00544          CLA FV101 IS IT GREATER THAN                    F5G14870
02206   0 34000 0 00532          CAS FV1 PREVIOUS MAXIMUM                        F5G14880
02207   0 02000 0 02212          TRA F85                                         F5G14890
02210   0 76100 0 00000          NOP                                             F5G14900
02211   0 02000 0 02221          TRA F6 NO+                                      F5G14910
02212   0 60100 0 00532 F85      STO FV1       REPLACE PREV. MAX.                F5G14920
02213   0 50000 0 00545          CLA FV102 AND BB NO.                            F5G14930
02214   0 60100 0 00533          STO FV2                                         F5G14940
02215   0 50000 0 00546          CLA FV103 AND PRED. NO.                         F5G14950
02216   0 60100 0 00534          STO FV3                                         F5G14960
02217   0 50000 0 00547          CLA FV104 AND REGION NO. WORD.                  F5G14970
02220   0 60100 0 00535          STO FV4                                         F5G14980
02221   0 50000 0 00536 F6       CLA FV5 ARRANGE TO CONSIDER NEXT                F5G14990
02222   0 40000 0 00315          ADD ONEA B.B.                                   F5G15000
02223   0 60100 0 00536          STO FV5                                         F5G15010
02224   0 40200 0 07774          SUB KEYS                                        F5G15020
02225   0 40000 0 00315          ADD ONEA                                        F5G15030
02226  -0 10000 0 02203          TNZ F7          WAS THIS THE LAST BB            F5G15040
02227   0 76000 0 00012  F86     DCT           YES, IF ANY DIVIDE CHECKS GO      F5G15050
02230   0 07400 4 00004          TSX 4,4       TO DIAGNOSTIC.                    F5G15060
02231   0 50000 0 00532          CLA FV1       NO DVD CHECKS, WERE THERE ANY     F5G15070
02232  -0 10000 0 02234          TNZ F86A      UNCONSIDERED PREDS                F5G15080
02233   0 02000 0 00030          TRA R  NO,CONTINUE PROGRAM, PART I DONE.        F5G15090
02234   0 50000 0 00535  F86A    CLA FV4       YES                               F5G15100
02235   0 10000 0 02245          TZE F9 IS THIS A REGION ALREADY                 F5G15110
02236  -0 73400 1 00000          PDX 0,1 YES.                                    F5G15120
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02237   0 50000 1 05061         CLA REG,1 GET REGION WORD.                                                    F5G15130
02240  -0 32000 0 00360         ANA FK3                                                                       F5G15140
02241   0 10000 0 02244         TZE F8 IS IT AN OPAQUE REGION                                                 F5G15150
02242   0 50000 0 00356         CLA FK1 NO,GET TRANSPARENT REGION MARKER.                                     F5G15160
02243   0 02000 0 02245         TRA F9                                                                        F5G15170
02244   0 50000 0 00357 F8      CLA FK2 GET OPAQUE REGION MARKER.                                             F5G15180
02245   0 60100 0 04775 F9      STO LPLST+S3P1-2                                                              F5G15190
02246   0 50000 0 00533         CLA FV2 STORE THE REGION MARKER                                               F5G15200
02247   0 76700 0 00022         ALS 18 AT END OF LPLST.                                                       F5G15210
02250   0 62200 0 04775         STD LPLST+S3P1-2                                                              F5G15220
02251   0 50000 0 00350         CLA S9K3 INITIALIZE THE STORING                                               F5G15230
02252   0 62200 0 02270         STD F11 POSITION IN LPLST.                                                    F5G15240
02253   0 50000 0 00532 F23     CLA FV1 GET INDEX                                                             F5G15250
02254   0 07400 4 00067         TSX SE1,4 OF BB UP FOR ENTRY.                                                 F5G15260
02255   0 50000 1 06447         CLA BBB+5,1 IS THIS BB IN                                                     F5G15270
02256   0 10000 0 02611         TZE F57 A REGION                                                              F5G15280
02257  -0 73400 2 00000         PDX 0,2 YES                                                                   F5G15290
02260   0 50000 2 05061         CLA REG,2 GET AND STORE                                                       F5G15300
02261   0 60100 0 00535         STO FV4 REGION WORD                                                           F5G15310
02262  -0 32000 0 00360         ANA FK3                                                                       F5G15320
02263   0 10000 0 02603         TZE F55 IS IT AN OPAQUE REGION                                                F5G15330
02264   0 53400 1 00341         LXA S5K4,1      NO, TRANSPARENT                                               F5G15340
02265   0 50000 1 04777 F12     CLA LPLST+S3P1,1                                                              F5G15350
02266   1 00001 1 02267         TXI F25,1,1 STORE INDEX OF LPLST QUANTITY BEING COMPARED.                     F5G15360
02267  -0 63400 1 02412 F25     SXD F18,1                                                                     F5G15370
02270   3 00000 1 02321 F11     TXH F19,1,K ARE WE THRU WITH COMPARISONS                                      F5G15380
02271   0 34000 0 00324         CAS S3K2 NO,IS THIS BB ENTRY                                                  F5G15390
02272   0 76100 0 00000         NOP                                                                           F5G15400
02273   0 02000 0 02275         TRA F87                                                                       F5G15410
02274   0 02000 0 02265         TRA F12 YES.                                                                  F5G15420
02275   0 07400 4 00070 F87     TSX SE,4      GET INDEX OF BB                                                 F5G15430
02276   0 50000 1 06447         CLA BBB+5,1 GET                                                               F5G15440
02277  -0 73400 1 00000         PDX 0,1 REGION                                                                F5G15450
02300   0 50000 1 05061         CLA REG,1 WORD.                                                               F5G15460
02301  -0 53400 1 02412         LXD F18,1                                                                     F5G15470
02302   0 34000 0 00535         CAS FV4 IS THIS THE SAME REGION                                               F5G15480
02303   0 02000 0 02265         TRA F12 NO                                                                    F5G15490
02304   0 02000 0 02306         TRA F100                                                                      F5G15500
02305   0 02000 0 02265         TRA F12 NO                                                                    F5G15510
02306   0 50000 0 00532 F100    CLA FV1              PUT EXIT BB NO.                                          F5G15520
02307   0 62100 1 05000         STA LPLST+S3P1+1,1     IN TR. REG. QUANTITY                                   F5G15530
02310   2 00001 1 02311 F13     TIX F24,1,1 GENERATE INDEX OF LAST THING TO BE MOVED UP.                      F5G15540
02311  -0 53400 2 02270 F24     LXD F11,2 GET INDEX TO GENERATE INDEX OF 1ST THING                            F5G15550
02312  -0 63400 1 02412 F43     SXD F18,1 STORE INDEX OF LAST THING                                           F5G15560
02313   0 56000 0 00323         LDQ S3K1 RECORD                                                               F5G15570
02314  -0 60000 0 00550         STQ LPIND LOOP.                                                               F5G15580
02315   2 00001 2 02316         TIX F14,2,1 GENERATE INDEX OF 1ST THING                                       F5G15590
02316   0 07400 4 02407 F14     TSX F15,4 GO TO MOVE LPLST QUANTITIES UP+                                     F5G15600
02317   0 07400 4 02651         TSX F80,4                                                                     F5G15610
02320   0 02000 0 02717         TRA L TO 1ST LXING PASS.                                                      F5G15620
02321   0 50000 0 00356 F19     CLA FK1                                                                       F5G15630
02322  -0 53400 1 02270         LXD F11,1 STORE TRANSPARENT                                                   F5G15640
02323   0 60100 1 04777         STO LPLST+S3P1,1 REGION MARKER                                                F5G15650
02324   0 50000 0 00532         CLA FV1                                                                       F5G15660
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02325   0 62100 1 04777          STA LPLST+S3P1,1                                F5G15670
02326   0 07400 4 00067          TSX SE1,4 FIND BB INDEX.                        F5G15680
02327   0 50000 0 00314          CLA ZERO SET INITIAL MAX                        F5G15690
02330   0 60100 0 00532          STO FV1 FREQ. TO 0+                             F5G15700
02331   0 50000 1 06447          CLA BBB+5,1 GET THE                             F5G15710
02332  -0 73400 1 00000          PDX 0,1 REGION                                  F5G15720
02333   0 50000 1 05061          CLA REG,1 WORD                                  F5G15730
02334   0 77100 0 00022          ARS 18                                          F5G15740
02335   0 07400 4 02075 F21      TSX F1,4 DETERMINE MOST FREQ. PRED IN BB.       F5G15750
02336   0 50000 0 00544          CLA FV101 IS IT MORE FREQ. THAN                 F5G15760
02337   0 34000 0 00532          CAS FV1 PREV. MAX.                              F5G15770
02340   0 02000 0 02343          TRA F88                                         F5G15780
02341   0 76100 0 00000          NOP                                             F5G15790
02342   0 02000 0 02352          TRA F20 NO.                                     F5G15800
02343   0 60100 0 00532 F88      STO FV1     REPLACE PREV.  MAX.                 F5G15810
02344   0 50000 0 00545          CLA FV102 AND BB NO.                            F5G15820
02345   0 60100 0 00533          STO FV2 AND                                     F5G15830
02346   0 50000 0 00546          CLA FV103 PRED. NO.                             F5G15840
02347   0 60100 0 00534          STO FV3 AND                                     F5G15850
02350   0 50000 0 00547          CLA FV104 REGION NO. WORD.                      F5G15860
02351   0 60100 0 00535          STO FV4                                         F5G15870
02352   0 50000 0 00547 F20      CLA FV104 ARRANGE TO CONSIDER THE               F5G15880
02353  -0 32000 0 00353          ANA SBK2 NEXT B.B. IN REGION.                   F5G15890
02354   0 34000 0 00353          CAS SBK2 ARE WE THRU WITH REGION                F5G15900
02355   0 02000 0 02335          TRA F21                                         F5G15910
02356   0 02000 0 02360          TRA F22 YES                                     F5G15920
02357   0 02000 0 02335          TRA F21                                         F5G15930
02360   0 50000 0 00532 F22      CLA FV1 WAS THERE AN UNCONSIDERED               F5G15940
02361   0 10000 0 02372          TZE F28 PRED                                    F5G15950
02362   0 50000 0 00533          CLA FV2 YES,STORE THE                           F5G15960
02363  -0 53400 1 02270          LXD F11,1 ENTRY B.B.                            F5G15970
02364   0 76700 0 00022          ALS 18 NO.                                      F5G15980
02365   0 62200 1 04777          STD LPLST+S3P1,1                                F5G15990
02366   1 00001 1 02367          TXI F70,1,1 UP THE STORING INDEX                F5G16000
02367  -0 63400 1 02270 F70      SXD F11,1                                       F5G16010
02370   3 00036 1 02404          TXH F73,1,S3P1 IS LPLST FULL                    F5G16020
02371   0 02000 0 02253          TRA F23                                         F5G16030
02372  -0 53400 2 02270 F28      LXD F11,2                                       F5G16040
02373   0 53400 1 00341 F56      LXA S5K4,1                                      F5G16050
02374  -0 63400 1 02412          SXD F18,1                                       F5G16060
02375   0 07400 4 02407          TSX F15,4 NONE LPLST UP.                        F5G16070
02376   0 50000 0 04740          CLA LPLST-1                                     F5G16080
02377   0 34000 0 00361          CAS FK4 IS THIS AN OPAQUE REGION                F5G16090
02400   0 76100 0 00000          NOP                                             F5G16100
02401   0 02000 0 02706          TRA F75 TO 2ED LXING PASS.                      F5G16110
02402   3 00002 1 02421    P002  TXH F29,1,2                                     F5G16120
02403   0 02000 0 02706          TRA F75                                         F5G16130
02404   0 50000 0 00303 F73      CLA SEK4 STORE SPECIAL                          F5G16140
02405   0 62200 0 04741          STD LPLST SYMBOL IN DECR. PART OF 1ST LPLST      F5G16150
02406   0 02000 0 02536          TRA F53 QUANTITY                                F5G16160
02407  -0 53400 1 00325 F15      LXD S3K3,1 SET INDEX TO START OF LOOP LIST.      F5G16170
02410   0 50000 2 04777 F26      CLA LPLST+S3P1,2 MOVE THIS                      F5G16180
02411   0 60100 1 04777          STO LPLST+S3P1,1 ENTRY UP.                      F5G16190
02412  -3 00000 2 02415 F18      TXL F17,2,- IN DECR., THE INDEX OF LAST TO BE MOVED.  F5G16200
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02413   2 00001 1 02414        TIX F16,1,1 NO.                                          F5G16210
02414   2 00001 2 02410 F16    TIX F26,2,1 ARE WE FINISHED COPYING                      F5G16220
02415   0 60100 0 04740 F17    STO LPLST-1 CASE OF LOOP,STORE PRED. OF 1ST ELEMENT.     F5G16230
02416   0 50000 0 00323        CLA $3K1 STORE THE END                                   F5G16240
02417   0 60100 1 05000        STO LPLST+S3P1+1,1 LOOP LIST QUANTITY.                   F5G16250
02420   0 02000 4 00001        TRA 1,4                                                  F5G16260
02421  -0 63400 1 02527 F29    SXD F39,1 INITIALIZE STORING LOCATION.                   F5G16270
02422   0 34000 0 00324 F64    CAS S3K2 ISNT OPAQUE REGIONH IS IT BB                    F5G16280
02423   0 76100 0 00000        NOP  NO.                                                 F5G16290
02424   0 02000 0 02426        TRA F89                                                  F5G16300
02425   0 02000 0 02543        TRA F44 YES.                                             F5G16310
02426   0 56000 0 00314 F89    LDQ ZERO   NO. SET INITIAL                               F5G16320
02427  -0 60000 0 00532        STQ FV1 FREQ+ TO 0.                                      F5G16330
02430   0 07400 4 00070        TSX SE,4 GET                                             F5G16340
02431   0 50000 1 06447        CLA BBB+5,1 REGION                                       F5G16350
02432  -0 73400 1 00000        PDX 0,1 NO.                                              F5G16360
02433   0 50000 1 05061        CLA REG,1 GET NO. OF 1ST BB IN REGION                    F5G16370
02434   0 07400 4 02136 F35    TSX F30,4  DETERMINE MOST FREQ SUCC IN BB                F5G16380
02435   0 50000 0 00544        CLA FV101 IS IT MORE FREQ. THAN                          F5G16390
02436   0 34000 0 00532        CAS FV1 PREV+ MAX                                        F5G16400
02437   0 02000 0 02442        TRA F90                                                  F5G16410
02440   0 76100 0 00000        NOP  YES.                                                F5G16420
02441   0 02000 0 02451        TRA F36 NO                                               F5G16430
02442   0 60100 0 00532 F90    STO FV1    YES. REPLACE PREV.MAX.                        F5G16440
02443   0 50000 0 00545        CLA FV102 AND BB NO.                                     F5G16450
02444   0 60100 0 00533        STO FV2 AND                                              F5G16460
02445   0 50000 0 00546        CLA FV103 SUCC. NO+                                      F5G16470
02446   0 60100 0 00534        STO FV3 AND                                              F5G16480
02447   0 50000 0 00547        CLA FV104 REGION NO. WORD                                F5G16490
02450   0 60100 0 00535        STO FV4                                                  F5G16500
02451   0 50000 0 00547 F36    CLA FV104 ARRANGE TO CONSIDER THE                        F5G16510
02452  -0 32000 0 00353        ANA $BK2 NEXT BB IN REGION                               F5G16520
02453   0 34000 0 00353        CAS $BK2 IS IT LAST BB IN REGION                         F5G16530
02454   0 02000 0 02456        TRA F94                                                  F5G16540
02455   0 02000 0 02460        TRA F37 YES                                              F5G16550
02456   0 76700 0 00022 F94    ALS 18                                                   F5G16560
02457   0 02000 0 02434        TRA F35                                                  F5G16570
02460   0 50000 0 00532 F37    CLA FV1 WAS THERE AN UNCONSIDERED                        F5G16580
02461  -0 53400 1 02527        LXD F39,1 SUCC                                           F5G16590
02462   0 10000 0 02550        TZE F47                                                  F5G16600
02463   0 50000 0 00533        CLA FV2 EXIT BB                                          F5G16610
02464   0 77100 0 00022        ARS 18 NO.                                               F5G16620
02465   0 62100 1 04777        STA LPLST+S3P1,1                                         F5G16630
02466   2 00001 1 02467 F45    TIX F62,1,1 DOWN THE STORING                             F5G16640
02467  -0 63400 1 02527 F62    SXD F39,1 INDEX.                                         F5G16650
02470   0 50000 0 00532        CLA FV1 GET INDEX OF                                     F5G16660
02471   0 07400 4 00067        TSX SE1,4 BB UP FOR ENTRY.                               F5G16670
02472   0 50000 1 06447        CLA BBB+5,1 IS THIS BB IN                                F5G16680
02473   0 10000 0 02553        TZE F48 A REGION                                         F5G16690
02474  -0 73400 2 00000        PDX 0,2 YES.                                             F5G16700
02475   0 50000 2 05061        CLA REG,2 GET AND                                        F5G16710
02476   0 60100 0 00535        STO FV4 STORE REGION WORD.                               F5G16720
02477  -0 32000 0 00360        ANA FK3 IS IT IN AN                                      F5G16730
02500   0 10000 0 02574        TZE F54 OPAGUE REGION                                    F5G16740
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02501 -0 53400 1 02527        LXD F39,1 NO.                                          F5G16750
02502  0 50000 0 00356        CLA FK1 STORE TRANSPARENT REGION                       F5G16760
02503  0 60100 1 04777        STO LPLST+S3P1,1 MARKER                                F5G16770
02504  0 50000 0 00532        CLA FV1 WITH                                           F5G16780
02505  0 76700 0 00022        ALS 18 ENTRY                                           F5G16790
02506  0 62200 1 04777        STD LPLST+S3P1,1 BB NO. IN DECR.                       F5G16800
02507 -0 53400 2 00325        LXD S3K3,2 SET INDEX TO 1ST ELEMENT IN LPLST.          F5G16810
02510  0 50000 2 04777 F38    CLA LPLST+S3P1,2                                       F5G16820
02511  0 34000 0 00324        CAS S3K2 IS THIS A BB ENTRY                            F5G16830
02512  0 76100 0 00000        NOP                                                    F5G16840
02513  0 02000 0 02515        TRA F91                                                F5G16850
02514  0 02000 0 02526        TRA F40 YES                                            F5G16860
02515 -0 63400 2 02412 F91    SXD F18,2    STOREINDEX OF QUANTITYBEING C.F. ED       F5G16870
02516  0 07400 4 00067        TSX SE1,4                                              F5G16880
02517  0 50000 1 06447        CLA BBB+5,1       GET                                  F5G16890
02520 -0 73400 2 00000        PDX 0,2 REGION WORD.                                   F5G16900
02521  0 50000 2 05061        CLA REG,2                                              F5G16910
02522 -0 53400 2 02412        LXD F18,2 GET INDEX OF QUANTITY BEING COMPARED.        F5G16920
02523  0 34000 0 00535        CAS FV4 IS THIS NAME REGION                            F5G16930
02524  0 02000 0 02526        TRA F40                                                F5G16940
02525  0 02000 0 02531        TRA F41 YES                                            F5G16950
02526  2 00001 2 02527 F40    TIX F39,2,1                                            F5G16960
02527 -3 00000 2 02535 F39    TXL F42,2,- IS THIS INDEX OF QUANTITY BEING COMPARED   F5G16970
02530  0 02000 0 02510        TRA F38 NO                                             F5G16980
02531  0 50000 2 04777 F41    CLA LPLST+S3P1,2 PUT EXIT BB NO.                       F5G16990
02532 -0 53400 1 02527        LXD F39,1 FROM PREVIOUS QUANTITY                       F5G17000
02533  0 62100 1 04777        STA LPLST+S3P1,1 IN THIS LATEST ONE.                   F5G17010
02534  0 02000 0 02312        TRA F43                                                F5G17020
02535  3 00002 2 02541 F42    TXH F63,2,2 IS LPLST FULL                              F5G17030
02536  0 50000 0 00323 F53    CLA S3K1 STORE END                                     F5G17040
02537  0 60100 0 04776        STO LPLST+S3P1-1 LOOP LIST SENTINEL.                   F5G17050
02540  0 02000 0 02706        TRA F75 GO TO DEAL WITH STRING.                        F5G17060
02541  0 50000 2 04777 F63    CLA LPLST+S3P1,2                                       F5G17070
02542  0 02000 0 02422        TRA F64                                                F5G17080
02543  0 07400 4 02136 F44    TSX F30,4 DETERMINE MOST FREQ. SUCC. IN BB.            F5G17090
02544  0 50000 0 00544        CLA FV101 STORE THE                                    F5G17100
02545  0 60100 0 00532        STO FV1 MOST FREQ. SUCC. AWAY.                         F5G17110
02546 -0 53400 1 02527        LXD F39,1                                              F5G17120
02547 -0 10000 0 02466        TNZ F45 WAS THERE AN UNCONSIDERED SUCC.                F5G17130
02550  0 50000 0 00323 F47    CLA S3K1 NO,RECORD AN                                  F5G17140
02551  0 60100 1 05000        STO LPLST+S3P1+1,1 END LOOP LIST SENTINEL.             F5G17150
02552  0 02000 0 02706        TRA F75                                                F5G17160
02553 -0 53400 1 02527 F48    LXD F39,1 ENTER BB                                     F5G17170
02554  0 50000 0 00532        CLA FV1 NO. AND MARKER                                 F5G17180
02555 -0 32000 0 00353        ANA SBK2 IN                                            F5G17190
02556  0 76700 0 00022        ALS 18 LPLST                                           F5G17200
02557  0 60100 0 00535        STO FV4                                                F5G17210
02560  0 60100 1 04777        STO LPLST+S3P1,1                                       F5G17220
02561 -0 63400 1 02570        SXD F50,1                                              F5G17230
02562 -0 53400 2 00325        LXD S3K3,2 S + TO                                      F5G17240
02563  0 50000 2 04777 F51    CLA LPLST+S3P1,2                                       F5G17250
02564  0 34000 0 00535        CAS FV4 IS THIS SAME BB AS NEW ENTRY                   F5G17260
02565  0 02000 0 02567        TRA F49                                                F5G17270
02566  0 02000 0 02312        TRA F43 YES                                            F5G17280
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02567   2 00001 2 02570 F49     TIX F50,2,1 DECREASE COMPARISON INDEX.                          F5G17290
02570  -3 00000 2 02572 F50     TXL F52,2,- IS THIS INDEX OF NEW QUANTITY                       F5G17300
02571   0 02000 0 02563         TRA F51 NO.                                                    F5G17310
02572   3 00002 2 02541 F52     TXH F63,2,2       IS LPLST FULL                                F5G17320
02573   0 02000 0 02536         TRA F53 YES.                                                   F5G17330
02574  -0 53400 1 02527 F54     LXD F39,1 IS OPAQUE REGION                                     F5G17340
02575   0 50000 0 00357         CLA FK2 ENTER OPAQUE                                           F5G17350
02576   0 60100 1 04777         STO LPLST+S3P1,1 REGION MARKER                                 F5G17360
02577   0 50000 0 00532         CLA FV1 WITH CORRECT                                           F5G17370
02600   0 76700 0 00022         ALS 18 ENTRY BB                                                F5G17380
02601   0 62200 1 04777         STD LPLST+S3P1,1 NO.                                           F5G17390
02602   0 02000 0 02550         TRA F47                                                        F5G17400
02603  -0 53400 2 02270 F55     LXD F11,2 STORE THE                                            F5G17410
02604   0 50000 0 00357         CLA FK2 OPAQUE                                                 F5G17420
02605   0 60100 2 04777         STO LPLST+S3P1,2 REGION MARKR                                  F5G17430
02606   0 50000 0 00532         CLA FV1 WITH                                                   F5G17440
02607   0 62100 2 04777         STA LPLST+S3P1,2 EXIT BB                                       F5G17450
02610   0 02000 0 02373         TRA F56 NO.                                                    F5G17460
02611   0 50000 0 00532 F57     CLA FV1 PUT THE                                                F5G17470
02612  -0 32000 0 00353         ANA SBK2 B.B. NO.                                              F5G17480
02613   0 76700 0 00022         ALS 18 IN                                                      F5G17490
02614   0 60100 0 00535         STO FV4 DECR. PART.                                            F5G17500
02615   0 50000 0 02270         CLA F11 SET THE END                                            F5G17510
02616   0 62200 0 02623         STD F59 TEST.                                                  F5G17520
02617   0 53400 1 00341         LXA S5K4,1     SET INDEX OF 1ST LPLST TO BE COMPARED           F5G17530
02620   0 50000 1 04777 F61     CLA LPLST+S3P1,1                                               F5G17540
02621   1 00001 1 02622         TXI F58,1,1                                                    F5G17550
02622  -0 63400 1 02412 F58     SXD F18,1                                                      F5G17560
02623   3 00000 1 02630 F59     TXH F60,1,- WAS THAT THE LAST QUANTITY                         F5G17570
02624   0 34000 0 00535         CAS FV4 IS THIS THE SAME BB.                                   F5G17580
02625   0 02000 0 02620         TRA F61                                                        F5G17590
02626   0 02000 0 02310         TRA F13 YES                                                    F5G17600
02627   0 02000 0 02620         TRA F61                                                        F5G17610
02630  -0 53400 1 02270 F60     LXD F11,1                                                      F5G17620
02631   0 50000 0 00532         CLA FV1 STORE THE                                              F5G17630
02632  -0 32000 0 00353         ANA SBK2 BB                                                    F5G17640
02633   0 76700 0 00022         ALS 18 MARKER.                                                 F5G17650
02634   0 60100 1 04777         STO LPLST+S3P1,1                                               F5G17660
02635   0 50000 0 00532         CLA FV1                                                        F5G17670
02636   0 07400 4 02075         TSX F1,4 FIND MOST FREQ. PRED. OF BB.                          F5G17680
02637   0 50000 0 00544         CLA FV101 DOES B.B. HAVE                                       F5G17690
02640   0 60100 0 00532         STO FV1 UNCONSIDERED PRED.                                     F5G17700
02641  -0 10000 0 02644         TNZ F71                                                        F5G17710
02642  -0 53400 2 02270         LXD F11,2 NO,GO TO MOVE LPLST UP.                              F5G17720
02643   0 02000 0 02373         TRA F56                                                        F5G17730
02644  -0 53400 1 02270 F71     LXD F11,1                                                      F5G17740
02645   1 00001 1 02646         TXI F72,1,1 UP THE STORING INDEX                               F5G17750
02646  -0 63400 1 02270 F72     SXD F11,1                                                      F5G17760
02647   3 00036 1 02536         TXH F53,1,S3P1 IS LPLST FULL                                   F5G17770
02650   0 02000 0 02253         TRA F23 NO.                                                    F5G17780
02651   0 53400 1 00362 F80     LXA FK5,1 FIND                                                 F5G17790
02652   0 50000 1 05061 F81     CLA REG,1 THE 1ST AVAILABLE REGION                             F5G17800
02653   0 10000 0 02656         TZE F82 POSITION.                                              F5G17810
02654   2 00001 1 02652         TIX F81,1,1                                                    F5G17820
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02655   0 07400 4 00004          TSX 4,4 DIAGNOSTIC, ERROR                                F5G17830
02656  -0 63400 1 00565 F82      SXD XV1,1       STORE THE INDEX                          F5G17840
                                    OF THE NEW REGION WORD                               F5G17850
02657   0 56000 0 00314 F83      LDQ ZERO          STORE INITIAL                          F5G17860
02660  -0 60000 0 00566          STQ XV2         VALUE OF REGION                          F5G17870
02661   0 02000 4 00001          TRA 1,4                                                  F5G17880
02662   0 07400 4 01523 F78      TSX SA,4 GET EXIT CONDITIONS OF REGION.                  F5G17890
02663   0 53400 1 00342          LXA S5K5,1        PUT EXIT                               F5G17900
02664   0 56000 0 00314          LDQ ZERO                                                 F5G17910
02665   0 50000 1 00506 F76      CLA EX1+3,1 CONDITONS                                    F5G17920
02666   0 60100 1 00430          STO IR1+3,1 INTO                                         F5G17930
02667   0 50000 1 00511          CLA ACT1+3,1 I+R.S                                       F5G17940
02670  -0 60000 1 00561          STQ AC1+3,1                                              F5G17950
02671   0 12000 0 02675          TPL F77 IS THIS EXIT ACTIVE                              F5G17960
02672   0 50000 0 00325          CLA S3K3 YES,FORM AND                                    F5G17970
02673  -0 76000 0 00003          SSM  STORE ACTIVE                                        F5G17980
02674   0 60100 1 00561          STO AC1+3,1 INDICATOR                                    F5G17990
02675   2 00001 1 02665 F77      TIX F76,1,1 COUNT TO 3                                   F5G18000
02676   0 50000 0 00325          CLA S3K3 INITIALIZE                                      F5G18010
02677   0 40200 0 00316          SUB ONED LOOP LIST                                       F5G18020
02700   0 60100 0 00440          STO S3V4 TO ITS                                          F5G18030
02701   0 60100 0 00444          STO S3V5                                                 F5G18040
02702   0 50000 0 00340          CLA S5K3 2ED                                             F5G18050
02703   0 60100 0 00437          STO S3V3 ELEMENT                                         F5G18060
02704  -0 63400 0 00436          SXD S3V2,0                                               F5G18070
02705   0 02000 0 03072          TRA X32                                                  F5G18080
02706   0 07400 4 02651 F75      TSX F80,4 DETERMINE NEW REGION INDEX                     F5G18090
02707   0 50000 0 04741          CLA LPLST IS 1ST                                         F5G18100
02710   0 56000 0 00324          LDQ S3K2                ELEMENT OF LPLST A TRANSPARENT   F5G18110
02711   0 04000 0 02662          TLQ F78 ON OPAQUE REGION                                 F5G18120
02712   0 53400 1 00342          LXA S5K5,1 NO,INITIALIZE                                 F5G18130
02713   0 50000 0 00336          CLA S5K1 THE                                             F5G18140
02714   0 60100 1 00430 F79      STO IR1+3,1 I.R.S                                        F5G18150
02715   2 00001 1 02714          TIX F79,1,1 TO EMPTINESS                                 F5G18160
02716   0 02000 0 03061          TRA X                                                    F5G18170
                                    FIRST LXING PASS.                                    F5G18180
02717  -0 63400 0 02763  L       SXD ROT3,0                                               F5G18190
02720  -0 63400 0 02756          SXD ROT1,0                                               F5G18200
02721   0 53400 1 00342 INIZ     LXA S5K5,1              INITIALIZE                       F5G18210
02722   0 50000 0 00336          CLA S5K1 THE                                             F5G18220
02723   0 60100 1 00430 L23      STO IR1+3,1 INDEX REGISTERS                              F5G18230
02724   2 00001 1 02723          TIX L23,1,1 TO EMPTINESS.                                F5G18240
02725   0 56000 0 00325          LDQ S3K3                                                 F5G18250
02726  -0 60000 0 00440          STQ S3V4        INITIALIZE THE                           F5G18260
02727   0 56000 0 00340          LDQ S5K3 LOOP LIST.                                      F5G18270
02730  -0 60000 0 00437          STQ S3V3 MAKE SURE THAT THE                              F5G18280
02731  -0 63400 0 00436          SXD S3V2,0                                               F5G18290
02732   0 07400 4 01023  1L4     TSX S3,4 GET NEXT TAG.                                   F5G18300
02733   0 02000 0 03013          TRA L6 *RETURN HERE IF TAG WASNT GOTTEN.                 F5G18310
02734   0 53400 1 00342          LXA S5K5,1 SET COUNT TO 3,N=1                            F5G18320
02735   0 50000 0 00441          CLA 1TAG                IS CL (TAG) EQUAL                F5G18330
02736   0 34000 1 00430 L2       CAS IR1+3,1 TO C (IRN)                                   F5G18340
02737   0 02000 0 02741          TRA L1 NO.                                               F5G18350
02740   0 02000 0 03000          TRA 1L3                 YES                              F5G18360
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02741   2 00001 1 02736 L1      TIX L2,1,1 NO. COUNT TO 3,N=N+1                  F5G18370
02742   0 50000 0 00442         CLA TPE IS THIS                                  F5G18380
02743   0 34000 0 00376         CAS XK15 AN LXP INSTR.                           F5G18390
02744   0 02000 0 02746         TRA L18 NO,                                      F5G18400
02745   0 02000 0 02752         TRA ROT0          YES                            F5G18410
02746   0 34000 0 00403 L18     CAS XK21 NO,IS IT A DED INSTR.                   F5G18420
02747   0 02000 0 02773         TRA L17 NO                                       F5G18430
02750   0 02000 0 02752         TRA ROT0              YES                        F5G18440
02751   0 02000 0 02773         TRA L17                                          F5G18450
02752  -0 53400 2 00440  ROT0   LXD S3V4,2                                      F5G18460
02753  -3 00034 2 02732         TXL 1L4,2,S3P1-2                                 F5G18470
02754  -0 53400 2 02763         LXD ROT3,2                                       F5G18480
02755   1 77777 2 02756         TXI ROT1,2,-1                                    F5G18490
02756  -3 00000 2 02732  ROT1   TXL 1L4,2,-                                     F5G18500
02757  -0 63400 2 02763         SXD ROT3,2                                       F5G18510
02760  -0 53400 2 00314         LXD ZERO,2                                       F5G18520
02761   0 50000 2 04741  ROT2   CLA LPLST,2                                     F5G18530
02762   0 34000 0 00323         CAS S3K1                                         F5G18540
02763  -3 00000 0 02765  ROT3   TXL ROT4,0,-                                    F5G18550
02764  -3 00000 0 02767         TXL ROT5,0,-                                     F5G18560
02765   0 60100 2 04740  ROT4   STO LPLST-1,2                                   F5G18570
02766   1 77777 2 02761         TXI ROT2,2,-1                                    F5G18580
02767  -0 63400 2 02756  ROT5   SXD ROT1,2                                      F5G18590
02770   0 50000 0 04740         CLA LPLST-1                                      F5G18600
02771   0 60100 2 04740         STO LPLST-1,2                                    F5G18610
02772   0 02000 0 02721         TRA INIZ                                         F5G18620
02773   0 07400 4 00622 L17     TSX S1,4 SELECT MOST REPLACEABLE I.R.            F5G18630
02774  -0 53400 4 00430         LXD IRR,4 PLACE TAU-TAG                          F5G18640
02775   0 50000 0 00441         CLA 1TAG              IN APPROPRIATE             F5G18650
02776   0 60100 4 00430         STO IR1+3,4 I.R.                                 F5G18660
02777   0 02000 0 02732         TRA 1L4                                          F5G18670
03000   0 50000 0 00442  1L3    CLA TPE IS THIS AN LXP                           F5G18680
03001   0 34000 0 00376         CAS XK15                                         F5G18690
03002   0 02000 0 03004         TRA 1L19                                         F5G18700
03003   0 02000 0 03010         TRA L5 YES                                       F5G18710
03004   0 34000 0 00403  1L19   CAS XK21 IS IT AN DED                            F5G18720
03005   0 02000 0 02732         TRA 1L4                                          F5G18730
03006   0 02000 0 03010         TRA L5 YES.                                      F5G18740
03007   0 02000 0 02732         TRA 1L4                                          F5G18750
03010   0 50000 0 00333 L5      CLA LK1 PLACE AN E (HASH                         F5G18760
03011   0 60100 1 00430         STO IR1+3,1 SYMBOL) IN                           F5G18770
03012   0 02000 0 02732         TRA 1L4               RIGHT IR,                  F5G18780
03013   0 60100 0 00554 L6      STO LV4 IS THIS AN END OF LOOP                   F5G18790
03014   0 34000 0 00323         CAS S3K1 LIST SENTINEL                           F5G18800
03015   0 02000 0 03017         TRA L14 NO,                                      F5G18810
03016   0 02000 0 03051         TRA L15 YES,                                     F5G18820
03017  -0 50000 0 00554 L14     CAL LV4 IS                                       F5G18830
03020  -0 32000 0 00335         ANA LK3 THIS A                                   F5G18840
03021   0 10000 0 02732         TZE 1L4               BB                         F5G18850
03022   0 50000 0 00554         CLA LV4 NO,FORM CORRESPONDENCE                   F5G18860
03023   0 07400 4 01245         TSX S5,4 BETWEEN IRS AND ENS                     F5G18870
03024   0 50000 0 00554         CLA LV4 GET + STORE EXIT CONDITIONS              F5G18880
03025   0 07400 4 01523         TSX SA,4 AND (USELESSLY+ OCTIVE INDICATORS.      F5G18890
03026   0 53400 1 00342         LXA S5K5,1 SET COUNT TO 3,N=1                    F5G18900
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03027  0 50000 1 00470 L11     CLA EN4+3,1 PUT CORRESPONDENCE INDEX                          F5G18910
03030 -0 73400 2 00000          PDX 0,2 IN 2.                                                 F5G18920
03031  0 50000 1 00506          CLA EX1+3,1 IS THIS EXIT CONDITION                            F5G18930
03032  0 34000 0 00336          CAS S5K1 EMPTY                                                F5G18940
03033  0 02000 0 03035          TRA L13 NO,                                                   F5G18950
03034  0 02000 0 03040          TRA P003                                                      F5G18960
03035  0 60100 2 00430 L13      STO IR1+3,2 NO,REPLACE C (IR) BY EXIT CONDITION.              F5G18970
03036  2 00001 1 03027 L10      TIX L11,1,1 COUNT TO 3,N=N+1                                  F5G18980
03037  0 02000 0 02732          TRA 1L4                                                       F5G18990
03040  0 50000 2 00430   P003   CLA IR1+3,2                                                   F5G19000
03041  0 56000 0 00333          LDQ LK1                                                       F5G19010
03042  0 04000 0 03036          TLQ L10                                                       F5G19020
03043  0 53400 4 00342          LXA S5K5,4                                                    F5G19030
03044  0 34000 4 00506  P003A   CAS EX1+3,4                                                   F5G19040
03045  0 02000 0 03047          TRA P003B                                                     F5G19050
03046 -0 60000 2 00430          STQ IR1+3,2                                                   F5G19060
03047  2 00001 4 03044  P003B   TIX P003A,4,1                                                F5G19070
03050  0 02000 0 03036          TRA L10                                                       F5G19080
03051  0 53400 1 00342 L15      LXA S5K5,1 COPY ASIDE THE FINAL                               F5G19090
03052  0 50000 1 00430 L16      CLA IR1+3,1 CONTENTS                                          F5G19100
03053  0 34000 0 00333          CAS LK1                 (IF REAL, OTHERWISE                   F5G19110
03054  0 76100 0 00000          NOP                                                           F5G19120
03055  0 50000 0 00336          CLA S5K1                SET TO                                F5G19130
03056  0 60100 1 00430          STO IR1+3,1             EMPTY)                                F5G19140
03057  0 60100 1 00554          STO LV1+3,1 OF THE                                            F5G19150
03060  2 00001 1 03052          TIX L16,1,1 IRS                                               F5G19160
                                     THE SECOND LXING PASS FOLLOWS.                         F5G19170
                                     PRECEEDED BY 1ST LXING PASS                            F5G19180
03061  0 56000 0 00325 X        LDQ S3K3 INITIALIZE THE                                       F5G19190
03062 -0 60000 0 00440          STQ S3V4 LOOP LIST AND                                        F5G19200
03063  0 56000 0 00340          LDQ S5K3 MAKE SURE TAG                                        F5G19210
03064 -0 60000 0 00437          STQ S3V3 LOC. GETS SET.                                       F5G19220
03065 -0 63400 1 00436          SXD S3V2,1                                                    F5G19230
03066  0 50000 0 00314 X21      CLA ZERO SET ACTIVE INDICATORS                                F5G19240
03067  0 60100 0 00556          STO AC1 TO                                                    F5G19250
03070  0 60100 0 00557          STO AC2                                                       F5G19260
03071  0 60100 0 00560          STO AC3 NOT ACTIVE.                                           F5G19270
03072  0 50000 0 00314 X32      CLA ZERO SET LX INDICATORS                                    F5G19280
03073  0 60100 0 00562          STO LX1 TO                                                    F5G19290
03074  0 60100 0 00563          STO LX2 NOT                                                   F5G19300
03075  0 60100 0 00564          STO LX3 LX ED.                                                F5G19310
03076  0 60100 0 00521          STO ACIND       SET IND. TO SAY THIS IS 2ED LXING PASS        F5G19320
03077  0 07400 4 01023 X3       TSX S3,4 TRY TO GET NEXT TAG.                                 F5G19330
03100  0 02000 0 03322          TRA X13 COME HERE IF TAG NOT GOT.                             F5G19340
03101  0 50000 0 01122          CLA S39 COMPUTE LOCATIONS OF                                  F5G19350
03102 -0 32000 0 00353          ANA SBK2 THIS TAG=(ADDR. FOLLOWING                            F5G19360
03103  0 40000 0 00451          ADD S4V1 TIX BLACK + L (CM)-                                  F5G19370
03104  0 40200 0 00332          SUB S4K3 CMTAG-INDEX OF TAG                                   F5G19380
03105  0 76700 0 00022          ALS 18                                                        F5G19390
03106 -0 40000 0 00436          SBM S3V2                                                      F5G19400
03107  0 76500 0 00065          LRS 53 THEN FORM LOC/9                                        F5G19410
03110 -0 60000 0 00571          STQ XV5 AND REMAINDER                                         F5G19420
03111  0 22100 0 00371          DVP XK9 STORE INTEG. PART                                     F5G19430
03112 -0 60000 0 00567          STQ XV3 AND REMAINDER.                                        F5G19440
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03113   0 60100 0 00570          STO XV4                                                    F5G19450
03114   0 53400 1 00342          LXA S5K5,1 SET COUNT TO 3,N=1                              F5G19460
03115   0 50000 0 00441          CLA 1TAG                                                   F5G19470
03116   0 34000 1 00430 X2       CAS IR1+3,1        IS CONTENTS OF IRN SAME AS OF TAG       F5G19480
03117   0 02000 0 03121          TRA X1 NO                                                  F5G19490
03120   0 02000 0 03257          TRA X7 YES                                                 F5G19500
03121   2 00001 1 03116 X1       TIX X2,1,1 NO COUNT OT 3,N=N+1                             F5G19510
03122   0 50000 0 00442          CLA TPE IS THIS AN                                         F5G19520
03123   0 34000 0 00376          CAS XK15 LX PRIME                                          F5G19530
03124   0 02000 0 03126          TRA X103 NO                                                F5G19540
03125   0 02000 0 03131          TRA X8     YES.  COMPILE LXD FOR LXP.                      F5G19550
03126   0 34000 0 00403 X103     CAS XK21 IS IT A DED                                       F5G19560
03127   0 02000 0 03131          TRA X8                                                     F5G19570
03130   0 02000 0 03077          TRA X3 YES                                                 F5G19580
03131   0 07400 4 00622 X8       TSX S1,4 SELECT MOST REPLACEABLE I.R.                      F5G19590
03132  -0 53400 1 00430          LXD IRR,1 PLACE TAU-TAG                                    F5G19600
03133   0 50000 0 00441          CLA 1TAG             IN SELECTED                           F5G19610
03134   0 60100 1 00430          STO IR1+3,1 I.R.                                           F5G19620
03135   0 50000 1 00561          CLA AC1+3,1 IS THIS                                        F5G19630
03136   0 10000 0 03140          TZE X4 IR ACTIVE                                           F5G19640
03137   0 07400 4 01566          TSX SB,4 YES,RECORD SXD NECESSARY.                         F5G19650
03140   0 50000 0 00442 X4       CLA TPE IS THIS                                            F5G19660
03141   0 34000 0 00322          CAS S2K2 AN LX                                             F5G19670
03142   0 02000 0 03144          TRA X5 NO                                                  F5G19680
03143   0 02000 0 03155          TRA X14 YES                                                F5G19690
03144  -0 50000 0 00443 X5       CAL INTAG IS THIS 1ST INSTR.                               F5G19700
03145  -0 32000 0 00363          ANA XK10 IN A BB                                           F5G19710
03146  -0 10000 0 03204          TNZ X9                                                     F5G19720
03147   0 50000 0 00567          CLA XV3 NO,                                                F5G19730
03150   0 07400 4 00032          TSX SE4,4 DETERMINE INDEX IN STAG                          F5G19740
03151   0 53400 2 00570          LXA XV4,2                                                  F5G19750
03152  -0 50000 0 00372          CAL XK11 GENERATE                                          F5G19760
03153   0 76700 2 00010          ALS 8,2 LX BIT                                             F5G19770
03154  -0 60200 1 05061          ORS STAG,1 STORE IN STAG.                                  F5G19780
03155   0 07400 4 02024 X14      TSX SF,4 CHECK IF AN ACTIVE INSTR.                         F5G19790
03156   0 02000 0 03162          TRA X01 COME HERE IF NOT ACTIVE                            F5G19800
03157  -0 53400 1 00430          LXD IRR,1 ACTIVE-STORE ACTIVE                              F5G19810
03160   0 50000 0 00526          CLA SFV1 INDICATOR                                         F5G19820
03161   0 60100 1 00561          STO AC1+3,1                                                F5G19830
03162  -0 53400 2 00430 X01      LXD IRR,2                                                  F5G19840
03163   0 50000 2 00565          CLA LX1+3,2 WAS AN ENTRANCE REQUIREMENT                    F5G19850
03164  -0 10000 0 03167          TNZ X19 BEEN DETERMINED FOR THIS BB.                       F5G19860
03165   0 50000 0 00333          CLA LK1 NO,RECORD HASH                                     F5G19870
03166   0 60100 2 00565          STO LX1+3,2 AS ENTRANCE REQUIREMENT                        F5G19880
03167  -0 50000 0 00340 X19      CAL S5K3 RECORD THAT THERE IS AN                           F5G19890
03170   0 77100 2 00003          ARS 3,2 LX FOR THIS IR IN                                  F5G19900
03171  -0 60200 0 00566          ORS XV2 REGION.                                            F5G19910
03172   0 50000 0 00567 X02      CLA XV3 RECORD THE                                         F5G19920
03173   0 07400 4 00032          TSX SE4,4 SPECIFIC                                         F5G19930
03174  -0 50000 0 00570          CAL XV4 TAG                                                F5G19940
03175   0 76000 0 00006          COM  IN                                                    F5G19950
03176   0 73400 2 00000          PAX 0,2 THE                                                F5G19960
03177  -0 50000 0 00430          CAL IRR STAG                                               F5G19970
03200   0 77100 2 00000          ARS 0,2 TABLE                                              F5G19980
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03201  0 77100 2 00000         ARS 0,2                                          F5G19990
03202 -0 60200 1 05061         ORS STAG,1                                       F5G20000
03203  0 02000 0 03077         TRA X3                                           F5G20010
03204 -0 53400 1 00440 X9      LXD S3V4,1 GET                                   F5G20020
03205 -3 00034 1 03212         TXL XI1+1,1,S3P1-2                               F5G20030
03206  0 50000 0 00550         CLA LPIND                                        F5G20040
03207 -0 12000 0 03212         TMI XI1+1                                        F5G20050
03210 -0 53400 2 00430         LXD IRR,2                                        F5G20060
03211  0 02000 0 03243 XI1     TRA X16-3                                        F5G20070
03212  0 50000 1 04775         CLA LPLST+S3P1-2,1 AND                           F5G20080
03213  0 34000 0 00324         CAS S3K2 STORE                                   F5G20090
03214  0 76100 0 00000         NOP  BB                                          F5G20100
03215  0 02000 0 03217         TRA X117                                         F5G20110
03216  0 77100 0 00022         ARS 18 PRED                                      F5G20120
03217  0 62100 0 00513 X117    STA SBV3       NO.                               F5G20130
03220  0 50000 1 04776         CLA LPLST+S3P1-1,1                               F5G20140
03221  0 07400 4 00070         TSX SE,4 GET ADDR. OF                            F5G20150
03222  0 50000 1 06442         CLA BBB,1 1ST PRED.                              F5G20160
03223  0 60200 0 00512 X03     SLW SBV2                                         F5G20170
03224  0 07400 4 00055         TSX SE5,4 GET PRED.                              F5G20180
03225 -0 50000 1 07337         CAL PRED,1                                       F5G20190
03226 -0 32000 0 00353         ANA SBK2                                         F5G20200
03227  0 34000 0 00513         CAS SBV3 IS THIS RIGHT PRED.                     F5G20210
03230  0 02000 0 03232         TRA X04 NO                                       F5G20220
03231  0 02000 0 03235         TRA X05 YES                                      F5G20230
03232  0 50000 0 00512 X04     CLA SBV2 NO ARRANGE TO                           F5G20240
03233  0 40000 0 00315         ADD ONEA TRY NEXT                                F5G20250
03234  0 02000 0 03223         TRA X03 PRED.                                    F5G20260
03235 -0 53400 2 00430 X05     LXD IRR,2 PUT LX                                 F5G20270
03236 -0 50000 0 00377         CAL XK16 BIT INTO                                F5G20280
03237  0 77100 2 00003         ARS 3,2 PRED.                                    F5G20290
03240 -0 60200 1 07337         ORS PRED,1 TABLE.                                F5G20300
03241 -0 53400 4 00440         LXD S3V4,4                                       F5G20310
03242 -0 60200 4 04776         ORS LPLST+S3P1-1,4                               F5G20320
03243  0 50000 2 00430         CLA IR1+3,2        SET ENTR. REQU.               F5G20330
03244  0 60100 2 00565         STO LX1+3,2                                      F5G20340
03245  0 02000 0 03155         TRA X14                                          F5G20350
03246  0 07400 4 01661 X16     TSX SC,4 RECORD I.R. ACTIVE IN SECTION OF LPLST  F5G20360
03247  0 56000 0 00333         LDQ LK1                                          F5G20370
03250  0 50000 1 00565         CLA LX1+3,1 HAS THIS                             F5G20380
03251 -0 10000 0 03253         TNZ X100 ENTR. REQU. BEEN DETERMINED             F5G20390
03252 -0 60000 1 00565         STQ LX1+3,1 NO,RECORD ENTR. REQU. IS AN E.       F5G20400
03253 -0 60000 1 00430 X100    STQ IR1+3,1 ERASE THIS I.R.                      F5G20410
03254  0 50000 0 00314         CLA ZERO RECORD THAT THIS                        F5G20420
03255  0 60100 1 00561         STO AC1+3,1 I.R. ISNT ACTIVE.                    F5G20430
03256  0 02000 0 03172         TRA X02                                          F5G20440
03257 -0 63400 1 00430 X7      SXD IRR,1                                        F5G20450
03260  0 50000 0 00442         CLA TPE IS THIS                                  F5G20460
03261  0 34000 0 00376         CAS XK15 AN LXP                                  F5G20470
03262  0 02000 0 03264         TRA X104 NO                                      F5G20480
03263  0 02000 0 03246         TRA X16 YES.                                     F5G20490
03264  0 34000 0 00403 X104    CAS XK21 IS IT A DED                             F5G20500
03265  0 02000 0 03267         TRA X15                                          F5G20510
03266  0 02000 0 03246         TRA X16 YES.                                     F5G20520
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03267   0 07400 4 02024 X15     TSX SF,4 DETERMINE ACTIVITY.                                F5G20530
03270   0 02000 0 03275         TRA X17 COME HERE IF NOT ACTIVE.                            F5G20540
03271  -0 53400 1 00430         LXD IRR,1                                                   F5G20550
03272   0 07400 4 01661         TSX SC,4 RECORD PART OF LOOP LIST ACTIVE.                   F5G20560
03273   0 50000 0 00526         CLA SFV1 STORE ACTIVE                                       F5G20570
03274   0 60100 1 00561         STO AC1+3,1 INDICATOR.                                      F5G20580
03275   0 50000 0 00442 X17     CLA TPE                                                     F5G20590
03276   0 34000 0 00322         CAS S2K2 IS THIS AN LX                                      F5G20600
03277   0 02000 0 03301         TRA X18                                                     F5G20610
03300   0 02000 0 03162         TRA X01 YES.                                                F5G20620
03301  -0 53400 1 00430 X18     LXD IRR,1                                                   F5G20630
03302   0 50000 1 00565         CLA LX1+3,1 WAS THIS                                        F5G20640
03303  -0 10000 0 03172         TNZ X02 I.R. LX ED                                          F5G20650
03304   0 50000 1 00430         CLA IR1+3,1 NO,STORE THE TAG                                F5G20660
03305   0 60100 1 00565         STO LX1+3,1 IN TH LX INDICATOR.                             F5G20670
03306   0 02000 0 03172         TRA X02                                                     F5G20680
03307   0 07400 4 00070 X22     TSX SE,4 MAKE SURE BB IS IN C+M.                            F5G20690
03310   0 53400 2 00342         LXA S5K5,2                                                  F5G20700
03311   0 50000 2 00565 X25     CLA LX1+3,2                                                 F5G20710
03312  -0 10000 0 03314         TNZ X23 HAS THIS ENTRANCE REQ. BEEN FOUND                   F5G20720
03313   0 50000 2 00430         CLA IR1+3,2 NO,ENTRANCE = EXIT.                             F5G20730
03314   0 76700 0 00022 X23     ALS 18 PUT ENTR. REQ. IN LEFT.                              F5G20740
03315   0 40000 2 00430         ADD IR1+3,2 ADD THE EXIT REQUIREMENTS.                      F5G20750
03316   0 60200 1 06444         SLW BBB+2,1                                                 F5G20760
03317   1 77777 1 03320         TXI X24,1,-1      DOWN INDEX OF ENTR-EXIT REQU.             F5G20770
03320   2 00001 2 03311 X24     TIX X25,2,1 COUNT TO 3                                      F5G20780
03321   0 02000 0 03353         TRA X26                                                     F5G20790
03322  -0 53400 1 00440 X13     LXD S3V4,1      GET LOOP LIST QUANTITY                      F5G20800
03323   3 00034 1 03353         TXH X26,1,S3P1-2  TRANSFER IF THIS IS 1ST IN LPLST          F5G20810
03324   0 50000 1 04775         CLA LPLST+S3P1-2,1     OF PREVIOUS QUANTITY                 F5G20820
03325   0 60100 0 00607         STO XV19                                                    F5G20830
03326   0 56000 0 00324         LDQ S3K2         WAS IT                                     F5G20840
03327   0 04000 0 03331         TLQ X126       A BB                                         F5G20850
03330   0 77100 0 00022         ARS 18        YES                                           F5G20860
03331  -0 32000 0 00326  X126   ANA S3K4              IS THERE                              F5G20870
03332   0 56000 0 00351         LDQ SAK1                                                    F5G20880
03333   0 04000 0 03346         TLQ X129                                                    F5G20890
03334   0 07400 4 00067         TSX SE1,4             YES, GET EXIT BB                      F5G20900
03335   0 50000 1 06442         CLA BBB,1       WAS THAT BB                                 F5G20910
03336   0 77100 0 00041         ARS 33         TERMINATED BY                                F5G20920
03337   0 40000 0 00315         ADD ONEA            A                                       F5G20930
03340  -0 10000 0 03346         TNZ X129           GO TO N                                  F5G20940
03341   0 53400 1 00342         LXA S5K5,1        YES, SET COUNT TO 3                       F5G20950
03342   0 50000 1 00561 X128    CLA AC1+3,1       IS THIS IR                                F5G20960
03343   0 10000 0 03345         TZE X127           ACTIVE                                   F5G20970
03344   0 07400 4 01566         TSX SB,4           YES, RECORD SXD NECESSARY                F5G20980
03345   2 00001 1 03342 X127    TIX X128,1,1          COUNT TO 3                            F5G20990
03346   0 50000 0 00607 X129    CLA XV19        GET                                         F5G21000
03347   0 34000 0 00324         CAS S3K2                                                    F5G21010
03350   0 76100 0 00000         NOP  NO                                                     F5G21020
03351   0 02000 0 03353         TRA X26                                                     F5G21030
03352   0 02000 0 03307         TRA X22 YES,                                                F5G21040
03353   0 50000 0 00444 X26     CLA S3V5 NO                                                 F5G21050
03354   0 34000 0 00323         CAS S3K1 IS THIS AN END-LOOP-LIST                           F5G21060
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03355  0 02000 0 03357         TRA X31 NO                                                                F5G21070
03356  0 02000 0 04370         TRA X88 YES                                                               F5G21080
03357 -0 50000 0 00444 X31      CAL S3V5                                                                  F5G21090
03360 -0 32000 0 00335          ANA LK3                                                                   F5G21100
03361  0 34000 0 00400          CAS XK17 WHAT TYPE ENTRY IS THIS                                          F5G21110
03362  0 02000 0 03365          TRA X118                                                                  F5G21120
03363  0 02000 0 04043          TRA X33 TRANSPARENT REGION                                                F5G21130
03364  0 02000 0 03072          TRA X32 BB                                                                F5G21140
03365  0 50000 0 00444 X118     CLA S3V5      OPAQUE REGION                                               F5G21150
03366  0 07400 4 00070          TSX SE,4      IS                                                          F5G21160
03367  0 50000 1 06447          CLA BBB+5,1     THIS                                                      F5G21170
03370  0 60100 0 00614          STO XV24                                                                  F5G21180
03371  0 62200 0 00613          STD XV23       THE                                                        F5G21190
03372  0 50000 0 04741          CLA LPLST       SAME                                                      F5G21200
03373  0 56000 0 00361          LDQ FK4                                                                   F5G21210
03374  0 04000 0 03376          TLQ X221                                                                  F5G21220
03375  1 00000 0 03404          TXI X213,0,-                                                              F5G21230
03376  0 07400 4 00067 X221     TSX SE1,4          REGION                                                 F5G21240
03377  0 50000 1 06447          CLA BBB+5,1         AS                                                    F5G21250
03400 -0 32000 0 00321          ANA S2K1           AT THE BEGINNING                                       F5G21260
03401  0 40200 0 00613          SUB XV23       OF THE                                                     F5G21270
03402  0 60100 0 00614          STO XV24           STORE IND. OF SAMENESS OF 1ST REGION                   F5G21280
03403  0 10000 0 03724          TZE X61        LPLST                                                      F5G21290
03404  0 50000 0 00444 X213     CLA S3V5                                                                  F5G21300
03405  0 07400 4 01245 X57      TSX S5,4 NO,MATCH ENTR. REQU.                                             F5G21310
03406 -0 53400 1 00613 X63      LXD XV23,1         GET                                                    F5G21320
03407  0 50000 1 05061          CLA REG,1          REGION WORD                                            F5G21330
03410  0 07400 4 00070          TSX SE,4           GET INDEX OF 1ST BB                                    F5G21340
03411 -0 50000 1 06443 X209     CAL BBB+1,1        GET THE                                                F5G21350
03412  0 60200 0 00575          SLW XV9            ORIGINAL PERM. NOS.                                    F5G21360
03413 -0 32000 0 00402          ANA XK20           STORE WORD TO                                          F5G21370
03414  0 60200 0 00574          SLW XV8            CONTAIN NEW PERM. NOS.                                 F5G21380
03415  0 53400 2 00342          LXA S5K5,2         SET COUNT TO 3                                         F5G21390
03416 -0 50000 0 00575 X210     CAL XV9            GET THE                                                F5G21400
03417  0 77100 2 00003          ARS 3,2                                                                   F5G21410
03420  0 77100 2 00003          ARS 3,2            PERM. NO. AND                                          F5G21420
03421 -0 32000 0 00350          ANA S9K3           PUT IT                                                 F5G21430
03422 -0 73400 4 00000          PDX 0,4            IN 4.                                                  F5G21440
03423  0 50000 4 00470          CLA EN4+3,4        GET THE                                                F5G21450
03424  0 76700 2 00003          ALS 3,2            CORRESPONDENCE                                         F5G21460
03425  0 76700 2 00003          ALS 3,2            OF THE ENTR. REQUIREMENTS                              F5G21470
03426 -0 60200 0 00574          ORS XV8            FORM NEW PERM.                                         F5G21480
03427  2 00001 2 03416          TIX X210,2,1                                                              F5G21490
03430 -0 50000 0 00574          CAL XV8             STORE NEW PERM.                                       F5G21500
03431  0 62200 1 06443          STD BBB+1,1        NOS.                                                   F5G21510
03432  0 50000 1 06447          CLA BBB+5,1        IS THIS THE LAST                                       F5G21520
03433 -0 32000 0 00353          ANA SBK2           BB IN REGION                                           F5G21530
03434  0 34000 0 00353          CAS SBK2                                                                  F5G21540
03435  0 02000 0 03437          TRA X211           NO.                                                    F5G21550
03436  0 02000 0 03441          TRA X212           YES, DONE                                              F5G21560
03437  0 07400 4 00067 X211     TSX SE1,4          ARRANGE TO DO NEXT                                     F5G21570
03440  0 02000 0 03411          TRA X209           BB.                                                    F5G21580
03441  0 53400 1 00342 X212     LXA S5K5,1         SET COUNT TO 3                                         F5G21590
03442  0 50000 1 00465 X60      CLA IN1+3,1        GET INDEX                                              F5G21600
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03443 -0 73400 2 00000         PDX 0,2 OF EN.                                F5G21610
03444  0 50000 2 00473         CLA EN1+3,2 IS C(ENM)                         F5G21620
03445  0 34000 1 00430         CAS IR1+3,1 =C(IRN)                           F5G21630
03446  0 02000 0 03450         TRA X58                                       F5G21640
03447  0 02000 0 03734         TRA X64 YES,                                  F5G21650
03450  0 34000 0 00337 X58     CAS S5K2 IS C(ENM) REAL                       F5G21660
03451  0 76100 0 00000         NOP  NO,                                      F5G21670
03452  0 02000 0 03454         TRA X119                                      F5G21680
03453  0 02000 0 03771         TRA X67 YES,                                  F5G21690
03454  0 50000 1 00561 X119    CLA AC1+3,1      NO,IS                        F5G21700
03455  0 10000 0 03457 X102    TZE X59 IRN ACTIVE                            F5G21710
03456  0 07400 4 01566 X65     TSX SB,4 YES,RECORD SXD NECESSARY.            F5G21720
03457  2 00001 1 03442 X59     TIX X60,1,1                                   F5G21730
03460  0 07400 4 02042         TSX SG,4              PERMUTE REGION WORD     F5G21740
03461  0 50000 0 04741 X89     CLA LPLST                                     F5G21750
03462  0 34000 0 00324         CAS S3K2            IS IT A BB                F5G21760
03463  0 07400 4 00067         TSX SE1,4           NO                        F5G21770
03464  0 02000 0 03466         TRA X206                                      F5G21780
03465  0 02000 0 03471         TRA X207                                      F5G21790
03466  0 50000 1 06447 X206    CLA BBB+5,1                                   F5G21800
03467 -0 73400 1 00000         PDX 0,1                                       F5G21810
03470  0 50000 1 05061         CLA REG,1           FORM NO OF 1ST BB IN REGION F5G21820
03471  0 62200 0 00566 X207    STD XV2                                       F5G21830
03472  0 53400 1 00342         LXA S5K5,1                                    F5G21840
03473  0 50000 0 00336 X116    CLA S5K1                                      F5G21850
03474  0 34000 1 00430         CAS IR1+3,1       IS THIS IR EMPTY            F5G21860
03475  0 02000 0 03500         TRA X115                                      F5G21870
03476 -0 50000 1 00410         CAL XK23+3,1      YES, INITIALIZE IR          F5G21880
03477 -0 60200 0 00566         ORS XV2        TO EMPTYNESS                   F5G21890
03500  2 00001 1 03473 X115    TIX X116,1,1       COUNT TO 3                 F5G21900
03501 -0 53400 2 00325         LXD S3K3,2         PREPARE TO SCAN LOOP LIST  F5G21910
03502 -0 63400 2 00600         SXD XV12,2                                    F5G21920
03503  0 50000 2 04777 X79     CLA LPLST+S3P1,2                              F5G21930
03504  0 34000 0 00323         CAS S3K1 IS THIS END LOOP LIST                F5G21940
03505  0 02000 0 03507         TRA X120                                      F5G21950
03506  0 02000 0 03717         TRA X81 YES.                                  F5G21960
03507  0 34000 0 00324 X120    CAS S3K2          IS IT A BB                  F5G21970
03510  0 76100 0 00000         NOP                                           F5G21980
03511  0 02000 0 03513         TRA X121                                      F5G21990
03512  0 77100 0 00022         ARS 18 YES.                                   F5G22000
03513  0 62100 0 00513 X121    STA SBV3        STORE EXIT BB NO.             F5G22010
03514  0 50000 2 05000         CLA LPLST+S3P1+1,2                            F5G22020
03515  0 34000 0 00323         CAS S3K1 IS NEXT QUANTITY AN END LPLST        F5G22030
03516  0 02000 0 03520         TRA X107                                      F5G22040
03517  0 02000 0 03603         TRA X114 YES.                                 F5G22050
03520  0 77100 0 00022 X107    ARS 18                                        F5G22060
03521  0 62100 0 00606         STA XV18 STORE ENTRY BB NO.                   F5G22070
03522  0 40000 0 00315         ADD ONEA                                      F5G22080
03523  0 07400 4 00067         TSX SE1,4                                     F5G22090
03524 -0 50000 1 06442         CAL BBB,1                                     F5G22100
03525 -0 32000 0 00353         ANA SBK2                                      F5G22110
03526  0 60100 0 00515         STO SBV5                                      F5G22120
03527  0 50000 0 00606         CLA XV18                                      F5G22130
03530  0 07400 4 00067         TSX SE1,4                                     F5G22140
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03531   0 50000 1 06442         CLA BBB,1                                                                F5G22150
03532  -0 32000 0 00353         ANA SBK2                                                                 F5G22160
03533   0 60200 0 00512 X109    SLW SBV2                                                                 F5G22170
03534   0 07400 4 00055         TSX SE5,4                                                                F5G22180
03535  -0 50000 1 07337         CAL PRED,1                                                               F5G22190
03536  -0 32000 0 00353         ANA SBK2                                                                 F5G22200
03537   0 34000 0 00513         CAS SBV3 IS THIS THE RIGHT TRANSFER                                      F5G22210
03540   0 02000 0 03542         TRA X108                                                                 F5G22220
03541   0 02000 0 03550         TRA X110 YES                                                             F5G22230
03542   0 50000 0 00512 X108    CLA SBV2 ARRANGE TO TRY                                                  F5G22240
03543   0 40000 0 00315         ADD ONEA NEXT PRED.                                                      F5G22250
03544   0 34000 0 00515         CAS SBV5              IS THIS PRED ENTRY IN SAME BB                      F5G22260
03545   0 02000 0 03533         TRA X109                                                                 F5G22270
03546   0 02000 0 03554         TRA X222                                                                 F5G22280
03547   0 02000 0 03533         TRA X109                                                                 F5G22290
03550   0 50000 1 07337 X110    CLA PRED,1 SET SIGN                                                      F5G22300
03551  -0 76000 0 00003         SSM  OF PRED.                                                            F5G22310
03552   0 60100 1 07337         STO PRED,1 ENTRY NEGATIVE.                                               F5G22320
03553   0 02000 0 03542         TRA X108                                                                 F5G22330
03554   0 50000 0 00513 X222    CLA SBV3              GET INDEX                                          F5G22340
03555   0 40000 0 00315         ADD ONEA                                                                 F5G22350
03556   0 07400 4 00067         TSX SE1,4 OF                                                             F5G22360
03557   0 50000 1 06442         CLA BBB,1                                                                F5G22370
03560  -0 32000 0 00321         ANA S2K1                                                                 F5G22380
03561   0 60100 0 00515         STO SBV5                                                                 F5G22390
03562   0 50000 0 00513         CLA SBV3                                                                 F5G22400
03563   0 07400 4 00067         TSX SE1,4                                                                F5G22410
03564   0 50000 1 06442         CLA BBB,1                                                                F5G22420
03565  -0 32000 0 00321         ANA S2K1                                                                 F5G22430
03566   0 60200 0 00512 X112    SLW SBV2                                                                 F5G22440
03567   0 07400 4 00044         TSX SE6,4                                                                F5G22450
03570  -0 50000 1 07555         CAL SUCC,1                                                               F5G22460
03571  -0 32000 0 00353         ANA SBK2                                                                 F5G22470
03572   0 34000 0 00606         CAS XV18 IS THIS RIGHT SUCC.                                             F5G22480
03573   0 02000 0 03575         TRA X111                                                                 F5G22490
03574   0 02000 0 03607         TRA X113                                                                 F5G22500
03575   0 50000 0 00512 X111    CLA SBV2 ARRANGE TO TRY NEXT SUCC.                                       F5G22510
03576   0 40000 0 00316         ADD ONED                                                                 F5G22520
03577   0 34000 0 00515         CAS SBV5              IS THIS SUCC IN SAME BB                            F5G22530
03600   0 02000 0 03566         TRA X112                                                                 F5G22540
03601   0 02000 0 03613         TRA X74                                                                  F5G22550
03602   0 02000 0 03566         TRA X112                                                                 F5G22560
03603   0 50000 0 00550 X114    CLA LPIND IS THIS                                                        F5G22570
03604   0 12000 0 03613         TPL X74          A LOOP                                                  F5G22580
03605   0 50000 0 04741         CLA LPLST YES                                                            F5G22590
03606   0 02000 0 03520         TRA X107                                                                 F5G22600
03607   0 50000 1 07555 X113    CLA SUCC,1 SET SIGN                                                      F5G22610
03610  -0 76000 0 00003         SSM  OF SUCC+ ENTRY                                                      F5G22620
03611   0 60100 1 07555         STO SUCC,1 NEGATIVE                                                      F5G22630
03612   0 02000 0 03575         TRA X111                                                                 F5G22640
03613  -0 53400 2 00600 X74     LXD XV12,2                                                               F5G22650
03614   0 50000 2 04777         CLA LPLST+S3P1,2                                                         F5G22660
03615   0 34000 0 00324         CAS S3K2           IS IT A BB                                            F5G22670
03616   0 76100 0 00000         NOP                                                                      F5G22680
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03617  0 02000 0 03621         TRA X122                                                    F5G22690
03620  0 02000 0 03662         TRA X80 YES                                                 F5G22700
03621 -0 73400 4 00000 X122    PDX 0,4                                                     F5G22710
03622  3 77776 4 03624         TXH X205,4,-2      IS THE DECR. AN IMPOSSIBLE BB            F5G22720
03623  0 77100 0 00022         ARS 18                                                      F5G22730
03624  0 07400 4 00067 X205    TSX SE1,4                                                   F5G22740
03625  0 50000 1 06447         CLA BBB+5,1 THE                                             F5G22750
03626 -0 73400 1 00000         PDX 0,1 REGION                                              F5G22760
03627 -0 50000 1 05061         CAL REG,1            WORD                                   F5G22770
03630  0 60200 0 00605         SLW XV17                                                    F5G22780
03631  0 10000 0 03655         TZE X105 HAS THIS REGION ALREADY BEEN RENUMBERED            F5G22790
03632 -0 32000 0 00335         ANA LK3      OR THE LX BITS FOR                             F5G22800
03633 -0 60200 0 00566         ORS XV2 OLD REGION IN NEW REGION WORD.                      F5G22810
03634 -0 50000 0 00404         CAL XK22             AND THE OLD PHI                        F5G22820
03635 -0 50100 0 00605         ORA XV17 BITS                                               F5G22830
03636  0 32000 0 00566         ANS XV2 INTO NEW REGION WORD.                               F5G22840
03637  0 50000 0 00314         CLA ZERO CLEAR OLD                                          F5G22850
03640  0 60100 1 05061         STO REG,1 REGION WORD.                                      F5G22860
03641  0 50000 0 00605         CLA XV17 GET INDEX OF                                       F5G22870
03642  0 77100 0 00022         ARS 18                  FIRST BB IN REG                     F5G22880
03643  0 62100 0 00612 X75     STA XV22        STOREBB NO.                                 F5G22890
03644  0 07400 4 00067         TSX SE1,4 GET INDEX OF BB                                   F5G22900
03645  0 50000 0 00565 X101    CLA XV1 STORE THE                                           F5G22910
03646  0 62200 1 06447         STD BBB+5,1 NEW REGION NO.                                  F5G22920
03647  0 50000 1 06447         CLA BBB+5,1 IS THIS THE                                     F5G22930
03650 -0 32000 0 00353         ANA SBK2 LAST BB                                            F5G22940
03651  0 34000 0 00353         CAS SBK2 OF THE REGION                                      F5G22950
03652  0 02000 0 03643         TRA X75                                                     F5G22960
03653  0 02000 0 03665         TRA X76 YES.                                                F5G22970
03654  0 02000 0 03643         TRA X75                                                     F5G22980
03655  0 50000 0 00612 X105    CLA XV22       RECORD THAT PREVIOUSLY                       F5G22990
03656  0 07400 4 00067         TSX SE1,4 NUMBERED BB                                       F5G23000
03657  0 50000 0 00404         CLA XK22 WAS LAST                                           F5G23010
03660  0 62100 1 06447         STA BBB+5,1 ONE IN NEW REGION.                              F5G23020
03661  0 02000 0 03717         TRA X81 FINISHED RENUMBERING.                               F5G23030
03662  0 77100 0 00022 X80     ARS 18                                                      F5G23040
03663  0 62100 0 00612         STA XV22                                                    F5G23050
03664  0 07400 4 00067         TSX SE1,4                                                   F5G23060
03665 -0 53400 2 00600 X76     LXD XV12,2                                                  F5G23070
03666  1 77777 2 03667 X140    TXI X140+1,2,-1                                             F5G23080
03667 -0 63400 2 00600         SXD XV12,2                                                  F5G23090
03670  0 50000 2 04777 X77     CLA LPLST+S3P1,2                                            F5G23100
03671  0 34000 0 00323         CAS S3K1 IS THIS END LOOP LIST                              F5G23110
03672  1 00000 0 03700 X219    TXI X217,0,-       SEE X217+2                               F5G23120
03673  0 50000 0 00336         CLA S5K1           YES                                      F5G23130
03674  0 62100 1 06447 X216    STA BBB+5,1        RECORD THE NEXT BB NO.                   F5G23140
03675  0 50000 0 00565         CLA XV1 RECORD THE                                          F5G23150
03676  0 62200 1 06447         STD BBB+5,1 NEW REGION                                      F5G23160
03677  0 02000 0 03503         TRA X79 NO.                                                 F5G23170
03700  0 56000 0 00324 X217    LDQ S3K2                                                    F5G23180
03701  0 04000 0 03704         TLQ X220                                                    F5G23190
03702  0 77100 0 00022 X215    ARS 18             NO                                       F5G23200
03703  1 00000 0 03674 X218    TXI X216,0,-                                                F5G23210
03704 -0 63400 2 03672  X220   SXD X219,2                                                  F5G23220
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03705   0 07400 4 00070          TSX SE,4                                                F5G23230
03706   0 50000 1 06447          CLA BBB+5,1                                             F5G23240
03707  -0 73400 1 00000          PDX 0,1                                                 F5G23250
03710   0 50000 1 05061          CLA REG,1          GET REGION WORD                      F5G23260
03711   0 62200 0 03703          STD X218                                                F5G23270
03712   0 50000 0 00612          CLA XV22                                                F5G23280
03713   0 07400 4 00067          TSX SE1,4                                               F5G23290
03714   0 50000 0 03703          CLA X218                                                F5G23300
03715  -0 53400 2 03672          LXD X219,2                                              F5G23310
03716   1 00000 0 03702          TXI X215,-,-                                            F5G23320
03717   0 50000 0 00566 X81      CLA XV2                                                 F5G23330
03720  -0 50100 0 00315          ORA ONEA                                                F5G23340
03721  -0 53400 1 00565          LXD XV1,1 NEW REGION                                    F5G23350
03722   0 60100 1 05061          STO REG,1 WORD.                                         F5G23360
03723   0 02000 0 02177          TRA F                                                   F5G23370
03724   0 53400 1 00342 X61      LXA S5K5,1                                              F5G23380
03725  -0 75400 1 00000 X62      PXD 0,1 PLACE APPROPRIATE NOS.                          F5G23390
03726   0 62200 1 00465          STD IN1+3,1     IN CORRSEPONDENCE                       F5G23400
03727   0 62200 1 00470          STD EN4+3,1      TABLES                                 F5G23410
03730   2 00001 1 03725          TIX X62,1,1                                             F5G23420
03731   0 50000 0 00444          CLA S3V5                                                F5G23430
03732   0 07400 4 01466          TSX S9,4           GET THE ENTRANCE REQUIREMENTS        F5G23440
03733   0 02000 0 03406          TRA X63                                                 F5G23450
03734   0 50000 1 00561 X64      CLA AC1+3,1 IS THIS I.R.                                F5G23460
03735   0 10000 0 03457          TZE X59 ACTIVE                                          F5G23470
03736  -0 53400 4 00440          LXD S3V4,4 YES.                                         F5G23480
03737   0 50000 4 04776          CLA LPLST+S3P1-1,4 GET                                  F5G23490
03740  -0 63400 1 00577          SXD XV11,1 THE                                          F5G23500
03741  -0 63400 2 00600          SXD XV12,2 REGION                                       F5G23510
03742   0 07400 4 00070          TSX SE,4 WORD                                           F5G23520
03743   0 50000 1 06447          CLA BBB+5,1 IN                                          F5G23530
03744  -0 73400 4 00000          PDX 0,4 THE                                             F5G23540
03745   0 56000 4 05061          LDQ REG,4 MQ.                                           F5G23550
03746  -0 53400 1 00577          LXD XV11,1 HAS THERE                                    F5G23560
03747  -0 53400 2 00600          LXD XV12,2                                              F5G23570
03750  -0 77300 2 00003          RQL 3,2                BEEN AN LX                       F5G23580
03751   0 16200 0 03753          TQP X66 FOR THIS I.R.                                   F5G23590
03752   0 02000 0 03456          TRA X65 YES                                             F5G23600
03753   0 50000 0 00614 X66      CLA XV24                                                F5G23610
03754  -0 10000 0 03762          TNZ X208           IS THIS SAME REG. AS BEGINS STRING   F5G23620
03755   0 50000 0 04741          CLA LPLST          YES                                  F5G23630
03756   0 07400 4 01523          TSX SA,4           GET ACTIVE INDS. AT START OF STRING   F5G23640
03757  -0 53400 1 00577          LXD XV11,1                                              F5G23650
03760   0 50000 1 00511          CLA ACT1+3,1       WAS THIS IR ACTIVE AT START          F5G23660
03761   0 12000 0 03456          TPL X65                                                 F5G23670
03762  -0 53400 4 00440 X208     LXD S3V4,4         YES, MARK ALL                        F5G23680
03763   0 50000 4 04776          CLA LPLST+S3P1-1,4           BBS IN OPAQUE              F5G23690
03764  -0 53400 2 00577          LXD XV11,2         REGION ACTIVE                        F5G23700
03765   0 07400 4 01753          TSX SD,4                                                F5G23710
03766  -0 53400 1 00577          LXD XV11,1                                              F5G23720
03767   0 07400 4 01661          TSX SC,4           MARK SECTION OF LLLST ACTIVE         F5G23730
03770   0 02000 0 03457          TRA X59                                                 F5G23740
03771  -0 63400 1 00577 X67      SXD XV11,1                                              F5G23750
03772  -0 53400 1 00440          LXD S3V4,1         GET                                  F5G23760
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03773   0 50000 1 04775         CLA LPLST+S3P1-2,1 PRED+ NO                    F5G23770
03774   0 34000 0 00324         CAS S3K2 IS THIS A BB                          F5G23780
03775   0 76100 0 00000         NOP       NO                                   F5G23790
03776   0 02000 0 04000         TRA X123                                       F5G23800
03777   0 77100 0 00022         ARS 18 YES,SHIFT BB NO RIGHT.                  F5G23810
04000   0 62100 0 00513 X123    STA SBV3      AND STORE IT                     F5G23820
04001   0 50000 1 04776         CLA LPLST+S3P1-1,1 GET INDEX OF                F5G23830
04002   0 07400 4 00070         TSX SE,4 THIS BB                               F5G23840
04003   0 50000 1 06443         CLA BBB+1,1 GET TO STORE                       F5G23850
04004   0 60100 0 00575         STO XV9 PREM. NO.                              F5G23860
04005   0 50000 1 06442         CLA BBB,1 GET PRED. NO.                        F5G23870
04006   0 60200 0 00512 X68     SLW SBV2                                       F5G23880
04007   0 07400 4 00055         TSX SE5,4 GET INDEX OF PRED.                   F5G23890
04010  -0 50000 1 07337         CAL PRED,1 IS THIS THE                         F5G23900
04011  -0 32000 0 00353         ANA SBK2 RIGHT PRED                            F5G23910
04012   0 34000 0 00513         CAS SBV3                                       F5G23920
04013   0 02000 0 04015         TRA X69                                        F5G23930
04014   0 02000 0 04020         TRA X70 YES.                                   F5G23940
04015   0 50000 0 00512 X69     CLA SBV2                                       F5G23950
04016   0 40000 0 00315         ADD ONEA                                       F5G23960
04017   0 02000 0 04006         TRA X68                                        F5G23970
04020   0 53400 4 00342 X70     LXA S5K5,4 SET COUNT TO 3                      F5G23980
04021  -0 50000 0 00575 X72     CAL XV9 FIND                                   F5G23990
04022   0 77100 4 00003         ARS 3,4 THE                                    F5G24000
04023   0 77100 4 00003         ARS 3,4 PERM+ NO.                              F5G24010
04024  -0 32000 0 00350         ANA S9K3                                       F5G24020
04025   0 34000 0 00577         CAS XV11 IS THIS THE RIGHT I.R.                F5G24030
04026   0 02000 0 04030         TRA X71 NO,                                    F5G24040
04027   0 02000 0 04032         TRA X73 YES.                                   F5G24050
04030   2 00001 4 04021 X71     TIX X72,4,1 NO,                                F5G24060
04031   0 07400 4 00004         TSX 4,4 DIAGNOSTIC, ERROR.                     F5G24070
04032  -0 50000 0 00377 X73     CAL XK16 RECORD THAT AN                        F5G24080
04033   0 77100 4 00003         ARS 3,4 LX IS                                  F5G24090
04034  -0 60200 1 07337         ORS PRED,1 NECESSARY.                          F5G24100
04035  -0 53400 4 00577         LXD XV11,4 RECORD                              F5G24110
04036  -0 50000 0 00340         CAL S5K3 LX                                    F5G24120
04037   0 77100 4 00003         ARS 3,4 FOR THIS I.R.                          F5G24130
04040  -0 60200 0 00566         ORS XV2 IN THIS REGION.                        F5G24140
04041  -0 53400 1 00577         LXD XV11,1                                     F5G24150
04042   0 02000 0 03454         TRA X119                                       F5G24160
04043   0 50000 0 00444 X33     CLA S3V5                                       F5G24170
04044   0 07400 4 01245         TSX S5,4 MATCH ENTRANCE REQU.                  F5G24180
04045   0 50000 0 00444         CLA S3V5                                       F5G24190
04046   0 07400 4 01523         TSX SA,4 GET EXIT COND.                        F5G24200
04047   0 50000 0 00444         CLA S3V5                                       F5G24210
04050   0 07400 4 00070         TSX SE,4 GET INDEX OF                          F5G24220
04051   0 50000 1 06447         CLA BBB+5,1 B.B.                               F5G24230
04052  -0 73400 1 00000         PDX 0,1 GET                                    F5G24240
04053   0 50000 1 05061         CLA REG,1 REGION                               F5G24250
04054   0 07400 4 00070         TSX SE,4 WORD.                                 F5G24260
04055  -0 63400 1 00601 X40     SXD XV13,1 GET INDEX OF FIRST BB.              F5G24270
04056  -0 50000 1 06443         CAL BBB+1,1 CLEAR REGISTER TO                  F5G24280
04057   0 60200 0 00575         SLW XV9 CONTAIN PERM. NOS.                     F5G24290
04060  -0 32000 0 00402         ANA XK20 GET ORIGINAL PERM. NOS.               F5G24300
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04061   0 60200 0 00574          SLW XV8                                    F5G24310
04062   0 53400 2 00342          LXA S5K5,2 SET COUNT TO 3.                 F5G24320
04063  -0 50000 0 00575 X38      CAL XV9 GET THE                            F5G24330
04064   0 77100 2 00003          ARS 3,2 PERM.                              F5G24340
04065   0 77100 2 00003          ARS 3,2 NO. AND                            F5G24350
04066  -0 32000 0 00350          ANA S9K3 PUT IT                            F5G24360
04067  -0 73400 4 00000          PDX 0,4 IN 4.                              F5G24370
04070   0 50000 4 00470          CLA EN4+3,4 GET THE CORRESPONDENCE         F5G24380
04071   0 76700 2 00003          ALS 3,2 OF THE ENTR,                       F5G24390
04072   0 76700 2 00003          ALS 3,2 REQUIREMENTS.                      F5G24400
04073  -0 60200 0 00574          ORS XV8 FORM NEW PERM. NOS.                F5G24410
04074  -0 63400 1 00576          SXD XV10,1                                 F5G24420
04075   0 50000 4 00470          CLA EN4+3,4                                F5G24430
04076  -0 73400 1 00000          PDX 0,1 GET INDEX OF I.R.                  F5G24440
04077   0 50000 4 00473          CLA EN1+3,4                                F5G24450
04100   0 34000 0 00336          CAS S5K1 IS ENM EMPTY                      F5G24460
04101   0 02000 0 04103          TRA X34 NO,                                F5G24470
04102   0 02000 0 04150          TRA X41 YES,                               F5G24480
04103   0 34000 0 00333 X34      CAS LK1 NO,IS C(ENM)=E                     F5G24490
04104   0 02000 0 04106          TRA X35 NO,                                F5G24500
04105   0 02000 0 04111          TRA X36 YES,                               F5G24510
04106   0 34000 1 00430 X35      CAS IR1+3,1 C-(ENM)=C(IRN)                 F5G24520
04107   0 02000 0 04111          TRA X36 NO                                 F5G24530
04110   0 02000 0 04132          TRA X43 YES                                F5G24540
04111  -0 53400 1 00576 X36      LXD XV10,1 NO                              F5G24550
04112   1 77777 1 04113 X42      TXI X42+1,1,-1                             F5G24560
04113   2 00001 2 04063 X37      TIX X38,2,1 COUNT TO 3                     F5G24570
04114  -0 50000 0 00574          CAL XV8       STORE NEW                    F5G24580
04115   0 62200 1 06440          STD BBB-2,1 PERM. NOS.                     F5G24590
04116   0 63000 1 06440          STP BBB-2,1      AND ACTIVE INDICATORS     F5G24600
04117   0 50000 1 06444          CLA BBB+2,1 IS THIS                        F5G24610
04120  -0 32000 0 00353          ANA SBK2 LAST BB IN REGION                 F5G24620
04121   0 34000 0 00353          CAS SBK2                                   F5G24630
04122   0 02000 0 04124          TRA X39                                    F5G24640
04123   0 02000 0 04217          TRA X45 YES,DONE.                          F5G24650
04124   0 07400 4 00067 X39      TSX SE1,4 GET INDEX OF NEXT B.B.           F5G24660
04125   0 02000 0 04055          TRA X40                                    F5G24670
04126   0 50000 4 00506 X200     CLA EX1+3,4       IS CONTENTS OF IR        F5G24680
04127   0 56000 0 00337          LDQ S5K2       AT EXIT                     F5G24690
04130   0 04000 0 04135          TLQ X130      REAL                         F5G24700
04131   0 02000 0 04111          TRA X36       YES                          F5G24710
04132   0 50000 4 00511 X43      CLA ACT1+3,4                               F5G24720
04133  -0 63400 1 05164  PW0     SXD W2+1,1                                 F5G24730
04134   0 12000 0 04126          TPL X200       IS IT ACTIVE AT EXIT        F5G24740
04135   0 50000 1 00561 X130     CLA AC1+3,1     YES,IS THIS IR ACTIVE      F5G24750
04136   0 10000 0 04111          TZE X36                                    F5G24760
04137   0 50000 1 00430          CLA IR1+3,1 YES                            F5G24770
04140   0 60100 0 00611          STO XV21                                   F5G24780
04141  -0 53400 1 00576          LXD XV10,1 DOES THIS BB CONTAIN THE        F5G24790
04142   0 50000 1 06444          CLA BBB+2,1     SAME TAG IN THIS POSITION  F5G24800
04143  -0 32000 0 00336          ANA S5K1                                   F5G24810
04144   0 34000 0 00611          CAS XV21                                   F5G24820
04145   0 02000 0 05144          TRA W0                                     F5G24830
04146   0 02000 0 04213          TRA X44 YES.                               F5G24840
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04147   0 02000 0 05144          TRA WO                                    F5G24850
                                      C(XV10)= INDEX OF PARTICULAR         F5G24860
                                      ENTRANCE REQUIREMENT.                F5G24870
04150   0 50000 1 00430 X41      CLA IR1+3,1                               F5G24880
04151   0 60100 0 00572          STO XV6                                   F5G24890
04152   0 76700 0 00022          ALS 18 STORE AWAY THIS                    F5G24900
04153   0 40000 1 00430          ADD IR1+3,1 TAG TEMPORARILY.              F5G24910
04154   0 60200 0 00573          SLW XV7                                   F5G24920
04155   0 50000 1 00430          CLA IR1+3,1     IS THIS                   F5G24930
04156   0 56000 0 00337          LDQ S5K2       TAG                        F5G24940
04157   0 04000 0 04176          TLQ X201                                  F5G24950
04160  -0 53400 1 00601          LXD XV13,1                                F5G24960
04161   0 53400 4 00342          LXA S5K5,4 SET COUNT TO 3.                F5G24970
04162  -0 50000 1 06444 X85      CAL BBB+2,1                               F5G24980
04163   0 76500 0 00022          LRS 18                                    F5G24990
04164   0 34000 0 00572          CAS XV6 IS ENTR. REQU. EQUAL TO TAG       F5G25000
04165   0 02000 0 04167          TRA X82 NO,                               F5G25010
04166   0 02000 0 04202          TRA X86 YES,                              F5G25020
04167   0 50000 0 00314 X82      CLA ZERO NO,                              F5G25030
04170   0 76300 0 00022          LLS 18                                    F5G25040
04171   0 34000 0 00572          CAS XV6 IS TAG EQUAL TO EXIT COND.        F5G25050
04172   0 02000 0 04174          TRA X83                                   F5G25060
04173   0 02000 0 04206          TRA X87 YES                               F5G25070
04174   1 77777 1 04175 X83      TXI X83+1,1,-1                            F5G25080
04175   2 00001 4 04162 X84      TIX X85,4,1 COUNT TO 3.                   F5G25090
04176   0 50000 0 00573 X201     CLA XV7        STORE THE                  F5G25100
04177  -0 53400 1 00576          LXD XV10,1 NEW ENTRANCE-                  F5G25110
04200   0 60100 1 06444          STO BBB+2,1 EXIT REQUI.                   F5G25120
04201   0 02000 0 04112          TRA X42                                   F5G25130
04202  -0 50000 0 00366 X86      CAL XK18 PUT AN E                         F5G25140
04203   0 62200 0 00573          STD XV7 IN THE ENTR. REQU.                F5G25150
04204   0 63000 0 00573          STP XV7                                   F5G25160
04205   0 02000 0 04167          TRA X82                                   F5G25170
04206  -0 50000 0 00573 X87      CAL XV7 PLACE E                           F5G25180
04207  -0 32000 0 00401          ANA XK19 IN                               F5G25190
04210   0 40000 0 00333          ADD LK1 EXIT                              F5G25200
04211   0 60200 0 00573          SLW XV7 REQUIREMENT.                      F5G25210
04212   0 02000 0 04174          TRA X83                                   F5G25220
04213  -0 50000 0 00340 X44      CAL S5K3 RECORD THIS                      F5G25230
04214   0 77100 2 00003          ARS 3,2 I.R.                              F5G25240
04215  -0 60200 0 00574          ORS XV8 ACTIVE                            F5G25250
04216   0 02000 0 04112          TRA X42                                   F5G25260
04217   0 53400 2 00342 X45      LXA S5K5,2                                F5G25270
04220  -0 63400 2 00602 X56      SXD XV14,2                                F5G25280
04221   0 50000 2 00470          CLA EN4+3,2                               F5G25290
04222  -0 73400 4 00000          PDX 0,4 GET INDEX                         F5G25300
04223  -0 63400 4 00514          SXD SBV4,4 OF I.R.                        F5G25310
04224   0 50000 2 00473          CLA EN1+3,2                               F5G25320
04225   0 34000 0 00336          CAS S5K1 IS ENM EMPTY                     F5G25330
04226   0 02000 0 04230          TRA X46                                   F5G25340
04227   0 02000 0 04343          TRA X223                                  F5G25350
04230   0 34000 0 00333 X46      CAS LK1 IS THERE HASH IN ENM              F5G25360
04231   0 02000 0 04233          TRA X134                                  F5G25370
04232   0 02000 0 04307          TRA X55 YES                               F5G25380
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04233   0 34000 4 00430 X134   CAS IR1+3,4         DOES CONTENTS OF IR EQUAL CONTENTS OF EN      F5G25390
04234   0 02000 0 04236        TRA X47           NO                                             F5G25400
04235   0 02000 0 04357        TRA X131           YES                                           F5G25410
04236  -0 53400 1 00440 X47    LXD S3V4,1 GET AND                                               F5G25420
04237   0 50000 1 04775        CLA LPLST+S3P1-2,1 STORE PRED.                                   F5G25430
04240   0 34000 0 00324        CAS S3K2 BB                                                      F5G25440
04241   0 76100 0 00000        NOP  NO.                                                         F5G25450
04242   0 02000 0 04244        TRA X124                                                         F5G25460
04243   0 77100 0 00022        ARS 18                                                           F5G25470
04244   0 62100 0 00513 X124   STA SBV3                                                         F5G25480
04245   0 50000 1 04776        CLA LPLST+S3P1-1,1 GET                                           F5G25490
04246   0 07400 4 00070        TSX SE,4 BB NO.                                                  F5G25500
04247   0 50000 1 06443        CLA BBB+1,1 STORE THE                                            F5G25510
04250   0 60100 0 00575        STO XV9 PERM. NOS.                                               F5G25520
04251   0 50000 1 06447        CLA BBB+5,1                                                      F5G25530
04252  -0 73400 4 00000        PDX 0,4                                                          F5G25540
04253  -0 53400 2 00602        LXD XV14,2                                                       F5G25550
04254  -0 50000 0 00340        CAL S5K3                                                         F5G25560
04255   0 77100 2 00003        ARS 3,2                                                          F5G25570
04256  -0 60200 4 05061        ORS REG,4                                                        F5G25580
04257   0 50000 1 06442        CLA BBB,1 GET PRED. NO.                                          F5G25590
04260   0 60200 0 00512 X48    SLW SBV2          STORE PRED. NO.                                F5G25600
04261   0 07400 4 00055        TSX SE5,4 OBTAIN PRED. INDEX.                                    F5G25610
04262  -0 50000 1 07337        CAL PRED,1 IS THIS                                               F5G25620
04263  -0 32000 0 00353        ANA SBK2 THE CORRECT                                             F5G25630
04264   0 34000 0 00513        CAS SBV3 PRED                                                    F5G25640
04265   0 02000 0 04267        TRA X49                                                          F5G25650
04266   0 02000 0 04272        TRA X50 YES.                                                     F5G25660
04267   0 50000 0 00512 X49    CLA SBV2 ARRANGE TO                                              F5G25670
04270   0 40000 0 00315        ADD ONEA TRY NEXT PREDECESSOR.                                   F5G25680
04271   0 02000 0 04260        TRA X48                                                          F5G25690
04272   0 53400 4 00342 X50    LXA S5K5,4 1 HAS INDEX OF PRED.                                  F5G25700
04273  -0 50000 0 00575 X52    CAL XV9 EXTRACT                                                  F5G25710
04274   0 77100 4 00003        ARS 3,4 THE                                                      F5G25720
04275   0 77100 4 00003        ARS 3,4 PERM.                                                    F5G25730
04276  -0 32000 0 00350        ANA S9K3 NO.                                                     F5G25740
04277   0 34000 0 00514        CAS SBV4 IS THIS THE PERM. NO.                                   F5G25750
04300   0 02000 0 04302        TRA X51                                                          F5G25760
04301   0 02000 0 04304        TRA X53 YES.                                                     F5G25770
04302   2 00001 4 04273 X51    TIX X52,4,1                                                      F5G25780
04303   0 07400 4 00004        TSX 4,4 DIAGNOSTIC, ERROR.                                       F5G25790
04304  -0 50000 0 00377 X53    CAL XK16 GENERATE                                                F5G25800
04305   0 77100 4 00003        ARS 3,4 THE LX BIT.                                              F5G25810
04306  -0 60200 1 07337        ORS PRED,1 INSERT LX BIT.                                        F5G25820
04307  -0 53400 1 00514 X55    LXD SBV4,1 IS THE                                                F5G25830
04310   0 50000 1 00561        CLA AC1+3,1 I.R.                                                 F5G25840
04311   0 10000 0 04313        TZE X135          ACTIVE                                         F5G25850
04312   0 07400 4 01566        TSX SB,4 YES,RECORD SXD NEEDED.                                  F5G25860
04313  -0 53400 2 00602 X135   LXD XV14,2      REPLACE IR                                       F5G25870
04314  -0 53400 4 00514        LXD SBV4,4       BY EXIT CONDITIONS                              F5G25880
04315   0 50000 2 00506        CLA EX1+3,2        OF THE                                        F5G25890
04316   0 60100 4 00430        STO IR1+3,4       REGION                                         F5G25900
04317   0 50000 2 00511 X136   CLA ACT1+3,2       IS IR                                         F5G25910
04320   0 12000 0 04325        TPL X54        ACTIVE AT EXIT                                   F5G25920
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04321   0 50000 0 00440          CLA S3V4          SET                                    F5G25930
04322  -0 76000 0 00003          SSM                     ACTIVE                         F5G25940
04323   0 40200 0 00316          SUB ONED         INDICATOR                             F5G25950
04324   0 60100 4 00561          STO AC1+3,4                                            F5G25960
04325  -0 53400 2 00602 X54      LXD XV14,2       COUNT TO                              F5G25970
04326   2 00001 2 04220          TIX X56,2,1         3                                  F5G25980
04327   0 07400 4 02042          TSX SG,4             PERMUTE REGION WORD               F5G25990
04330  -0 50000 2 05061          CAL REG,2                                              F5G26000
04331  -0 32000 0 00404          ANA XK22                                               F5G26010
04332   0 60200 2 05061          SLW REG,2                                              F5G26020
04333   0 53400 4 00342          LXA S5K5,4                                             F5G26030
04334   0 50000 4 00430 XY1      CLA IR1+3,4                                            F5G26040
04335   0 40200 0 00336          SUB S5K1                                               F5G26050
04336  -0 10000 0 04341          TNZ XY2                                                F5G26060
04337  -0 50000 4 00410          CAL XK23+3,4                                           F5G26070
04340  -0 60200 2 05061          ORS REG,2                                              F5G26080
04341   2 00001 4 04334 XY2      TIX XY1,4,1                                            F5G26090
04342   0 02000 0 03077          TRA X3                                                 F5G26100
04343   0 50000 4 00430 X223     CLA IR1+3,4           IS CONTENTS OF IR REAL           F5G26110
04344   0 56000 0 00337          LDQ S5K2                                               F5G26120
04345   0 04000 0 04325          TLQ X54                                                F5G26130
04346   0 53400 1 00342          LXA S5K5,1            YES, SET COUNT TO 3              F5G26140
04347   0 34000 1 00506 X225     CAS EX1+3,1           IS CONTENTS SAME AS EXIT CONDITIONS F5G26150
04350   0 02000 0 04352          TRA X224                                               F5G26160
04351   0 02000 0 04354          TRA X226              YES                              F5G26170
04352   2 00001 1 04347 X224     TIX X225,1,1          COUNT TO 3                       F5G26180
04353   0 02000 0 04325          TRA X54                                                F5G26190
04354   0 50000 0 00333 X226     CLA LK1               REPLACE IR BY E                  F5G26200
04355   0 60100 4 00430          STO IR1+3,4                                            F5G26210
04356   0 02000 0 04325          TRA X54                                                F5G26220
04357   0 56000 2 00506 X131     LDQ EX1+3,2        IS THE EXIT                         F5G26230
04360   0 50000 0 00337          CLA S5K2           CONDITION REAL FOR THIS IR          F5G26240
04361   0 04000 0 04365          TLQ X132                                               F5G26250
04362  -0 53400 1 00514  X133    LXD SBV4,1            NO                           F5G26260
04363   0 07400 4 01661          TSX SC,4           RECORD PART OF LPLST ACTIVE         F5G26270
04364   0 02000 0 04313          TRA X135                                               F5G26280
04365   0 50000 2 00511 X132     CLA ACT1+3,2          IS THIS IR ACTIVE                F5G26290
04366   0 12000 0 04313          TPL X135             AT EXIT OF REGION                 F5G26300
04367   0 02000 0 04362          TRA X133           YES                                 F5G26310
04370   0 50000 0 00550 X88      CLA LPIND                                              F5G26320
04371   0 12000 0 04416          TPL XY3                  IS THIS A LOOP                F5G26330
04372   0 50000 0 04740          CLA LPLST-1 YES                                        F5G26340
04373   0 34000 0 00324          CAS S3K2 IS LAST LPLST QUANTITY A BB                   F5G26350
04374   0 76100 0 00000          NOP  NO                                                F5G26360
04375   0 02000 0 04377          TRA X125                                               F5G26370
04376   0 77100 0 00022          ARS 18 YES                                             F5G26380
04377   0 62100 0 00513 X125     STA SBV3      STORE PRED. NO.                          F5G26390
04400   0 50000 0 04741          CLA LPLST                                              F5G26400
04401   0 07400 4 00070          TSX SE,4 GET INDEX OF 1ST BB IN LOOP.                  F5G26410
04402  -0 63400 1 00574          SXD XV8,1          STORE INDEX OF 1ST BB               F5G26420
04403   0 50000 1 06442          CLA BBB,1                                              F5G26430
04404   0 60200 0 00604 X91      SLW XV16             STORE PRED. NO.                  F5G26440
04405   0 07400 4 00055          TSX SE5,4 GET INDEX OF PRED.                           F5G26450
04406   0 50000 1 07337          CLA PRED,1 IS                                          F5G26460
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04407 -0 32000 0 00353        ANA SBK2 THIS THE                                                                F5G26470
04410  0 34000 0 00513        CAS SBV3 RIGHT PRED                                                              F5G26480
04411  0 02000 0 04413        TRA X90                                                                          F5G26490
04412  0 02000 0 04445        TRA X92 YES                                                                      F5G26500
04413  0 50000 0 00604 X90    CLA XV16                                                                         F5G26510
04414  0 40000 0 00315        ADD ONEA                                                                         F5G26520
04415  0 02000 0 04404        TRA X91                                                                          F5G26530
04416  0 53400 1 00342 XY3    LXA S5K5,1                                                                       F5G26540
04417  0 07400 4 01661 XY4    TSX SC,4                                                                         F5G26550
04420  2 00001 1 04417        TIX XY4,1,1                                                                      F5G26560
04421  0 02000 0 03461        TRA X89                                                                          F5G26570
04422 -0 63400 1 04444 X97    SXD X137,1                                                                       F5G26580
04423  0 34000 1 00430        CAS IR1+3,1  IS CONTENTS OF IRN EQUAL TO CONTENTS OF ENM                         F5G26590
04424  0 02000 0 04426        TRA X98                                                                          F5G26600
04425  0 02000 0 04473        TRA X93         YES                                                              F5G26610
04426 -0 50000 0 00340 X98    CAL S5K3 RECORD LX FOR                                                           F5G26620
04427  0 77100 1 00003        ARS 3,1 THIS IR IN THIS                                                          F5G26630
04430 -0 53400 1 00565        LXD XV1,1 REGION.                                                                F5G26640
04431 -0 60200 1 05061        ORS REG,1                                                                        F5G26650
04432 -0 63400 4 00602        SXD XV14,4 GET                                                                   F5G26660
04433 -0 63400 2 00603        SXD XV15,2 INDEX                                                                 F5G26670
04434  0 50000 0 00604        CLA XV16 OF                                                                      F5G26680
04435  0 07400 4 00055        TSX SE5,4 PRED.                                                                  F5G26690
04436 -0 53400 4 00602        LXD XV14,4                                                                       F5G26700
04437 -0 53400 2 00603        LXD XV15,2                                                                       F5G26710
04440 -0 50000 0 00377        CAL XK16 RECORD                                                                  F5G26720
04441  0 77100 4 00003        ARS 3,4 LX                                                                       F5G26730
04442 -0 60200 1 07337        ORS PRED,1 NECESSARY.                                                            F5G26740
04443 -0 53400 1 04444        LXD X137,1                                                                       F5G26750
04444  1 00000 0 04464 X137   TXI X96,0,-                                                                      F5G26760
04445 -0 53400 2 00574 X92    LXD XV8,2                                                                        F5G26770
04446  0 53400 4 00342        LXA S5K5,4 SET COUNT TO 3                                                        F5G26780
04447  0 50000 2 06443        CLA BBB+1,2 GET THE WORD WITH                                                    F5G26790
04450  0 60100 0 00575        STO XV9 PERM. NOS.                                                               F5G26800
04451 -0 50000 0 00575 X95    CAL XV9 GET                                                                      F5G26810
04452  0 77100 4 00003        ARS 3,4 INDEX                                                                    F5G26820
04453  0 77100 4 00003        ARS 3,4 OF                                                                       F5G26830
04454 -0 32000 0 00350        ANA S9K3 THE                                                                     F5G26840
04455 -0 73400 1 00000        PDX 0,1 I.R.                                                                     F5G26850
04456 -0 50000 2 06444        CAL BBB+2,2 GET ENTRANCE                                                         F5G26860
04457  0 77100 0 00022        ARS 18 REQUIREMENT.                                                              F5G26870
04460  0 34000 0 00337        CAS S5K2           IS ENM REAL                                                   F5G26880
04461  0 76100 0 00000        NOP                                                                              F5G26890
04462  0 02000 0 04464        TRA X96          NO                                                              F5G26900
04463  0 02000 0 04422        TRA X97 YES                                                                      F5G26910
04464  0 50000 1 00561 X96    CLA AC1+3,1 IS IRN                                                               F5G26920
04465  0 10000 0 04473        TZE X93 ACTIVE                                                                   F5G26930
04466 -0 63400 2 00602        SXD XV14,2 YES,                                                                  F5G26940
04467 -0 63400 4 00603        SXD XV15,4                                                                       F5G26950
04470  0 07400 4 01566        TSX SB,4 RECORD SXD NECESSARY.                                                   F5G26960
04471 -0 53400 2 00602        LXD XV14,2                                                                       F5G26970
04472 -0 53400 4 00603        LXD XV15,4                                                                       F5G26980
04473  1 77777 2 04474 X93    TXI X93+1,2,-1                                                                   F5G26990
04474  2 00001 4 04451 X94    TIX X95,4,1 COUNT TO 3                                                           F5G27000
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                                                  ACTIVE PASS.                                      F5G27010
                                                  FOLLOWS 2 ED LXING PASS.                          F5G27020
04475  0 56000 0 00325        LDQ S3K3 INITIALIZE THE                                               F5G27030
04476 -0 60000 0 00440        STQ S3V4 LOOP LIST                                                    F5G27040
04477  0 56000 0 00340        LDQ S5K3 AND                                                          F5G27050
04500 -0 60000 0 00437        STQ S3V3 MAKE SURE TAG                                                F5G27060
04501 -0 60000 0 00521        STQ ACIND       SET IND. TO SAY THIS IS ACTIVE PASS                   F5G27070
04502 -0 63400 0 00436        SXD S3V2,0      LOCATION GETS SET                                     F5G27080
04503  0 50000 0 00314 A3     CLA ZERO ARE                                                          F5G27090
04504  0 40100 0 00556        ADM AC1 THERE                                                         F5G27100
04505  0 40100 0 00557        ADM AC2 ANY                                                           F5G27110
04506  0 40100 0 00560        ADM AC3 ACTIVE I.R.S                                                  F5G27120
04507  0 10000 0 03461        TZE X89 LEFT GO TO RENUMBER.                                          F5G27130
04510  0 07400 4 01023        TSX S3,4 YES. TRY TO GET NEXT TAG.                                    F5G27140
04511  0 02000 0 04644        TRA A12 COME HERE IF TAG NOT GOT                                      F5G27150
04512  0 50000 0 01122        CLA S39 COMPUTE LOCATION OF THIS                                      F5G27160
04513 -0 32000 0 00353        ANA SBK2 TAG=(ADDR. FOLLOWING                                         F5G27170
04514  0 40000 0 00451        ADD S4V1 TIX BLOCK + L(CM)-CM TAG                                     F5G27180
04515  0 40200 0 00332        SUB S4K3 - INDEX OF TAG.)                                             F5G27190
04516  0 76700 0 00022        ALS 18                                                                F5G27200
04517 -0 40000 0 00436        SBM S3V2                                                              F5G27210
04520  0 76500 0 00065        LRS 53                                                                F5G27220
04521 -0 60000 0 00571        STQ XV5                                                               F5G27230
04522  0 22100 0 00371        DVP XK9 FORM LOC/9 AND                                                F5G27240
04523 -0 60000 0 00567        STQ XV3 REMAINDER                                                     F5G27250
04524  0 60100 0 00570        STO XV4                                                               F5G27260
04525  0 50000 0 00442        CLA TPE IS THIS                                                       F5G27270
04526  0 34000 0 00322        CAS S2K2 AN LX                                                        F5G27280
04527  0 02000 0 04531        TRA A1                                                                F5G27290
04530  0 02000 0 04570        TRA A5 YES                                                            F5G27300
04531  0 34000 0 00376 A1     CAS XK15 IS IT AN LX PRIME                                            F5G27310
04532  0 02000 0 04534        TRA A20                                                               F5G27320
04533  0 02000 0 04614        TRA A8 YES                                                            F5G27330
04534  0 34000 0 00403 A20    CAS XK21 IS IT A DED                                                  F5G27340
04535  0 02000 0 04537        TRA A21                                                               F5G27350
04536  0 02000 0 04614        TRA A8 YES.                                                           F5G27360
04537  0 34000 0 00373 A21    CAS XK12 IS IT AN ACTIVE INSTR.                                       F5G27370
04540  0 02000 0 04542        TRA A2                                                                F5G27380
04541  0 02000 0 04570        TRA A5 YES.                                                           F5G27390
04542  0 50000 0 00567 A2     CLA XV3 GET INDEX                                                     F5G27400
04543  0 07400 4 00032        TSX SE4,4 OF STAG ENTRY.                                              F5G27410
04544  0 53400 2 00570        LXA XV4,2 IS THERE                                                    F5G27420
04545 -0 50000 1 05061        CAL STAG,1 AN LX                                                      F5G27430
04546  0 77100 2 00010        ARS 8,2 IN FRONT                                                      F5G27440
04547 -0 32000 0 00372        ANA XK11 OF                                                           F5G27450
04550  0 34000 0 00372        CAS XK11 THIS INSTR.                                                  F5G27460
04551  0 02000 0 04503        TRA A3                                                                F5G27470
04552  0 02000 0 04554        TRA A4 YES.                                                           F5G27480
04553  0 02000 0 04503        TRA A3                                                                F5G27490
04554 -0 50000 0 00570 A4     CAL XV4 GET                                                           F5G27500
04555  0 76000 0 00006        COM  THE                                                              F5G27510
04556  0 73400 2 00000        PAX 0,2 S-TAG                                                         F5G27520
04557 -0 50000 1 05061        CAL STAG,1 IN                                                         F5G27530
04560  0 76700 2 00000        ALS 0,2 DECR.                                                         F5G27540
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04561   0 76700 2 00000          ALS 0,2 PART.                                    F5G27550
04562  -0 32000 0 00350          ANA S9K3                                         F5G27560
04563  -0 73400 1 00000          PDX 0,1                                          F5G27570
04564   0 50000 1 00561          CLA AC1+3,1 IS THE CORRESPONDING                 F5G27580
04565   0 10000 0 04503          TZE A3 I.R. ACTIVE                               F5G27590
04566   0 07400 4 01566          TSX SB,4 YES,RECORD SXD NECESSARY                F5G27600
04567   0 02000 0 04503          TRA A3                                           F5G27610
04570   0 50000 0 00567 A5       CLA XV3                                          F5G27620
04571   0 07400 4 00032          TSX SE4,4 GET STAG INDEX.                        F5G27630
04572  -0 50000 0 00570          CAL XV4                                          F5G27640
04573   0 76000 0 00006          COM  IS IT                                       F5G27650
04574   0 73400 2 00000          PAX 0,2 TO                                       F5G27660
04575  -0 50000 1 05061          CAL STAG,1 AN                                    F5G27670
04576   0 76700 2 00000          ALS 0,2                                          F5G27680
04577   0 76700 2 00000          ALS 0,2 ACTIVE                                   F5G27690
04600  -0 32000 0 00350          ANA S9K3                                         F5G27700
04601  -0 73400 1 00000          PDX 0,1 IR                                       F5G27710
04602   0 50000 1 00561          CLA AC1+3,1                                      F5G27720
04603   0 10000 0 04503          TZE A3                                           F5G27730
04604   0 50000 1 00430   A51    CLA IR1+3,1 IS IT                                F5G27740
04605   0 34000 0 00441          CAS 1TAG              SAME TAU-TAG               F5G27750
04606   0 02000 0 04610          TRA A6                                           F5G27760
04607   0 02000 0 04612          TRA A7 YES                                       F5G27770
04610   0 07400 4 01566 A6       TSX SB,4 RECORD SXD NEEDED.                      F5G27780
04611   0 02000 0 04503          TRA A3                                           F5G27790
04612   0 07400 4 01661 A7       TSX SC,4 RECORD CERTAIN PART OF                  F5G27800
04613   0 02000 0 04503          TRA A3 LOOP LIST ACTIVE.                         F5G27810
04614   0 50000 0 00567 A8       CLA XV3 GET                                      F5G27820
04615   0 07400 4 00032          TSX SE4,4 THE                                    F5G27830
04616  -0 50000 0 00570          CAL XV4                                          F5G27840
04617   0 76000 0 00006          COM  S-TAG                                       F5G27850
04620   0 73400 2 00000          PAX 0,2 OF                                       F5G27860
04621  -0 50000 1 05061          CAL STAG,1                                       F5G27870
04622   0 60100 0 00423          STO S1V6                                         F5G27871
04623   0 76700 2 00000          ALS 0,2 THIS                                     F5G27880
04624   0 76700 2 00000          ALS 0,2 INSTR.                                   F5G27890
04625  -0 32000 0 00350          ANA S9K3                                         F5G27900
04626  -0 73400 1 00000          PDX 0,1                                          F5G27910
04627   0 10000 0 04503          TZE A3 DOES THIS INSTR HAVE AN S-TAG             F5G27920
04630   0 50000 1 00561          CLA AC1+3,1 YES.                                 F5G27930
04631   0 10000 0 04503          TZE A3                IS THIS IR ACTIVE          F5G27940
04632   0 50000 0 00314          CLA ZERO                                         F5G27941
04633  -0 75400 2 00000          PXD 0,2                                          F5G27942
04634   0 76000 0 00006          COM                                              F5G27943
04635  -0 73400 4 00000          PDX 0,4                                          F5G27944
04636   0 50000 0 00423          CLA S1V6                                         F5G27945
04637   0 77100 4 00010          ARS 8,4                                          F5G27946
04640  -0 32000 0 00316          ANA ONED                                         F5G27947
04641  -0 10000 0 04604          TNZ A51                                          F5G27948
04642   0 07400 4 01661          TSX SC,4 YES,RECORD SECTION OF LPLST ACTIVE       F5G27950
04643   0 02000 0 04503          TRA A3                                           F5G27960
04644  -0 53400 1 00440 A12      LXD S3V4,1      GET INDEX OF LPLST QUANTITY      F5G27970
04645   0 50000 1 04775          CLA LPLST+S3P1-2,1     GET PREVIOUS LPLST QUANTITY F5G27980
04646   0 60100 0 00607          STO XV19                                         F5G27990
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04647   0 56000 0 00324          LDQ S3K2       WAS IT A                                F5G28000
04650   0 04000 0 04663          TLQ A28                                                F5G28010
04651   0 07400 4 00070 A25      TSX SE,4           YES, WAS THAT                       F5G28020
04652   0 50000 1 06442          CLA BBB,1      BB TERMINATED                           F5G28030
04653   0 77100 0 00041          ARS 33         BY A                                    F5G28040
04654   0 40000 0 00315          ADD ONEA           GO TO N                             F5G28050
04655  -0 10000 0 04663          TNZ A28                                                F5G28060
04656   0 53400 1 00342          LXA S5K5,1      YES                                    F5G28070
04657   0 50000 1 00561 A26      CLA AC1+3,1       IS THIS                              F5G28080
04660   0 10000 0 04662          TZE A27        IR ACTIVE                               F5G28090
04661   0 07400 4 01566          TSX SB,4       YES, RECORD SXD NECESSARY               F5G28100
04662   2 00001 1 04657 A27      TIX A26,1,1                                            F5G28110
04663   0 50000 0 00444 A28      CLA S3V5                                               F5G28120
04664   0 56000 0 00324          LDQ S3K2           IS THIS                             F5G28130
04665   0 04000 0 04700          TLQ A35            ATR. REGION                         F5G28140
04666  -0 32000 0 00336          ANA S5K1               NO, BB                          F5G28150
04667   0 10000 0 04503          TZE A3                                                 F5G28160
04670   0 76700 0 00003          ALS 3                                                  F5G28170
04671  -0 73400 1 00000          PDX 0,1                                                F5G28180
04672  -3 00002 1 04674          TXL AP1,1,2                                            F5G28190
04673   1 77777 1 04674          TXI AP1,1,-1                                           F5G28200
04674   0 50000 1 00561 AP1      CLA AC1+3,1                                            F5G28210
04675   0 10000 0 04503          TZE A3                                                 F5G28220
04676   0 07400 4 01566          TSX SB,4                                               F5G28230
04677   0 02000 0 04503          TRA A3                                                 F5G28240
04700   0 07400 4 00070 A35      TSX SE,4                                               F5G28250
04701   0 50000 1 06447          CLA BBB+5,1                                            F5G28260
04702  -0 73400 2 00000          PDX 0,2            INDEX OF REGION TO 2                F5G28270
04703   0 50000 2 05061          CLA REG,2          GET REGION                          F5G28280
04704   0 60100 0 00607          STO XV19                                               F5G28290
04705   0 53400 1 00342          LXA S5K5,1                                             F5G28300
04706  -0 50000 0 00607 A31      CAL XV19                                               F5G28310
04707   0 76700 1 00003          ALS 3,1                                                F5G28320
04710  -0 76000 0 00001          PBT                IS THERE AN LX                      F5G28330
04711   0 02000 0 04715          TRA A30            FOR THIS IR                         F5G28340
04712   0 50000 1 00561          CLA AC1+3,1    YES                                     F5G28350
04713   0 10000 0 04715          TZE A30        IS THIS IR ACTIVE                       F5G28360
04714   0 07400 4 01566          TSX SB,4       YES, RECORD SXD NECESSARY               F5G28370
04715   2 00001 1 04706 A30      TIX A31,1,1                                            F5G28380
04716   0 50000 0 00444          CLA S3V5                                               F5G28390
04717   0 07400 4 01523          TSX SA,4       GET THE EXIT CONDITIONS                 F5G28400
04720   0 53400 1 00342          LXA S5K5,1                                             F5G28410
04721   0 50000 1 00561 A34      CLA AC1+3,1                                            F5G28420
04722   0 10000 0 04736          TZE A32        IS THIS IR ACTIVE                       F5G28430
04723   0 50000 1 00506          CLA EX1+3,1    YES                                     F5G28440
04724   0 56000 0 00337          LDQ S5K2                                               F5G28450
04725   0 04000 0 04730          TLQ A33        IS THE EXIT CONDITION REAL              F5G28460
04726   0 50000 1 00511          CLA ACT1+3,1   YES                                     F5G28470
04727   0 12000 0 04736          TPL A32        IS THE IR ACTIVE AT EXIT                F5G28480
04730  -0 63400 1 00610 A33      SXD XV20,1     YES                                     F5G28490
04731  -0 53400 2 00610          LXD XV20,2                                             F5G28500
04732   0 50000 0 00444          CLA S3V5                                               F5G28510
04733   0 07400 4 01753          TSX SD,4       RECORD TR. REG. ACTIVE                  F5G28520
04734  -0 53400 1 00610          LXD XV20,1                                             F5G28530
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04735   0 07400 4 01661          TSX SC,4          RECORD SECTION OF LPLST ACTIVE          F5G28540
04736   2 00001 1 04721 A32      TIX A34,1,1       COUNT TO 3                              F5G28550
04737   0 02000 0 04503          TRA A3                                                    F5G28560
04740   0 50000 0 00376  QP      CLA XK15                                                  F5G28580
04741  -0 32000 0 00020          ANA 16                                                    F5G28590
04742   0 77100 0 00001          ARS 1                                                     F5G28600
04743   0 62200 0 00103          STD SE21+2                                                F5G28610
04744   0 10000 0 00030          TZE R                                                     F5G28620
04745  -0 53400 4 00063          LXD PREDP+3,4                                             F5G28630
04746   0 50000 0 00075          CLA BBBP+3                                                F5G28640
04747  -3 00000 4 00030 QP0      TXL R,4,0                                                 F5G28650
04750   1 77777 4 04751          TXI QP1,4,-1                                              F5G28660
04751  -0 63400 4 00104  QP1     SXD SE21+3,4                                              F5G28670
04752   0 40200 0 00316          SUB ONED                                                  F5G28680
04753   0 07400 4 00070          TSX SE,4                                                  F5G28690
04754  -0 53400 4 00072          LXD BBBP,4                                                F5G28700
04755   1 00111 4 04756          TXI QP2,4,BBBL-1                                          F5G28710
04756  -0 63400 4 04767  QP2     SXD QP4,4                                                 F5G28720
04757  -0 63400 4 04771          SXD QP5,4                                                 F5G28730
04760   0 53400 4 06442          LXA BBB,4                                                 F5G28740
04761  -0 63400 4 04775          SXD QP8,4                                                 F5G28750
04762  -0 53400 4 00104          LXD SE21+3,4                                              F5G28760
04763  -0 75400 4 00000  QP3     PXD 0,4                                                   F5G28770
04764   0 07400 4 00056          TSX SE+1,4                                                F5G28780
04765   0 50200 1 07337          CLS PRED,1                                                F5G28790
04766   0 73400 4 00000          PAX 0,4                                                   F5G28800
04767   3 00000 4 04772  QP4     TXH QP6,4,-                                               F5G28810
04770   1 00112 4 04771          TXI QP5,4,BBBL                                            F5G28820
04771   3 00000 4 04773  QP5     TXH QP7,4,-                                               F5G28830
04772   0 60100 1 07337  QP6     STO PRED,1                                                F5G28840
04773  -0 53400 4 00306  QP7     LXD SEV2,4                                                F5G28850
04774   0 50000 0 00072          CLA BBBP                                                  F5G28860
04775  -3 00000 4 04747  QP8     TXL QP0,4,-                                               F5G28870
04776   1 77777 4 04763          TXI QP3,4,-1                                              F5G28880
                 04741           ORG QP+1 LPLST MUST START AT SAME PLACE AS QP AND OTHERS. F5G28890
                                      STORAGE ASSIGNMENT (TABLES)                         F5G28900
                 04741 LPLST     BSS S3P1 SPACE FOR LOOP LIST TABLE                      F5G28910
                 05061 REG       BES FP1 SPACE FOR REGION WORDS                          F5G28920
                 02712 SPACE     EQU MSIZE-5-REG     STORAGE SPACE LEFT                  F5G28930
                 00062  STAGL    SYN STL                                                 F5G28940
05061   0 00000 0 00000 STAG     HTR -                                                     F5G28950
05062   0 00000 0 00000          HTR -                                                     F5G28960
05063   0 00000 0 00000          HTR -                                                     F5G28960
05064   0 00000 0 00000          HTR -                                                     F5G28960
05065   0 00000 0 00000          HTR -                                                     F5G28960
05066   0 00000 0 00000          HTR -                                                     F5G28960
05067   0 00000 0 00000          HTR -                                                     F5G28960
05070   0 00000 0 00000          HTR -                                                     F5G28960
05071   0 00000 0 00000          HTR -                                                     F5G28960
05072   0 00000 0 00000          HTR -                                                     F5G28960
05073   0 00000 0 00000          HTR -                                                     F5G28960
05074   0 00000 0 00000          HTR -                                                     F5G28960
05075   0 00000 0 00000          HTR -                                                     F5G28960
05076   0 00000 0 00000          HTR -                                                     F5G28960
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05077   0 00000 0 00000          HTR -                                F5G28960
05100   0 00000 0 00000          HTR -                                F5G28960
05101   0 00000 0 00000          HTR -                                F5G28960
05102   0 00000 0 00000          HTR -                                F5G28960
05103   0 00000 0 00000          HTR -                                F5G28960
05104   0 00000 0 00000          HTR -                                F5G28960
05105   0 00000 0 00000          HTR -                                F5G28960
05106   0 00000 0 00000          HTR -                                F5G28960
05107   0 00000 0 00000          HTR -                                F5G28960
05110   0 00000 0 00000          HTR -                                F5G28960
05111   0 00000 0 00000          HTR -                                F5G28960
05112   0 00000 0 00000          HTR -                                F5G28960
05113   0 00000 0 00000          HTR -                                F5G28960
05114   0 00000 0 00000          HTR -                                F5G28960
05115   0 00000 0 00000          HTR -                                F5G28960
05116   0 00000 0 00000          HTR -                                F5G28960
05117   0 00000 0 00000          HTR -                                F5G28960
05120   0 00000 0 00000          HTR -                                F5G28960
05121   0 00000 0 00000          HTR -                                F5G28960
05122   0 00000 0 00000          HTR -                                F5G28960
05123   0 00000 0 00000          HTR -                                F5G28960
05124   0 00000 0 00000          HTR -                                F5G28960
05125   0 00000 0 00000          HTR -                                F5G28960
05126   0 00000 0 00000          HTR -                                F5G28960
05127   0 00000 0 00000          HTR -                                F5G28960
05130   0 00000 0 00000          HTR -                                F5G28960
05131   0 00000 0 00000          HTR -                                F5G28960
05132   0 00000 0 00000          HTR -                                F5G28960
05133   0 00000 0 00000          HTR -                                F5G28960
05134   0 00000 0 00000          HTR -                                F5G28960
05135   0 00000 0 00000          HTR -                                F5G28960
05136   0 00000 0 00000          HTR -                                F5G28960
05137   0 00000 0 00000          HTR -                                F5G28960
05140   0 00000 0 00000          HTR -                                F5G28960
05141   0 00000 0 00000          HTR -                                F5G28960
05142   0 00000 0 00000          HTR -                                F5G28960
05143   0 00000 0 00000          HTR -                                F5G28960
05144   0 50000 1 06444  W0       CLA BBB+2,1                          F5G28980
05145   0 77100 0 00022           ARS 18                               F5G28990
05146   0 40200 0 00611           SUB XV21                             F5G29000
05147   0 10000 0 04112           TZE X42                              F5G29010
05150   0 53400 1 00342           LXA S5K5,1                           F5G29020
05151  -0 53400 4 00601           LXD XV13,4                           F5G29030
05152   0 50000 4 06444  W1       CLA BBB+2,4                          F5G29040
05153   0 76500 0 00022           LRS 18                               F5G29050
05154   0 40200 0 00611           SUB XV21                             F5G29060
05155   0 10000 0 05165           TZE W3                               F5G29070
05156   0 50000 0 00314           CLA ZERO                             F5G29080
05157   0 76300 0 00022           LLS 18                               F5G29090
05160   0 40200 0 00611           SUB XV21                             F5G29100
05161   0 10000 0 05165           TZE W3                               F5G29110
05162   1 77777 4 05163           TXI W2,4,-1                          F5G29120
05163   2 00001 1 05152  W2       TIX W1,1,1                           F5G29130
05164  -3 00000 0 04111           TXL X36,-,-                          F5G29140
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05165 -0 63400 2 05171  W3     SXD W4,2                                  F5G29150
05166 -0 53400 1 05164         LXD W2+1,1                                F5G29160
05167  0 07400 4 01566         TSX SB,4                                  F5G29170
05170 -0 53400 2 05171         LXD W4,2                                  F5G29180
05171 -3 00000 0 04111  W4     TXL X36,-,-                               F5G29190
                05172          BSS PTL1       SPACE FOR PATCHES          F5G29200
                01224 CMTL     SYN 9*SPACE/20/15*15                      F5G29210
                05216 CMTAG    BSS CMTL                                  F5G29220
                00112 BBBL     SYN 6*SPACE/20/6                          F5G29230
                06442 BBB      BSS BBBL*6+1                              F5G29240
                07337 PRED     SYN BBB+BBBL*6+1                          F5G29250
                00435 SPAC1    EQU MSIZE-4-PRED                          F5G29260
                00215 PREDL    EQU SPAC1/2-1                             F5G29270
                07337          BSS PREDL+1                               F5G29280
                00215 SUCCL    SYN PREDL                                 F5G29290
                07555 SUCC     BSS SUCCL+1                               F5G29300
                                      EDITOR RECORD NO. 76               F5G29310
                                FOR CONTROL CARD INFORMATION, SEE END OF ASSEMBLY. F5G29320
                                     DIAGNOSTIC CALLER FOLLOWS             F5G29340
                                               PART 1B                     F5G29350
                                   INITIALIZATION AND PRED LIMIT FOR FAST COMPILING. F5G29360
                07337          ORG PRED                                  F5G29370
07337  0 53400 1 00362 I       LXA FK5,1                  CLEAR REG. TABLE F5G29380
07340  0 76000 0 00012         DCT   CLEAR DIVIDE CHECK LIGHT               F5G29390
07341  0 76100 0 00000         NOP      IN CASE DIVIDE CHECK IS ON          F5G29400
07342  0 50000 0 00314         CLA ZERO                                     F5G29410
07343  0 60100 1 05061 I11     STO REG,1                                    F5G29420
07344  2 00001 1 07343         TIX I11,1,1                                  F5G29430
07345  0 76000 0 00140         PSE 96                TURN OFF SENSE LIGHTS. F5G29440
07346  0 50000 0 07777         CLA KEYS+3              INITIALIZE           F5G29441
07347  0 60100 0 00042         STO STAGP+5 DRUM ADDR. OF STAG               F5G29450
07350  0 50000 0 07775         CLA KEYS+1                                   F5G29460
07351  0 60100 0 00065         STO PREDP+5                                  F5G29470
07352  0 50000 0 07776         CLA KEYS+2                                   F5G29480
07353  0 60100 0 00077         STO BBBP+5 DRUM ADDR. OF BB.B.               F5G29490
07354  0 50000 0 07774         CLA KEYS                                     F5G29500
07355  0 76700 0 00022         ALS 18                                       F5G29510
07356  0 60100 0 00075         STO BBBP+3 NO. OF BASIC BLOCKS.              F5G29520
07357  0 40200 0 00316         SUB ONED                                     F5G29530
07360  0 07400 4 00070         TSX SE,4                                     F5G29540
07361  0 50000 1 06442         CLA BBB,1                                    F5G29550
07362  0 62200 0 00051         STD SUCCP+3    LOCATION OF LAST SUCC         F5G29560
07363  0 76700 0 00022         ALS 18                                       F5G29570
07364  0 62200 0 00063         STD PREDP+3      LOCATION OF LAST PRED       F5G29580
07365  0 50000 1 06443         CLA BBB+1,1                                  F5G29590
07366 -0 32000 0 00326         ANA S3K4                                     F5G29600
07367  0 60100 0 00453         STO S4V3                                     F5G29610
07370  0 76500 0 00043         LRS 35                                       F5G29620
07371  0 22100 0 00331         DVP S4K2 COMPUTE                             F5G29630
07372 -0 60000 0 07450         STQ IV1 THE                                  F5G29640
07373  0 10000 0 07375         TZE I1 LOCATION                              F5G29650
07374  0 50000 0 00315         CLA ONEA WHICH A TAG                         F5G29660
07375  0 40000 0 07450 I1      ADD IV1 WOULD HAVE                           F5G29670
07376  0 76500 0 00043         LRS 35 IF IT                                 F5G29680
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07377  0 20000 0 00331        MPY S4K2 WERE FIRST IN                          F5G29690
07400  0 76300 0 00043        LLS 35 THE NEXT RECORD.                         F5G29700
07401  0 60100 0 00452        STO S4V2                                        F5G29710
07402  0 60100 0 00451        STO S4V1                                        F5G29720
07403  0 50000 1 06443        CLA BBB+1,1 DETERMINE NO.                       F5G29730
07404 -0 32000 0 00326        ANA S3K4 OF ENTRIES IN                          F5G29740
07405  0 76500 0 00043        LRS 35 STAG.                                    F5G29750
07406  0 22100 0 00371        DVP XK9                                         F5G29760
07407 -0 60000 0 07450        STQ IV1                                         F5G29770
07410  0 10000 0 07412        TZE I10                                         F5G29780
07411  0 50000 0 00315        CLA ONEA                                        F5G29790
07412  0 40000 0 07450 I10    ADD IV1          INITIALIZE                     F5G29800
07413  0 76700 0 00022        ALS 18                                          F5G29810
07414  0 60100 0 00040        STO STAGP+3 OF ENTRIES IN STAG                  F5G29820
07415  0 76500 0 00043        LRS 35 COMPUTE                                  F5G29830
07416  0 22100 0 00037        DVP STAGP+2   THE                               F5G29840
07417  0 10000 0 07421        TZE I3 DRUM                                     F5G29850
07420  0 50000 0 00315        CLA ONEA ADDR.                                  F5G29860
07421 -0 60000 0 07451 I3     STQ IV2 FOLLOWING                               F5G29870
07422  0 40000 0 07451        ADD IV2 THE                                     F5G29880
07423  0 76700 0 00022        ALS 18                                          F5G29890
07424  0 40000 0 00040        ADD STAGP+3 STAG                                F5G29900
07425  0 77100 0 00022        ARS 18                                          F5G29910
07426  0 40000 0 00042        ADD STAGP+5 TABLE.                              F5G29920
07427  0 56000 0 07453        LDQ IK1                                         F5G29930
07430  0 04000 0 07447        TLQ I7                                          F5G29940
07431  0 50000 0 00036 I6     CLA STAGP+1                                     F5G29950
07432  0 34000 0 00040        CAS STAGP-3    ARE WE THRU STORING 0 S          F5G29960
07433  0 02000 0 07435        TRA I4                                          F5G29970
07434  0 02000 0 07454        TRA I9                                          F5G29980
07435  0 60100 0 00035 I4     STO STAGP SET N(0) TO OLD N(1)                  F5G29990
07436  0 40000 0 00037        ADD STAGP+2 SET N(1) TO MIN (OLD N(1)+N,,       F5G30000
07437  0 56000 0 00040        LDQ STAGP+3 N(L)                                F5G30010
07440 -0 60000 0 00036        STQ STAGP+1                                     F5G30020
07441  0 04000 0 07443        TLQ I5                                          F5G30030
07442  0 60100 0 00036        STO STAGP+1                                     F5G30040
07443  0 50000 0 00277 I5     CLA SEK                                         F5G30050
07444  0 53400 2 07452        LXA IK2,2                                       F5G30060
07445  0 07400 4 00166        TSX SE26,4 STORE BLOCK OF 0S                    F5G30070
07446  0 02000 0 07431        TRA I6                                          F5G30080
07447  0 07400 4 00004 I7     TSX 4,4 TO DIAGNOSTIC                           F5G30090
07450  0 00000 0 00000 IV1                                                    F5G30100
07451  0 00000 0 00000 IV2                                                    F5G30110
07452  0 00000 0 77744 IK2        1-STAGP                                     F5G30120
07453  0 00000 0 17777 IK1    HTR 8191                                        F5G30130
07454  0 07400 4 01133 I9     TSX S4,4                                        F5G30140
07455  0 77200 0 00204        REW INSTTP          REWIND THE COMPILED INST TAPE F5G30150
07456  0 50000 0 07775        CLA KEYS+1                                      F5G30160
07457 -0 10000 0 04740        TNZ LPLST-1                                     F5G30170
07460  0 60100 0 00550        STO LPIND                                       F5G30180
07461  0 60100 0 04740        STO LPLST-1                                     F5G30190
07462  0 60100 0 04741        STO LPLST                                       F5G30200
07463  0 50000 0 00323        CLA S3K1                                        F5G30210
07464  0 60100 0 04742        STO LPLST+1                                     F5G30220
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07465 -0 53400 4 00317          LXD S1K2,4  SKIP DIAGNOSTICS                F5G30230
07466  0 76200 0 00221 I9A      RTB 1  AND ANTIPINGPONG                      F5G30240
07467  2 00001 4 07466          TIX I9A,4,1   SIX RECORDS                    F5G30250
07470  0 02000 0 02706          TRA F75                                      F5G30260
                                      EDITOR RECORD NO. 78                   F5G30270
                                FOR CONTROL CARD INFORMATION, SEE END OF ASSEMBLY.  F5G30280
                                     DIAGNOSTIC CALLER FOLLOWS               F5G30300
                                          PART 1C                            F5G30310
                                      SUCC LIMIT FOR FAST COMPILING          F5G30320
                                                                             F5G30330
                    04740         ORG LPLST-1                                F5G30340
04740 -0 53400 1 00103  QS        LXD SE21+2,1                               F5G30350
04741 -3 00000 1 02177            TXL F,1,0                                  F5G30360
04742 -0 53400 4 00051            LXD SUCCP+3,4                              F5G30370
04743  0 50000 0 00075            CLA BBBP+3                                 F5G30380
04744 -3 00000 4 02177  QS0       TXL F,4,0                                  F5G30390
04745  1 77777 4 04746            TXI QS1,4,-1                               F5G30400
04746 -0 63400 4 00104  QS1       SXD SE21+3,4                               F5G30410
04747  0 40200 0 00316            SUB ONED                                   F5G30420
04750  0 07400 4 00070            TSX SE,4                                   F5G30430
04751 -0 53400 4 00072            LXD BBBP,4                                 F5G30440
04752  1 00111 4 04753            TXI QS2,4,BBBL-1                           F5G30450
04753 -0 63400 4 04764  QS2       SXD QS4,4                                  F5G30460
04754 -0 63400 4 04766            SXD QS5,4                                  F5G30470
04755 -0 53400 4 06442            LXD BBB,4                                  F5G30480
04756 -0 63400 4 04772            SXD QS8,4                                  F5G30490
04757 -0 53400 4 00104            LXD SE21+3,4                               F5G30500
04760 -0 75400 4 00000  QS3       PXD 0,4                                    F5G30510
04761  0 07400 4 00044            TSX SE6,4                                  F5G30520
04762  0 50200 1 07555            CLS SUCC,1                                 F5G30530
04763  0 73400 4 00000            PAX 0,4                                    F5G30540
04764  3 00000 4 04767  QS4       TXH QS6,4,-                                F5G30550
04765  1 00112 4 04766            TXI QS5,4,BBBL                             F5G30560
04766  3 00000 4 04770  QS5       TXH QS7,4,-                                F5G30570
04767  0 60100 1 07555  QS6       STO SUCC,1                                 F5G30580
04770 -0 53400 4 00306  QS7       LXD SEV2,4                                 F5G30590
04771  0 50000 0 00072            CLA BBBP                                   F5G30600
04772 -3 00000 4 04744  QS8       TXL QS0,4,-                                F5G30610
04773  1 77777 4 04760            TXI QS3,4,-1                               F5G30620
                                      EDITOR RECORD NO. 80                   F5G30630
                                FOR CONTROL CARD INFORMATION, SEE END OF ASSEMBLY.  F5G30650
                                     DIAGNOSTIC CALLER FOLLOWS               F5G30660
                                          PART 1D                            F5G30670
                                      PRED UNDO FROM FAST COMPILING          F5G30680
                                                                             F5G30690
                    04740         ORG LPLST-1                                F5G30700
04740 -0 53400 1 00103  QPU       LXD SE21+2,1                               F5G30710
04741 -3 00000 1 00030            TXL R,1,0                                  F5G30720
04742 -0 53400 4 00063            LXD PREDP+3,4                              F5G30730
04743  0 50000 0 00075            CLA BBBP+3                                 F5G30740
04744 -3 00000 4 00030  QPU0      TXL R,4,0                                  F5G30750
04745  1 77777 4 04746            TXI QPU1,4,-1                              F5G30760
04746 -0 63400 4 00104  QPU1      SXD SE21+3,4                               F5G30770
04747  0 40200 0 00316            SUB ONED                                   F5G30780
04750  0 07400 4 00070            TSX SE,4
04751 -0 53400 4 00072            LXD BBBP,4
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04752   1 00111 4 04753          TXI QPU2,4,BBBL-1                          F5G30790
04753  -0 63400 4 04764  QPU2    SXD QPU4,4                                 F5G30800
04754  -0 63400 4 04766          SXD QPU5,4                                 F5G30810
04755   0 53400 4 06442          LXA BBB,4                                  F5G30820
04756  -0 63400 4 04772          SXD QPU8,4                                 F5G30830
04757  -0 53400 4 00104          LXD SE21+3,4                               F5G30840
04760  -0 75400 4 00000  QPU3    PXD 0,4                                    F5G30850
04761   0 07400 4 00056          TSX SE5+1,4                                F5G30860
04762   0 50200 1 07337          CLS PRED,1                                 F5G30870
04763   0 73400 4 00000          PAX 0,4                                    F5G30880
04764   3 00000 4 04767  QPU4    TXH QPU6,4,-                               F5G30890
04765   1 00112 4 04766          TXI QPU5,4,BBBL                            F5G30900
04766   3 00000 4 04770  QPU5    TXH QPU7,4,-                               F5G30910
04767   0 60100 1 07337  QPU6    STO PRED,1                                 F5G30920
04770  -0 53400 4 00306  QPU7    LXD SEV2,4                                 F5G30930
04771   0 50000 0 00072          CLA BBBP                                   F5G30940
04772  -3 00000 4 04744  QPU8    TXL QPU0,4,-                               F5G30950
04773   1 77777 4 04760          TXI QPU3,4,-1                              F5G30960
                                        EDITOR RECORD NO. 82               F5G30970
                                 FOR CONTROL CARD INFORMATION, SEE END OF ASSEMBLY. F5G30980
                                      DIAGNOSTIC CALLER FOLLOWS             F5G31000
                                           PART 1E                          F5G31010
                                           SUCC UNDO FROM FAST COMPILING    F5G31020
                         04740            ORG LPLST-1                        F5G31030
04740  -0 53400 1 00103  QSU     LXD SE21+2,1                               F5G31040
04741  -3 00000 1 02177          TXL F,1,0                                  F5G31050
04742  -0 53400 4 00051          LXD SUCCP+3,4                              F5G31060
04743   0 50000 0 00075          CLA BBBP+3                                 F5G31070
04744  -3 00000 4 02177  QSU0    TXL F,4,0                                  F5G31080
04745   1 77777 4 04746          TXI QSU1,4,-1                              F5G31090
04746  -0 63400 4 00104  QSU1    SXD SE21+3,4                               F5G31100
04747   0 40200 0 00316          SUB ONED                                   F5G31110
04750   0 07400 4 00070          TSX SE,4                                   F5G31120
04751  -0 53400 4 00072          LXD BBBP,4                                 F5G31130
04752   1 00111 4 04753          TXI QSU2,4,BBBL-1                          F5G31140
04753  -0 63400 4 04764  QSU2    SXD QSU4,4                                 F5G31150
04754  -0 63400 4 04766          SXD QSU5,4                                 F5G31160
04755  -0 53400 4 06442          LXD BBB,4                                  F5G31170
04756  -0 63400 4 04772          SXD QSU8,4                                 F5G31180
04757  -0 53400 4 00104          LXD SE21+3,4                               F5G31190
04760  -0 75400 4 00000  QSU3    PXD 0,4                                    F5G31200
04761   0 07400 4 00044          TSX SE6,4                                  F5G31210
04762   0 50200 1 07555          CLS SUCC,1                                 F5G31220
04763   0 73400 4 00000          PAX 0,4                                    F5G31230
04764   3 00000 4 04767  QSU4    TXH QSU6,4,-                               F5G31240
04765   1 00112 4 04766          TXI QSU5,4,BBBL                            F5G31250
04766   3 00000 4 04770  QSU5    TXH QSU7,4,-                               F5G31260
04767   0 60100 1 07555  QSU6    STO SUCC,1                                 F5G31270
04770  -0 53400 4 00306  QSU7    LXD SEV2,4                                 F5G31280
04771   0 50000 0 00072          CLA BBBP                                   F5G31290
04772  -3 00000 4 04744  QSU8    TXL QSU0,4,-                               F5G31300
04773   1 77777 4 04760          TXI QSU3,4,-1                              F5G31310
                                        EDITOR RECORD NO. 84               F5G31320
                                 FOR CONTROL CARD INFORMATION, SEE END OF ASSEMBLY. F5G31330
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                                DIAGNOSTIC CALLER FOLLOWS                                F5G31350
                                      PART 2                                             F5G31360
                          PERMUTE RESULTS AND COMBINE BB LIST WITH BB TABLE               F5G31370
                    00317         ORG C                                                  F5G31380
00317   0 00000 0 77777 BLV09  HTR -1          BB NO. OF LAST GO TO N                   F5G31390
00320   0 76200 0 00223 BL12   RTB BLT         FIND THE END OF FILE PRECEEDING BB LIST  F5G31400
00321   0 70000 0 00655 BL13   CPY BLIST                                                F5G31410
00322   0 02000 0 00320        TRA BL12                                                 F5G31420
00323   0 02000 0 00325        TRA BL6                                                  F5G31430
00324   0 02000 0 00320        TRA BL12                                                 F5G31440
00325  -0 53400 2 00332 BL6    LXD CON1,2                                               F5G31450
00326   0 76200 0 00223 BL5    RTB BLT                                                  F5G31460
00327   0 53400 1 00332        LXA CON1,1                                               F5G31470
00330   0 70000 1 00655 BL1    CPY BLIST,1      COPY BB LIST INTO CS                    F5G31480
00331   1 77777 1 00330        TXI BL1,1,-1                                             F5G31490
00332   0 00005 0 00000 CON1      0,0,5                                                 F5G31500
00333   0 76600 0 00333        IOD                                                      F5G31510
00334  -0 76000 0 00012        RTT                                                      F5G31520
00335   0 02000 0 00435        TRA BL4          ERROR                                   F5G31530
00336   0 50000 0 07774        CLA KEYS         O.K. COMPUTE TEST CONSTANT              F5G31540
00337   0 40200 0 00552        SUB TWO                                                  F5G31550
00340   0 60100 0 00566        STO BLV3                                                 F5G31560
00341   0 50000 0 00314        CLA ZERO                                                 F5G31570
00342   0 07400 4 00032        TSX SE4,4        STAG WORD                               F5G31580
00343   0 50000 1 05061        CLA STAG,1                                               F5G31590
00344   0 60100 0 00602        STO BLV07                                                F5G31600
00345   0 50000 0 00564        CLA BLV1                                                 F5G31610
00346   0 56000 0 00566 BL3    LDQ BLV3         HAVE WE ALREADY DEALT WITH LAST BB      F5G31620
00347   0 04000 0 00541        TLQ BL06         YES , GO TO READ IN NEXT PART           F5G31630
00350   0 40000 0 00315        ADD ONEA                                                 F5G31640
00351   0 07400 4 00067        TSX SE1,4        GET UNDEX OF NEXT BB                    F5G31650
00352   0 50000 1 06443        CLA BBB+1,1      STORE THE NO. OF THE                    F5G31660
00353  -0 32000 0 00554        ANA RMSK         FIRST TAG IN                            F5G31670
00354   0 60100 0 00571        STO BLV6         NEXT BB.                                F5G31680
00355   0 50000 1 06442        CLA BBB,1                                                F5G31690
00356  -0 32000 0 00553        ANA 2AMSK                                                F5G31700
00357   0 60100 0 00570        STO BLV5         STORE AWAY NO. OF U1ST PRED IN NEXT BB. F5G31710
00360   0 50000 0 00564        CLA BLV1                                                 F5G31720
00361   0 07400 4 00067        TSX SE1,4                                                F5G31730
00362  -0 53400 2 00565        LXD BLV2,2                                               F5G31740
00363   0 50000 2 00655        CLA BLIST,2      REPLACE LAST WORD OF BBB ENTRY          F5G31750
00364   0 60100 1 06447        STO BBB+5,1      BY THE LOCATION FROM THE BB LIST.       F5G31760
00365   1 77777 2 00366 BL2    TXI BL2+1,2,-1                                           F5G31770
00366  -0 63400 2 00565        SXD BLV2,2                                               F5G31780
00367   0 50000 1 06443        CLA BBB+1,1      STORE PERMUTATION NOS.                  F5G31790
00370   0 60100 0 00572        STO BLV7                                                 F5G31800
00371  -0 63400 1 00567        SXD BLV4,1                                               F5G31810
00372   0 50000 1 06443        CLA BBB+1,1      GET                                     F5G31820
00373  -0 32000 0 00554        ANA RMSK         OF 1ST TAG IN BB                        F5G31830
00374   0 40200 0 00571        SUB BLV6         FORM COUNT OF NO. OF TAGS               F5G31840
00375   0 40200 0 00315        SUB ONEA                                                 F5G31850
00376   0 73400 2 00000        PAX 0,2          COUNT OF NO. OF TAGS INTO 2.            F5G31860
00377  -0 63400 2 00600        SXD BLV05,2      STORE COUNT OF NO. OF TAGS              F5G31870
00400   0 50000 1 06442        CLA BBB,1                                                F5G31880
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00401 -0 32000 0 00553       ANA 2AMSK                                          F5G31890
00402  0 60100 0 00575 BL9   STO BLV01                                          F5G31900
00403  0 34000 0 00570       CAS BLV5          IS THIS PRED IN SAME BB          F5G31910
00404  0 02000 0 00406       TRA BL7           YES                              F5G31920
00405  0 02000 0 00440       TRA BL01          NO                               F5G31930
00406  0 07400 4 00055 BL7   TSX SE5,4         YES, GET INDEX OF PRED           F5G31940
00407 -0 50000 0 00555       CAL SALM                                           F5G31950
00410  0 60200 0 00574       SLW BLV9                                           F5G31960
00411 -0 50000 1 07337       CAL PRED,1                                         F5G31970
00412  0 60200 0 00573       SLW BLV8          STODRE OLD PRED WORD             F5G31980
00413  0 32000 0 00574       ANS BLV9          INT  INITIALIZE NEW PRED WORD    F5G31990
00414 -0 53400 2 00550       LXD 2LD3,2       SET COUNT TO 3                    F5G32000
00415 -0 50000 0 00572 BL8   CAL BLV7          PLACE THE                        F5G32010
00416  0 77100 2 00003       ARS 3,2           PERMUTATION NO.                  F5G32020
00417  0 77100 2 00003       ARS 3,2           IN REGISTER 4                    F5G32030
00420 -0 32000 0 00550       ANA 2LD3                                           F5G32040
00421 -0 73400 4 00000       PDX 0,4                                            F5G32050
00422 -0 50000 0 00573       CAL BLV8          PERMUTE                          F5G32060
00423  0 76700 2 00003       ALS 3,2           THE LXD                          F5G32070
00424 -0 32000 0 00557       ANA BITMK         AND SXD                          F5G32080
00425  0 77100 4 00003       ARS 3,4           BITS IN THE                      F5G32090
00426 -0 60200 0 00574       ORS BLV9          PRED ENTRY                       F5G32100
00427  2 00001 2 00415       TIX BL8,2,1       COUNT TO 3                       F5G32110
00430  0 50000 0 00574       CLA BLV9                                           F5G32120
00431  0 60100 1 07337       STO PRED,1        STORE PRED ENTRY WITH PERMUTED BITS F5G32130
00432  0 50000 0 00575       CLA BLV01         ARRANGE TO CONSIDER              F5G32140
00433  0 40000 0 00315       ADD ONEA          NEXT PRED ENTRY                  F5G32150
00434  0 02000 0 00402       TRA BL9                                            F5G32160
00435  0 76400 0 00203 BL4   BST BLT           TAPE CHECK      BACKSPACE TAPE   F5G32170
00436  2 00001 2 00326       TIX BL5,2,1       TRY 5 TIMES                      F5G32180
00437  0 07400 4 00004       TSX 4,4 THEN START DIAGNOSTIC.                     F5G32190
00440 -0 53400 1 00600 BL01  LXD BLV05,1                                        F5G32200
00441 -2 00001 1 00504 BL03  TNX BL04,1,1      IS THERE ANOTHER TAG IN BB       F5G32210
00442 -0 53400 2 00577       LXD BLV04,2       YES                              F5G32220
00443  2 00001 2 00466       TIX BL02,2,1      HAVE WE EXHAUSTED STAG WORD      F5G32230
00444 -0 63400 1 00600       SXD BLV05,1       YES, STORE COUNT OF NO. OF TAGS  F5G32240
00445 -0 53400 2 00603       LXD BLV08,2       STORE                            F5G32250
00446  0 50000 0 00602       CLA BLV07         OLD PERMUTED                     F5G32260
00447  0 60100 2 05061       STO STAG,2        STAG WORD                        F5G32270
00450  0 50000 0 00314       CLA ZERO                                           F5G32280
00451  0 60100 0 00602       STO BLV07                                          F5G32290
00452  0 50000 0 00576       CLA BLV03         GET                              F5G32300
00453  0 07400 4 00032       TSX SE4,4         NEXT                             F5G32310
00454 -0 63400 1 00603       SXD BLV08,1       STAG                             F5G32320
00455 -0 50000 1 05061       CAL STAG,1        WORD                             F5G32330
00456  0 60200 0 00601       SLW BLV06         STORE STAG WORD                  F5G32340
00457 -0 32000 0 00560       ANA LMSK          AND                              F5G32350
00460  0 60200 0 00602       SLW BLV07         INITIALIZE NEW STAG WORD         F5G32360
00461  0 50000 0 00576       CLA BLV03         INCREASE THE                     F5G32370
00462  0 40000 0 00315       ADD ONEA          STAG WORD NO.                    F5G32380
00463  0 60100 0 00576       STO BLV03                                          F5G32390
00464 -0 53400 2 00551       LXD 2LD9,2       RESET COUNT TO 9                  F5G32400
00465 -0 53400 1 00600       LXD BLV05,1       RESTORE 1                        F5G32410
00466 -0 63400 2 00577 BL02  SXD BLV04,2       STORE COUNTER                    F5G32420
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00467 -0 50000 0 00601          CAL  BLV06                                  F5G32430
00470  0 76700 0 00002          ALS  2                                      F5G32440
00471  0 60200 0 00601          SLW  BLV06                                  F5G32450
00472 -0 32000 0 00550          ANA  2LD3          EXTRACT TAG              F5G32460
00473 -0 73400 4 00000          PDX  0,4                                    F5G32470
00474 -0 50000 0 00572          CAL  BLV7           PERMUTE                 F5G32480
00475  0 77100 4 00003          ARS  3,4                                    F5G32490
00476  0 77100 4 00003          ARS  3,4            THE                     F5G32500
00477 -0 32000 0 00550          ANA  2LD3          TAG                      F5G32510
00500  0 77100 2 00012          ARS  10,2                                   F5G32520
00501  0 77100 2 00012          ARS  10,2                                   F5G32530
00502 -0 60200 0 00602          ORS  BLV07          FORM NEW TAG WORD       F5G32540
00503  0 02000 0 00441          TRA  BL03                                   F5G32550
00504 -0 53400 1 00567 BL04     LXD  BLV4,1         GET INDEX OF BB         F5G32560
00505  0 50000 1 06442          CLA  BBB,1          IS                      F5G32570
00506  0 77100 0 00041          ARS  33             THIS                    F5G32580
00507  0 40000 0 00315          ADD  ONEA           A GO N                  F5G32590
00510 -0 10000 0 00516          TNZ  BL07           NO                      F5G32600
00511  0 50000 0 00317          CLA  BLV09          YES, STORE BB NO.       F5G32610
00512  0 76700 0 00022          ALS  18             OF LAST                 F5G32620
00513  0 62200 1 06443          STD  BBB+1,1        GO N ENCOUNTERED        F5G32630
00514  0 50000 0 00564          CLA  BLV1           STORE PRESENT           F5G32640
00515  0 60100 0 00317          STO  BLV09          BB NO.                  F5G32650
00516 -0 53400 2 00550  BL07    LXD  2LD3,2        SET COUNT TO 3           F5G32660
00517 -0 50000 0 00572 BL09     CAL  BLV7                                   F5G32670
00520  0 77100 2 00003          ARS  3,2                                    F5G32680
00521  0 77100 2 00003          ARS  3,2            GET PERMUTATION NO.     F5G32690
00522 -0 32000 0 00550          ANA  2LD3                                   F5G32700
00523 -0 73400 4 00000          PDX  0,4                                    F5G32710
00524  0 50000 1 06444          CLA  BBB+2,1        PERMUTE                 F5G32720
00525  0 60100 4 00564          STO  EXCO,4         ENTRANCE-EXIT REQUIREMENTS F5G32730
00526  1 77777 1 00527 BL08     TXI  BL08+1,1,-1                            F5G32740
00527  2 00001 2 00517          TIX  BL09,2,1       COUNT TO 3              F5G32750
00530 -0 53400 2 00550          LXD  2LD3,2        PLACE PERMUTED           F5G32760
00531  0 50000 2 00564 BL10     CLA  EXCO,2         ENTRANCE-EXIT COND.     F5G32770
00532  0 60100 1 06441          STO  BBB-1,1        BACK IN BB              F5G32780
00533  1 77777 1 00534 BL11     TXI  BL11+1,1,-1                            F5G32790
00534  2 00001 2 00531          TIX  BL10,2,1       COUNT TO 3              F5G32800
00535  0 50000 0 00564 BL05     CLA  BLV1           PREPARE TO DEAL WITH    F5G32810
00536  0 40000 0 00315          ADD  ONEA           WITH NEXT BB            F5G32820
00537  0 60100 0 00564          STO  BLV1                                   F5G32830
00540  0 02000 0 00346          TRA  BL3                                    F5G32840
00541  0 07400 4 00067 BL06     TSX  SE1,4  PUT EDN MARK INTO THE DUMMEY BB F5G32850
00542  0 50000 0 00556          CLA  EN2MK                                  F5G32860
00543  0 60100 1 06447          STO  BBB+5,1                                F5G32870
00544  0 50000 0 00602          CLA  BLV07          STORE                   F5G32880
00545 -0 53400 2 00603          LXD  BLV08,2        OLD                     F5G32890
00546  0 60100 2 05061          STO  STAG,2         STAG WORD               F5G32900
00547  0 02000 0 00030          TRA  R              READ NEXT PART          F5G32910
00550  0 00003 0 00000  2LD3         0,0,3                                  F5G32920
00551  0 00011 0 00000  2LD9         0,0,9                                  F5G32930
00552  0 00000 0 00002 TWO           2                                      F5G32940
00553  0 00000 0 77777  2AMSK        -1                 ADDRESS MASK        F5G32950
00554  0 00000 7 77777 RMSK          -1,-1              RIGHT HALF MASK     F5G32960
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00555 -377770077777     SALM   OCT -377770077777    MS    MASK OUT SXD AND LXD PRED REULTS      F5G32970
00556  3 77777 7 77777   EN2MK PTH -1,-1,-1         PUT IN LOCATION OF DUMMEY BB              F5G32980
00557  0 00004 4 00000 BITMK       0,4,4           MASK TO EXTRACT ONE SXD AND LXD BIT       F5G32990
00560 -377777000000     LMSK   OCT -377777000000                                             F5G33000
                  00564 EXCO   BES 3               THE ENTRANCE-EXIT CONDITIONS  PERMUTED    F5G33010
00564  0 00000 0 00000 BLV1                       BBNO.                                     F5G33020
00565  0 00000 0 00000 BLV2                       INDEX IN BB LIST                          F5G33030
00566  0 00000 0 00000 BLV3                       TEST CONSTANT                             F5G33040
00567  0 00000 0 00000 BLV4                       INDEX OF BB                               F5G33050
00570  0 00000 0 00000 BLV5                       1ST PRED NO. IN NEXT BB                   F5G33060
00571  0 00000 0 00000 BLV6                       UST TAG IN NEXT BB                        F5G33070
00572  0 00000 0 00000 BLV7                       PERMUTTTION NOS.                          F5G33080
00573  0 00000 0 00000 BLV8                       OLD PRED ENTRY                            F5G33090
00574  0 00000 0 00000 BLV9                       NEW, PERMUTED, PRED ENTRY                 F5G33100
00575  0 00000 0 00000 BLV01                      CURRENT PRED. NO.                         F5G33110
00576  0 00000 0 00000 BLV03                      NO. OF STAG WORD, INITIALLY ZERO          F5G33120
00577  0 00000 0 00000 BLV04                      COUNTER TO 9, INITIALLY ZERO              F5G33130
00600  0 00000 0 00000 BLV05                      COUNT OF NO. OF TAGS IN BB                F5G33140
00601  0 00000 0 00000 BLV06                      STAG WORD                                 F5G33150
00602  0 00000 0 00000 BLV07                      NEW, PERMUTED , STAG WORD                 F5G33160
00603  0 00000 0 00000 BLV08                      INDEX OF OLD STAG WORD                    F5G33170
                  00604        BSS PTL2      SPACE FOR PATCHES                               F5G33180
00655  0 00000 0 00000 BLIST                                                                F5G33190
                                      EDITOR RECORD NO. 86                                   F5G33200
                                 FOR CONTROL CARD INFORMATION, SEE END OF ASSEMBLY.          F5G33210
                                      DIAGNOSTIC CALLER FOLLOWS                             F5G33230
                                           PART 3                                           F5G33240
                                 CHANGE LXD AND SXD RESULTS TO BE COMPATIBLE WITH GO TO     F5G33250
                                 N RESTRICTION.  MODIFY ASSIGN CONSTANT TABLE.              F5G33260
                                   C CONTAINS THE BB NO. OF THE GO TO N                     F5G33270
                                                                                            F5G33280
                  00320        ORG C+1                                                      F5G33290
00320  0 76200 0 00222 START  RTB ACTPE            LOCATE THE END OF FILE BEFORE ASSIGN CONSTANTF5G33300
00321  0 70000 0 00573        CPY ACV12                                                     F5G33310
00322  0 02000 0 00320        TRA START                                                     F5G33320
00323  0 02000 0 00330        TRA RDIN                                                      F5G33330
00324  0 02000 0 00320        TRA START                                                     F5G33340
00325  0 76400 0 00202 ERR    BST ACTPE            BACKSPACE TAPE TO TRY AGAIN              F5G33350
00326  2 00001 2 00331        TIX AAC2,2,1         COUNT TO 5                               F5G33360
00327  0 07400 4 00004        TSX 4,4      TO DIAGNOSTIC                                    F5G33370
00330 -0 53400 2 00555  RDIN  LXD 3LD3,2                                                    F5G33380
00331  0 76200 0 00222 AAC2   RTB ACTPE                                                     F5G33390
00332  0 70000 0 00573        CPY ACV12            COPY THE EXTRA WORD                      F5G33400
00333  0 53400 1 00314        LXA ZERO,1                                                    F5G33410
00334  0 70000 1 00647 AAC1   CPY ASCON,1                                                   F5G33420
00335  1 77777 1 00334        TXI AAC1,1,-1                                                 F5G33430
00336  0 07400 4 00004        TSX 4,4                                                       F5G33440
00337  0 76600 0 00333        IOD                  CHECK      REDUNDANCY BITS              F5G33450
00340 -0 76000 0 00012        RTT                                                           F5G33460
00341  0 02000 0 00325        TRA ERR              THERR IS AN ERROR                        F5G33470
00342  0 76200 0 00222        RTB ACTPE                                                     F5G33480
00343  0 76200 0 00222        RTB ACTPE                                                     F5G33490
00344  0 76200 0 00222        RTB ACTPE                                                     F5G33500
00345  0 76600 0 00333        IOD                                                           F5G33510
00346 -0 63400 1 00527        SXD ACV1,1           O.K. STORE RECORD  OF NO. OF ENTRIES
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00347 -0 63400 1 00541        SXD AC22,1
00350  0 50000 0 00317        CLA C
00351  0 56000 0 00560 AC15   LDQ ACK1        GET BB NO. OF 1ST GO TO N                                F5G33520
00352  0 04000 0 00520        TLQ AC16        WAS THIS THE LAST GO TO N                                F5G33530
00353  0 40000 0 00315        ADD ONEA        NO                                                       F5G33540
00354  0 07400 4 00067        TSX SE1,4                                                                F5G33550
00355 -0 50000 1 06442        CAL BBB,1       FIND NO. OF 1ST SUCC IN NEXT BB                          F5G33560
00356  0 77100 0 00022        ARS 18                                                                   F5G33570
00357  0 62100 0 00562        STA ACV3                                                                 F5G33580
00360  0 50000 0 00317        CLA C                                                                    F5G33590
00361  0 07400 4 00067        TSX SE1,4                                                                F5G33600
00362  0 50000 0 00314        CLA ZERO        CLEAR THE COMBINED SXDD CASE                             F5G33610
00363  0 60100 0 00563        STO ACV4                                                                 F5G33620
00364 -0 50000 1 06442        CAL BBB,1       FIND THE NO. OF 1ST SUCC IN THIS BB                      F5G33630
00365  0 77100 0 00022        ARS 18                                                                   F5G33640
00366 -0 32000 0 00552        ANA AMSK                                                                 F5G33650
00367  0 60100 0 00561 AC13   STO ACV2                                                                 F5G33660
00370  0 34000 0 00562        CAS ACV3        IS THIS SUCC IN SAME BB                                  F5G33670
00371  0 02000 0 00373        TRA AAC3        YES                                                      F5G33680
00372  0 02000 0 00506        TRA AC14        NO                                                       F5G33690
00373  0 76700 0 00022 AAC3   ALS 18                                                                   F5G33700
00374  0 07400 4 00044        TSX SE6,4       YES GET BB NO. OF SUCESSOR                               F5G33710
00375 -0 50000 1 07555        CAL SUCC,1                                                               F5G33720
00376  0 62100 0 00567        STA ACV8                                                                 F5G33730
00377  0 40000 0 00315        ADD ONEA        FIN NO. OF 1ST PRED ENTRY NEXT BBB                       F5G33740
00400  0 07400 4 00067        TSX SE1,4                                                                F5G33750
00401  0 50000 1 06442        CLA BBB,1                                                                F5G33760
00402  0 62100 0 00565        STA ACV6                                                                 F5G33770
00403  0 50000 0 00314        CLA ZERO                                                                 F5G33780
00404  0 60100 0 00571        STO ACV10       PRESET COMBINED LXD CASE TO 0                            F5G33790
00405  0 50000 0 00567        CLA ACV8        FIND NO. OF 1ST PRED  IN THIS BB                         F5G33800
00406  0 07400 4 00067        TSX SE1,4                                                                F5G33810
00407 -0 50000 1 06442        CAL BBB,1                                                                F5G33820
00410 -0 32000 0 00552        ANA AMSK                                                                 F5G33830
00411  0 62100 0 00570        STA ACV9        RECORD 1ST PRED FOR FUTURE USE                           F5G33840
00412  0 62100 0 00566 AC7    STA ACV7                                                                 F5G33850
00413  0 34000 0 00565        CAS ACV6        IS THIS PRED IN SAME BB                                  F5G33860
00414  0 02000 0 00416        TRA AC4                                                                  F5G33870
00415  0 02000 0 00444        TRA AC8         NO                                                       F5G33880
00416  0 07400 4 00055 AC4    TSX SE5,4       IS THIS THE TRANSFER FROM CURRENTLY CONSIDERE            F5G33890
00417 -0 50000 1 07337        CAL PRED,1      ED GO TO NP                                              F5G33900
00420 -0 32000 0 00552        ANA AMSK                                                                 F5G33910
00421  0 40200 0 00317        SUB C                                                                    F5G33920
00422 -0 10000 0 00427        TNZ AC5         IF NOT SKIP THE ORING OF SXD CASE                        F5G33930
00423 -0 50000 1 07337        CAL PRED,1      OR THE SXD CASE INTO COMBINED SXD CASE                   F5G33940
00424 -0 60200 0 00563        ORS ACV4                                                                 F5G33950
00425 -0 50000 0 00554        CAL NTMSK                                                                F5G33960
00426  0 32000 1 07337        ANS PRED,1                                                               F5G33970
00427 -0 50000 1 07337 AC5    CAL PRED,1      IS THE BB WHICH IS PREDECESSOR                           F5G33980
00430 -0 63400 1 00572        SXD ACV11,1     A GO TO N                                                F5G33990
00431  0 07400 4 00067        TSX SE1,4                                                                F5G34000
00432  0 50000 1 06442        CLA BBB,1                                                                F5G34010
00433  0 77100 0 00041        ARS 33                                                                   F5G34020
00434  0 40000 0 00315        ADD ONEA                                                                 F5G34030
                                                                                                       F5G34040
                                                                                                       F5G34050
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00435 -0 10000 0 00441        TNZ AC6
00436 -0 53400 2 00572        LXD ACV11,2      YES, OR THE LXD XCASE INTO THE                F5G34060
00437 -0 50000 2 07337        CAL PRED,2       COMBINED LXD CASE                             F5G34070
00440 -0 60200 0 00571        ORS ACV10                                                      F5G34080
00441  0 50000 0 00566 AC6    CLA ACV7                                                       F5G34090
00442  0 40000 0 00315        ADD ONEA                                                       F5G34100
00443  0 02000 0 00412        TRA AC7                                                        F5G34110
00444 -0 50000 0 00571 AC8    CAL ACV10        IS THE COMBINED LXD CASE ZERO                 F5G34120
00445 -0 32000 0 00553        ANA TMSK                                                       F5G34130
00446  0 10000 0 00503        TZE AC12                                                       F5G34140
00447  0 50000 0 00567        CLA ACV8         NO, HAS THIS BB ALREADY BEEN                  F5G34150
00450  0 07400 4 00067        TSX SE1,4        CONSIDERED                                    F5G34160
00451  0 56000 1 06442        LDQ BBB,1        AS A SUCCESSOR TO                             F5G34170
00452 -0 77300 0 00024        RQL 20           A GO TO N                                     F5G34180
00453  0 16200 0 00455        TQP AC18                                                       F5G34190
00454  0 02000 0 00503        TRA AC12                                                       F5G34200
00455  0 50000 0 00557 AC18   CLA LT1                                                       F5G34210
00456 -0 60200 1 06442        ORS BBB,1        RECORD THAT THIS BB HAS BEEN CONSIDERED AS    F5G34220
00457  0 50000 0 00570        CLA ACV9         ECT..PE  PREPARE TO SCAN ALL PRED ENTRYS      F5G34230
00460  0 62100 0 00566 AC11   STA ACV7                                                       F5G34240
00461  0 34000 0 00565        CAS ACV6         IS THIS PRED IN SAME BB                       F5G34250
00462  0 02000 0 00464        TRA AC9                                                        F5G34260
00463  0 02000 0 00531        TRA AC19         NO                                            F5G34270
00464  0 07400 4 00055 AC9    TSX SE5,4        DETERMINE IF THE BB WHICH                     F5G34280
00465 -0 63400 1 00572        SXD ACV11,1      IS THE PREDECESSOR OF THIS ONE                F5G34290
00466  0 50000 1 07337        CLA PRED,1       IS A GO TO N                                  F5G34300
00467  0 07400 4 00067        TSX SE1,4                                                      F5G34310
00470  0 50000 1 06442        CLA BBB,1                                                      F5G34320
00471  0 77100 0 00041        ARS 33                                                         F5G34330
00472  0 40000 0 00315        ADD ONEA                                                       F5G34340
00473 -0 10000 0 00500        TNZ AC10                                                       F5G34350
00474 -0 53400 2 00572        LXD ACV11,2      IT IS A GO TO N                               F5G34360
00475  0 50000 0 00571        CLA ACV10        REPLACE LXD CASE BY THE                       F5G34370
00476 -0 32000 0 00553        ANA TMSK         COMBINED LXD CASE                             F5G34380
00477 -0 60200 2 07337        ORS PRED,2                                                     F5G34390
00500  0 50000 0 00566 AC10   CLA ACV7         ARRANGE TO TREAT NEXT PRED ENTRY              F5G34400
00501  0 40000 0 00315        ADD ONEA                                                       F5G34410
00502  0 02000 0 00460        TRA AC11                                                       F5G34420
00503  0 50000 0 00561 AC12   CLA ACV2                                                       F5G34430
00504  0 40000 0 00315        ADD ONEA         ARRANGE TO TREAT NEXT SUCC ENTRY              F5G34440
00505  0 02000 0 00367        TRA AC13                                                       F5G34450
00506  0 50000 0 00317 AC14   CLA C                                                          F5G34460
00507  0 07400 4 00067        TSX SE1,4        STORE COMBINED                                F5G34470
00510  0 50000 0 00563        CLA ACV4         SXDCASE IN PREFIX                             F5G34480
00511  0 76700 0 00017        ALS 15           OF 2ED WORD OF BBB ENTRY                      F5G34490
00512  0 63000 1 06443        STP BBB+1,1                                                    F5G34500
00513  0 50000 1 06443        CLA BBB+1,1                                                    F5G34510
00514  0 77100 0 00022        ARS 18           GET NEXT GO TO N NUMBER                       F5G34520
00515 -0 32000 0 00552        ANA AMSK                                                       F5G34530
00516  0 60100 0 00317        STO C                                                          F5G34540
00517  0 02000 0 00351        TRA AC15                                                       F5G34550
00520  0 76600 0 00222 AC16   WTB ACTPE                                                      F5G34560
00521  0 53400 1 00314        LXA ZERO,1       WRITE ASSIGN CONSTANTS BACK ON TAPE           F5G34570
00522 -0 53400 2 00527        LXD ACV1,2                                                     F5G34580
                                                                                            F5G34590
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00523   0 70000 0 00573          CPY ACV12                                    F5G34600
00524  -3 00000 2 00030          TXL R,2,0          IF NO ASSIGN CONST., GO TO NEXT PART  F5G34610
00525   0 70000 1 00647 AC17     CPY ASCON,1                                  F5G34620
00526   1 77777 1 00527          TXI ACV1,1,-1                                F5G34630
00527  -3 00000 1 00030 ACV1     TXL R,1,SET                                  F5G34640
00530   0 02000 0 00525          TRA AC17                                     F5G34650
00531   0 50000 0 00567 AC19     CLA ACV8                                     F5G34660
00532   0 07400 4 00067          TSX SE1,4                                    F5G34670
00533   0 53400 2 00314          LXA ZERO,2                                   F5G34680
00534   0 50000 1 06447 AC25     CLA BBB+5,1                                  F5G34690
00535   0 34000 2 00647 AC23     CAS ASCON,2        IS THIS ASSIGN CONST. EQUAL TO THE  F5G34700
00536   0 02000 0 00540          TRA AC20           LOCATION OF 1ST INST IN BB  F5G34710
00537   0 02000 0 00543          TRA AC24           YES                         F5G34720
00540  -3 00000 2 00542 AC20     TXL AC21,2,0                                 F5G34730
00541  -3 00000 2 00503 AC22     TXL AC12,2,SET                               F5G34740
00542   1 77777 2 00535 AC21     TXI AC23,2,-1                                F5G34750
00543  -0 50000 0 00571 AC24     CAL ACV10          REPLACE ASSIGN CONST. BY NEW  F5G34760
00544  -0 32000 0 00553          ANA TMSK           LOCATION SYMBOL             F5G34770
00545   0 77100 0 00005          ARS 5                                        F5G34780
00546   0 40000 0 00567          ADD ACV8                                     F5G34790
00547   0 36100 0 00556          ACL LXDC                                     F5G34800
00550   0 60200 2 00647          SLW ASCON,2                                  F5G34810
00551   0 02000 0 00534          TRA AC25                                     F5G34820
00552   0 00000 0 77777 AMSK     HTR -1                                       F5G34830
00553   0 00000 7 00000 TMSK     HTR 0,-1                                     F5G34840
00554 -377770777777    NTMSK     OCT 777770777777                             F5G34850
00555   0 00005 0 00000  3LD3     0,0,5                                        F5G34860
00556 +150000000000    LXDC      OCT 150000000000     THE NUMBER IDENTIFYING THE LOC. OF AN LXD  F5G34870
00557   0 00000 1 00000 LT1      HTR 0,1                                      F5G34880
00560 +000000077776    ACK1      OCT 77776                                    F5G34890
00561   0 00000 0 00000 ACV2                        NO. OF CURRENT SUCC. OF THIS BB  IN ADDR.  F5G34900
00562   0 00000 0 00000 ACV3                        NO. OF 1ST SUCC IN NEXT BB   IN ADDR  F5G34910
00563   0 00000 0 00000 ACV4                        COMBINED SXD CASE  LAST OCTAL DIGIT IN DECR  F5G34920
00564   0 00000 0 00000 ACV5                        NO. OF CURRENT PRED   IN ADDR  F5G34930
00565   0 00000 0 00000 ACV6                        NO. OF 1ST PRED IN NEXT BB  IN ADDR  F5G34940
00566   0 00000 0 00000 ACV7                        MO. OF CURRENT PRED IN THIS BB   IN ADDR  F5G34950
00567   0 00000 0 00000 ACV8                        BB NO. OF SUCCESSOR   IN ADDR  F5G34960
00570   0 00000 0 00000 ACV9                        NO. OF 1ST PRED IN THE SUCCESSOR BB   IN ADDRF5G34970
00571   0 00000 0 00000 ACV10                       THE COMBINED LXD CASE  F5G34980
00572   0 00000 0 00000 ACV11                       TEMP. STORE FOR PRED TABLE INDEX   AT AC5  F5G34990
00573   0 00000 0 00000 ACV12                       EXTRA WORD FROM ASSIGN CONSTANT RECORD  F5G35000
00574   0 00000 0 00000 ACV13                       TEMP. STORE FOR LOCATION OF 1ST INST. IN BB  F5G35010
                00647 ASCON   BES PTL3       SPACE FOR PATCHES                F5G35020
                                          EDITOR RECORD NO. 88                F5G35030
                                    FOR CONTROL CARD INFORMATION, SEE END OF ASSEMBLY.  F5G35040
                                         DIAGNOSTIC CALLER FOLLOWS            F5G35060
                                              PART 4                          F5G35070
                                    COMPILE INSTRUCTIONS FROM PREVIOUS RESULTS  F5G35080
                                     CONSTANTS                                F5G35090
                00317         ORG C                                          F5G35100
00317   0 00000 0 00003 L3        3                                          F5G35110
00320   0 00000 0 00004 L4        4                                          F5G35120
00321   0 00000 0 00007 L7        7                                          F5G35130
00322   0 00000 0 00023 L19       19                                         F5G35140
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                    00316 LD1     SYN ONED                                    F5G35150
00323   0 00002 0 00000 LD2           0,0,2                                   F5G35160
00324   0 00003 0 00000 LD3           0,0,3                                   F5G35170
00325   0 00004 0 00000 LD4           0,0,4                                   F5G35180
00326   0 00007 0 00000 LD7           0,0,7                                   F5G35190
00327   0 00010 0 00000 LD8           0,0,8                                   F5G35200
00330   0 00011 0 00000 LD9           0,0,9                                   F5G35210
00331   0 00014 0 00000 LD12          0,0,12                                  F5G35220
00332   0 00000 7 00000 LT7           0,7                                     F5G35230
00333   0 00000 0 77754 LM20          -20                                     F5G35240
00334   0 00000 0 77774 LM4           -4                                      F5G35250
00335   0 77777 0 00000 DECMK         0,0,-1      DECREMENT MASK              F5G35260
00336   3 77777 7 77777 ENDMK   PTH   -1,-1,-1                                F5G35270
00337   0 00000 0 77777 ADDMK         -1                                      F5G35280
00340 +000000777770     STMSK   OCT   777770                                  F5G35290
00341   0 00007 7 00000 PRMK          0,7,7       MASK FOR PRED RESULTS       F5G35300
00342   0 00000 7 77777 TAGMK         -1,-1       MASK FOR TAU- TAGS          F5G35310
00343  -3 77777 0 00000 LFTMSK  MTH   0,0,-1                                  F5G35320
                    00343 SMK3    SYN LFTMSK                                  F5G35330
00344   634743000000    LTPL    BCD 1TPL000                                   F5G35340
00345   436747000000    LLXP    BCD 1LXP000                                   F5G35350
00346   627045000000    LSYN    BCD 1SYN000                                   F5G35360
00347   242524000000    LDED    BCD 1DED000                                   F5G35370
00350   635121000000    LTRA    BCD 1TRA000                                   F5G35380
00351   636267000000    LTSX    BCD 1TSX000                                   F5G35390
00352   226262000000     LBSS   BCD 1BSS000   BSS IN BCD.                     F5G35391
00353 +076225000000     LPSE    OCT 76225000000                               F5G35400
00354 +060000000000     GSYM    OCT 60000000000 GARBAGE SYMBLE                F5G35410
00355   0 00004 0 00004 T4SYM   PZE 4,0,4        TAG 4 AND RELATIVE PART 4    F5G35420
00356   0 00000 0 00004           4             4 NUMBERS TO CONVERT S-TAG    F5G35430
00357   0 00000 0 00002           2                                           F5G35440
00360   0 00000 0 00001           1                                           F5G35450
00361   0 00000 0 00000 VSTAG   PZE 0                                         F5G35460
00362   0 00000 0 00001 RECSC   HTR RECNO       ADDR, NO. OF RECS. BROUGHT IN , C.I.T.  F5G35470
00363   0 02000 0 00000  LCOUT  TRA -           TRANSFER TO EXIT ROUTINE      F5G35480
00364 +035121000000             OCT 35121000000 TRA OP CODE                   F5G35490
00365 +041104000000             OCT 41104000000 PSE-TRA                       F5G35500
00366 -033642000000             OCT -33642000000 DCT-PSE                      F5G35510
00367 -024000000000             OCT -24000000000 RTT-DCT                      F5G35520
00370 +027642000000             OCT 27642000000 MSE-RTT                       F5G35530
00371 -007100000000             OCT -7100000000 TZE-MSE                       F5G35540
00372 -032154000000             OCT -32154000000 HPR-TZE                      F5G35550
00373 +031316000000     LNTOP   OCT 31316000000 TSX-HPR                       F5G35560
00374 +035121000000             OCT 35121000000                               F5G35570
00375 +001622000000             OCT 1622000000  TXL-TRA                       F5G35580
00376 -031772000000             OCT -31772000000 HPR-TXL                      F5G35590
00377 +031400000000     LTROP   OCT 31400000000 TTR-HPR                       F5G35600
00400 -370000000000     FSTLT   OCT -370000000000                             F5G35610
00401 -230000000000     FSTT    OCT -230000000000                             F5G35620
00402 +170000000000     PCC     OCT 170000000000 MEANS LOCATION OF THIS INST. F5G35630
00403 -300000000000     PFXMK   OCT -300000000000                             F5G35640
00404 +000770000000     XXPSX   OCT 770000000   CONSTANTS TO TEST PSE ADDR.   F5G35650
00405 +000160000000     XX16X   OCT 160000000                                 F5G35660
00406 +000360000000     XX360   OCT 360000000                                 F5G35670
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00407 +000000777777     SHK1    OCT 777777          CONST. TO EXTRACT R. HALF WORD          F5G35680
                  00320 SHK2    SYN L4                                                      F5G35690
00410 +160000000000     SIK2    OCT 160000000000    I.D. FOR LOCATION OF SXD                F5G35700
00411  626724000000     SIK3    BCD 1SXD000         SXD IN BCD                              F5G35710
                  00411 LSXD    SYN SIK3                                                    F5G35720
                  00410 IDSXD   SYN SIK2                                                    F5G35730
00412  0 00000 0 00144 SKK1        LCLST                                                    F5G35740
                  00350 SLK1    SYN LTRA            TRA IN BCD                              F5G35750
00413 +150000000000     SMK1    OCT 150000000000    I.D. FOR LOCATION OF LXD                F5G35760
00414  436724000000     SMK2    BCD 1LXD000         LXD IN BCD                              F5G35770
                  00414 LLXD    SYN SMK2                                                    F5G35780
                                                    FOR SMK3 SEE LFTMSK                     F5G35790
00415 +140000000000     SMK4    OCT 140000000000    I.D. FOR TAU-TAG                        F5G35800
                  00413 SLK2    SYN SMK1                                                    F5G35810
                  00413 IDLXD   SYN SMK1                                                    F5G35820
                  00415 IDTAG   SYN SMK4                                                    F5G35830
00416 -000000000000     Z1K3    OCT -0                                                    F5G35840
                  00416 MZE     SYN Z1K3                                                    F5G35850
00417  0 77776 0 00000 Z2K1         0,0,-2          THE INDEXES NEEDED TO REFER             F5G35860
00420  0 77772 0 00000              0,0,-6          TO THE BOTTOM POSITIONS                 F5G35870
00421  0 77766 0 00000              0,0,-10         IN LIST1, LIST2, LIST3, RESPT.          F5G35880
00422  0 00007 0 00003 Z2K2    HTR 3,0,7           NO. OF LISTS, NO. OF CASES              F5G35890
00423  0 00000 0 00001 CASE    HTR 1                                                       F5G35900
00424  0 00000 0 00002              2                                                      F5G35910
00425  0 00000 0 00004              4                                                      F5G35920
00426  0 00000 0 00003              3                                                      F5G35930
00427  0 00000 0 00005              5                                                      F5G35940
00430  0 00000 0 00006              6                                                      F5G35950
00431  0 00000 0 00007              7                                                      F5G35960
00432 +000032212110     Z2K3    OCT 32212110        CONST. TO DETERMINE NO. 1 S IN 3 BITS   F5G35970
00433 +000030000000     Z2K4    DEC 3B14                                                    F5G35980
00434  0 00000 0 00007 Z2K5    HTR 7                                                       F5G35990
00435  0 00000 0 77777 Z4K1         -1                                                     F5G36000
00436  0 00000 0 00000 Z4K2         0               INDEX OF ST SXD CASE                    F5G36010
00437  0 00000 0 01000 LNSXD        NSXD*4          NO. OF SXD IN SXD LIST                  F5G36020
00440  0 77770 0 00000 Z7K1         0,0,-8          INDEAXES OF ASSOCIATED SXD CASES        F5G36030
00441  0 77764 0 00000              0,0,-12                                                F5G36040
00442  0 77760 0 00000              0,0,-16                                                F5G36050
                                THE DEFINITION OF TEMP. AND VARIABLE STORAGE LOCATIONS      F5G36060
00443 -0 00001 0 00000 BBNO     MZE 0,0,1           DECR., CURRENT BB NO. BEING SCANNED     F5G36070
00444  0 00000 0 00000 NXTLOC                       LOCATUON OF 1ST INST OF THE BB          F5G36080
00445  0 00000 0 00000 OUTBX                        TEMP. STORAGE OF RETURN INDEXES         F5G36090
00446  0 00000 0 00000 ERRBX                        ERROR INDICATOR                         F5G36100
00447  0 00000 0 00000 BBOX                         TEMP. STORE FOR INDEXES, MAINLY 2       F5G36110
00450  0 00000 0 00000 BBOX1                        ANOTHER  OF SAME                        F5G36120
00451  0 00000 0 00000 ABOX                         TEMP. STORE , INDEX 1                   F5G36130
00452  0 00000 0 00000 TAG                          TAU-TAG FROM AN INST.                   F5G36140
00453  0 00000 0 00000 STAGN1                       WORD FROM STAG SHIFTED LEFT MULTIPLE OF I F5G36150
00454  0 00000 0 00000 STAGN2                       SAME WORD SHIFTED BY ONES               F5G36160
00455  0 00000 0 00000 9CNT                         COUNT TO 9, 9 TAGS IN STAG WORD         F5G36170
00456 -000000000001     STGWD   DEC -1              NO. OF STAG ENTRY BEING CONSIDERED      F5G36180
00457  0 00000 0 00000 TMP10                        TEMP. STORE , LASTS ONLY 10 INSTRS.     F5G36190
00460  0 00000 0 00000 CIND                         + OR - MEANS IR4 ISNT OR IS NECESSARY   F5G36200
00461 -0 00000 0 00000  CPIND MZE                 + OR - MEANS COMPILE/DONT COMPILE         F5G36210
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00462  0 00000 0 00000 ARG1                                U  1ST ARGUMENT FOR SUBROUTINES                    F5G36220
00463  0 00000 0 00000 MBOX                                NO. OF TRANSFERS IN GO TO VECTOR                   F5G36230
00464  0 00000 0 00000 SUCNO                               NO. OF A SUCCESSOR, GOV ROUTINE                    F5G36240
00465  0 00000 0 00000 SXD0                                LXD CASE IN DECR., PRED NO. IN ADDR.               F5G36250
00466  0 00000 0 00000 SXD1                                3 TAU TAGS WHICH MUST BE STORED                    F5G36260
00467  0 00000 0 00000 SXD2                                FROM IR1,2,3                                       F5G36270
00470  0 00000 0 00000 SXD3                                RESPT.                                             F5G36280
00471  0 00000 0 00000 SADV1                               RETURN INDEX                                       F5G36290
00472  0 00000 0 00000 SADV2                               LOCATION OF 1ST INST IN SUCCESSOR BB               F5G36300
00473  0 00000 0 00000 SADV3                               NO. OF CURRENT PRED                                F5G36310
00474  0 00000 0 00000 SADV4                               NO. OF 1ST PRED IN SUCCESSOR BB                    F5G36320
00475  0 00000 0 00000 SADV5                               THE SUCCESSOR BB NO.                               F5G36330
00476  0 00000 0 00000 SHV1                                RETURN INDEX                                       F5G36340
00477  0 00000 0 00000 SHV2                                ENTRY FROM PRED.                                   F5G36350
00500  0 00000 0 00000 SIV1                                INDEX OF SXD CASE RELATIVE TO SXST                 F5G36360
00501  0 00000 0 00000 SIV2                                RETURN INDEX                                       F5G36370
00502  0 00000 0 00000 SIV3                                LOCATION OF 1ST INST. IN SXD GROUP                 F5G36380
00503  0 00000 0 00000 SIV4                                TEMP. STORE                                        F5G36390
00504  0 00000 0 00000 SIV5                                STORE FOR INDEX OF TAU TAG IN SXD CASE             F5G36400
00505  0 00000 0 00000 SIV6                                STOER FOR THE TAG                                  F5G36410
00506  0 00000 0 00000 SJV1                                LXD CASE IN DECR.                                  F5G36420
00507  0 00000 0 00000 SJV2                                RETURN INDEX                                       F5G36430
00510  0 00000 0 00000 SJV3                                                                                   F5G36440
                       00655 CLST   BES LCLST               THE NEW LIST OF COMPILED INST.                     F5G36450
00655  0 00144 0 00000 SKV1            0,0,LCLST           INDEX FOR NEXT ENTRY IN CLST                       F5G36460
                                       SKV1 COMES ALREADY INITIALIZED                                         F5G36470
00656  0 00000 0 00000 SLV1                                RETURN INDEX                                       F5G36480
00657  0 00000 0 00000 SLV2                                LOCATION TO BE ATTACHED TO TRA                     F5G36490
00660  0 00000 0 00000 SLV3                                + OR - MEANS  ISNT OR IS HANGING TRA0              F5G36500
00661  0 00000 0 00000 SMV1                                RETURN INDEX                                       F5G36510
00662  0 00000 0 00000 SMV2                                TAG TO BE COMPILED                                 F5G36520
00663  0 00000 0 00000 SMV3                                STORE INDEX OF QUANTITY IN LIST                    F5G36530
00664  0 00000 0 00000 SMV4                                LOCATION , TEMP. STORE                             F5G36540
00665  0 00000 0 00000 Z1V2                                NO. OF 1ST PRED. IN NEXT BB                        F5G36550
00666  0 00000 0 00000 Z1V3                                NO. OF PRED BEING CONSIDERED                       F5G36560
00667  0 00000 0 00000 Z1V5                                THE CASES                                          F5G36570
00670  0 00000 0 00000 Z1V8                                THE LOC. OF 1ST PRED IN BB,  USED IN Z4            F5G36580
00671  0 00000 0 00000 Z2V1                                IN DECREMENTS, THE INDEXES                         F5G36590
00672  0 00000 0 00000                                     THE TOP ENTRIES                                    F5G36600
00673  0 00000 0 00000                                     IN THE 3 LXD LISTS                                 F5G36610
00674  0 00000 0 00000 Z2V2                                IN ADDR., NO. OF 1S IN DIFFERENCE                  F5G36620
00675  0 00000 0 00000 Z2V3                                IN DECR., INDEX OF LIST GIVING MIN. DIFFERENCF5G36630
                       00676 LIST1  BSS 4                                                                     F5G36640
                       00702 LIST2  BSS 4                                                                     F5G36650
                       00706 LIST3  BSS 4                                                                     F5G36660
                       00715 LLIND  BES 3                   + OR - MEANS LIST NOT TO BE OR TOBE COMPILED       F5G36670
00715  0 00000 0 00000 Z4V1                                TEMP. STORE , LXD CASE IN ADDR.                    F5G36680
00716  0 00000 0 00000 Z5V1                                INDEX IN SYN TABLE                                 F5G36690
00717  0 00000 0 00000 Z7V1                                INDEX OF LIST                                      F5G36700
00720  0 00000 0 00000 Z7V2                                + OR - MEANS 1ST OR 2ED TIME THRU                  F5G36710
                       00735 NDINS  BES 12                  BLOCK FOR 3 EXTRA COMPILED INST.                   F5G36720
                       01101 INST   BES RECNO*100           THE BLOCK FOR THE COMPILED INSTR                   F5G36730
01101 -0 00000 0 00000 SXST   MZE                          - OR + MEANS NO SEQUENTIAL TRANSFER OR S. T.       F5G36740
                       01102        BSS 3                                                                     F5G36750
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                                        THE SXD INST. ASSOCIATED WITH SEQUENTIAL TRANSFER          F5G36760
                                                                                                   F5G36770
                01105 SXAS0   BSS 4                ASSOCIATED WITH 0 LXD CASE                      F5G36780
                01111 SXAS1   BSS 4                WITH 1ST LXD LIST                               F5G36790
                01115 SXAS2   BSS 4                2ED LIST                                        F5G36800
                01121 SXAS3   BSS 4                3RD                                             F5G36810
                01125 SXAS    BSS 4*NSXD           THE LIST OF SXD INST.                           F5G36820
02125 -0 00000 0 00000 SYN    MZE                  SYN CARD TABLE STORED BACKWARD                  F5G36830
                                        WHEN ENTERED WITH PRESENT BB NO. IN ADDR OF ARG1 AND BBNO. F5G36840
                                        OFA SUCCESSOR BB IN ADDR. OF AC, SAD FIGURES OUT WHAT THE AD
                                        DRESS OF CORRESPONDING TRANSFER INST.  SHOULD BE AND RETURNS F5G36850
                                        WITH THE ADDR IN LOGICAL AC                                F5G36860
                                                                                                   F5G36870
02126 -0 63400 4 00471 SAD    SXD SADV1,4          STORE RETURN                                    F5G36880
02127 -0 32000 0 00337        ANA ADDMK            STORE THE SUCC. NO.                             F5G36890
02130  0 60100 0 00475        STO SADV5                                                            F5G36900
02131  0 07400 4 00067        TSX SE1,4                                                            F5G36910
02132  0 50000 1 06447        CLA BBB+5,1                                                          F5G36920
02133  0 60100 0 00472        STO SADV2                                                            F5G36930
02134  0 50000 1 06442        CLA BBB,1                                                            F5G36940
02135 -0 32000 0 00337        ANA ADDMK                                                            F5G36950
02136  0 60200 0 00474        SLW SADV4                                                            F5G36960
02137  0 60200 0 00473 SAD1   SLW SADV3                                                            F5G36970
02140  0 07400 4 00055        TSX SE5,4                                                            F5G36980
02141  0 50000 1 07337        CLA PRED,1                                                           F5G36990
02142 -0 32000 0 00337        ANA ADDMK            IS THIS THE CORRECT                             F5G37000
02143  0 40200 0 00462        SUB ARG1             PRED ENTRY                                      F5G37010
02144  0 10000 0 02150        TZE SAD2                                                             F5G37020
02145 -0 50000 0 00473        CAL SADV3            NO, TRY NEXT RETURN                             F5G37030
02146  0 40000 0 00315        ADD ONEA                                                             F5G37040
02147  0 02000 0 02137        TRA SAD1                                                             F5G37050
02150 -0 50000 1 07337 SAD2   CAL PRED,1           IS THE SXD CASE 0                               F5G37060
02151 -0 32000 0 00326        ANA LD7                                                              F5G37070
02152  0 10000 0 02160        TZE SAD3             YES                                             F5G37080
02153  0 50000 0 00473        CLA SADV3            NO, FORM THE SYMBOLIC ADDR.                     F5G37090
02154  0 40200 0 00474        SUB SADV4            AS ID FOR SXD PLUS NO. OF PRED WITHIN           F5G37100
02155  0 76700 0 00012        ALS 10               THE BB * 1024     PLUS BB NO.                   F5G37110
02156  0 40000 0 00410        ADD IDSXD                                                            F5G37120
02157  0 02000 0 02165        TRA SAD6                                                             F5G37130
02160  0 50000 1 07337 SAD3   CLA PRED,1           IS THE LXD CASE ZERO                            F5G37140
02161 -0 32000 0 00332        ANA LT7                                                              F5G37150
02162  0 10000 0 02170        TZE SAD4                                                             F5G37160
02163  0 77100 0 00005        ARS 5                NO, FORM TH SYMBOLIC ADDR.                      F5G37170
02164  0 40000 0 00413        ADD IDLXD            AS 1024* LXD CASE PLUS BB NO. PLUS              F5G37180
02165  0 40000 0 00475 SAD6   ADD SADV5            I. D. FOR AN LXD                                F5G37190
02166 -0 53400 4 00471 SAD5   LXD SADV1,4                                                          F5G37200
02167  0 02000 4 00001        TRA 1,4                                                              F5G37210
02170 -0 50000 0 00472 SAD4   CAL SADV2                                                            F5G37220
02171  0 02000 0 02166        TRA SAD5                                                             F5G37230
                                        THIS ROUTINE COMPILES CURRENT INST) IF INDICATOR IN CPIND   F5G37240
                                        INDICATES IT SHOULD BE                                     F5G37250
02172  0 50000 0 00461 SCMI   CLA CPIND            SHOULD INST. BE COMPILED                        F5G37260
02173  0 12000 0 02206        TPL SCMI1                                                            F5G37270
02174 -0 63400 4 00457        SXD TMP10,4          YES, COMPILE THE INST                           F5G37280
02175  0 50000 2 01101        CLA INST,2                                                           F5G37290
02176  0 07400 4 02367        TSX SK,4
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02177   0 50000 2 01100          CLA INST-1,2                                    F5G37300
02200   0 07400 4 02367          TSX SK,4                                        F5G37310
02201   0 50000 2 01077          CLA INST-2,2                                    F5G37320
02202   0 07400 4 02367          TSX SK,4                                        F5G37330
02203   0 50000 2 01076          CLA INST-3,2                                    F5G37340
02204   0 07400 4 02367          TSX SK,4                                        F5G37350
02205  -0 53400 4 00457          LXD TMP10,4                                     F5G37360
02206  -0 76000 0 00003 SCMI1    SSM                                             F5G37370
02207   0 60100 0 00461          STO CPIND          RECORD INST SHOULD BE COMPILED F5G37380
02210   0 02000 4 00001          TRA 1,4                                         F5G37390
                                 DETERMINE AN SXD CASE SUBROUTINE                F5G37400
02211  -0 63400 4 00476 SH       SXD SHV1,4         STORE RETURN                 F5G37410
02212   0 53400 4 00320          LXA SHK2,4         CLEAR                        F5G37420
02213   0 56000 0 00314          LDQ ZERO           THE                          F5G37430
02214  -0 60000 4 00471 SH1      STQ SXD0+4,4       SXD                          F5G37440
02215   2 00001 4 02214          TIX SH1,4,1        POSITIONS 0-3                F5G37450
02216   0 62100 0 00465          STA SXD0           STORE THE PRED NO.           F5G37460
02217   0 07400 4 00055          TSX SE5,4          GET INDEX OF PRED            F5G37470
02220   0 50000 1 07337          CLA PRED,1         GET AND                      F5G37480
02221   0 60100 0 00477          STO SHV2           STORE PRED ENTRY             F5G37490
02222   0 07400 4 00067          TSX SE1,4          GET INDEX OF BBB TABLE ENTRY F5G37500
02223  -0 53400 4 00324          LXD LD3,4          NO, SET COUNT TO 3           F5G37510
02224   0 56000 0 00477 SH2      LDQ SHV2           IS                           F5G37520
02225  -0 77300 4 00022          RQL 18,4           SXD REQUIRED                 F5G37530
02226   0 16200 0 02232          TQP SH3            FOR THIS I.R.                F5G37540
02227   0 50000 1 06444          CLA BBB+2,1        YES, GET AND                 F5G37550
02230  -0 32000 0 00342          ANA TAGMK          EXTRACT THE                  F5G37560
02231   0 60100 4 00471          STO SXD1+3,4       EXIT CONDITIONS              F5G37570
02232   1 77777 1 02233 SH3      TXI SH3+1,1,-1     DOWN THE EXIT CONDITIONS     F5G37580
02233   2 00001 4 02224          TIX SH2,4,1        COUNT TO 3                   F5G37590
02234  -0 50000 0 00477 SH4      CAL SHV2           GET                          F5G37600
02235  -0 32000 0 00332          ANA LT7            AND STORE                    F5G37610
02236   0 76700 0 00003          ALS 3              LXD CASE                     F5G37620
02237   0 62200 0 00465          STD SXD0                                        F5G37630
02240  -0 53400 4 00476          LXD SHV1,4                                      F5G37640
02241   0 02000 4 00001          TRA 1,4            RETURN                       F5G37650
                                 COMPILE AN SXD CASE SUBROUTINE                  F5G37660
02242  -0 63400 4 00501 SI       SXD SIV2,4         STORE RETURN                 F5G37670
02243  -0 63400 1 00500          SXD SIV1,1         STORE INDEX OF SXD CASE      F5G37680
02244   0 07400 4 02426          TSX SL1,4          RECORD ANY HANGING TRANSFER  F5G37690
02245  -0 50000 0 00443          CAL BBNO                                        F5G37700
02246   0 77100 0 00022          ARS 18                                          F5G37710
02247   0 60100 0 00657          STO SLV2           STORE BB NO.                 F5G37720
02250   0 07400 4 00067          TSX SE1,4          GET INDEX OF BB              F5G37730
02251   0 50000 1 06442          CLA BBB,1                                       F5G37740
02252  -0 32000 0 00337          ANA ADDMK                                       F5G37750
02253   0 60100 0 00503          STO SIV4           STORE LOC. OF 1ST PRED IN BB F5G37760
02254  -0 53400 1 00500          LXD SIV1,1         FORM                         F5G37770
02255   0 50000 1 01101          CLA SXST,1         LOC. OF THIS PRED -          F5G37780
02256  -0 32000 0 00337          ANA ADDMK          LOC. OF 1ST  PRED IN BB      F5G37790
02257   0 40200 0 00503          SUB SIV4                                        F5G37800
02260   0 76700 0 00012          ALS 10                                          F5G37810
02261   0 40000 0 00657          ADD SLV2                                        F5G37820
02262   0 40000 0 00410          ADD SIK2                                        F5G37830
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02263   0 60100 0 00657          STO SLV2          STORE THE LOC. OF 1ST SXD                          F5G37840
02264  -0 53400 2 00324          LXD LD3,2                                                            F5G37850
02265   0 50000 1 01102 SI2      CLA SXST+1,1                                                         F5G37860
02266   0 10000 0 02305          TZE SI1           IS THIS TAG 0                                      F5G37870
02267  -0 63400 1 00504          SXD SIV5,1        NO, PRESERVE INDEX 1                               F5G37880
02270   0 60100 0 00505          STO SIV6          PRESERVE THE TAG                                   F5G37890
02271   0 50000 0 00657          CLA SLV2          PUT LOCATION WORD ON TAPE                          F5G37900
02272   0 07400 4 02367          TSX SK,4                                                             F5G37910
02273   0 50000 0 00314          CLA ZERO          AND RESET TO 0                                     F5G37920
02274   0 60100 0 00657          STO SLV2                                                             F5G37930
02275   0 50000 0 00411          CLA SIK3          PUT SXD ON TAPE                                    F5G37940
02276   0 07400 4 02367          TSX SK,4                                                             F5G37950
02277   0 50000 0 00505          CLA SIV6          14*2**-5+TAU-TAG IS                                F5G37960
02300   0 40000 0 00415          ADD SMK4          SYMBOLIC ADDRESS                                   F5G37970
02301   0 07400 4 02367          TSX SK,4                                                             F5G37980
02302   0 50000 2 00361          CLA VSTAG,2                                                          F5G37990
02303   0 07400 4 02367          TSX SK,4          PUT S-TAG ON TAPE                                  F5G38000
02304  -0 53400 1 00504          LXD SIV5,1                                                           F5G38010
02305   1 77777 1 02306 SI1      TXI SI1+1,1,-1                                                       F5G38020
02306   2 00001 2 02265          TIX SI2,2,1       COUNT TO 3, FORM N+1                               F5G38030
02307  -0 53400 1 00500          LXD SIV1,1                                                           F5G38040
02310   0 50000 1 01101          CLA SXST,1                                                           F5G38050
02311  -0 73400 2 00000          PDX 0,2                                                              F5G38060
02312  -3 00000 2 02321          TXL SI3,2,0       IS THE LXD CASE 0                                  F5G38070
02313  -3 00000 1 02325          TXL SI4,1,0       NO, IS THIS THE ST POSITION                        F5G38080
02314   3 77757 1 02334          TXH SI6,1,-16-1   IS THIS ASSOCIATED WITH A LIST                      F5G38090
02315   0 77100 0 00022 SI5      ARS 18            NO                                                 F5G38100
02316   0 07400 4 02403          TSX SL,4          COMPILE A TRA TO LXD CASE                          F5G38110
02317  -0 53400 4 00501          LXD SIV2,4                                                           F5G38120
02320   0 02000 4 00003          TRA 3,4           RETURN TO LOC. OF TSX + 3                          F5G38130
02321   0 50200 0 00315 SI3      CLS ONEA          RECORD THAT THERE IS                               F5G38140
02322   0 60100 0 00660          STO SLV3          A HANGING TRA TO 0 CASE                            F5G38150
02323  -0 53400 4 00501          LXD SIV2,4                                                           F5G38160
02324   0 02000 4 00001          TRA 1,4           RETURN TO LOC. OF TSX +1                           F5G38170
02325   0 60100 0 00465 SI4      STO SXD0          STORE LXD CASE AS ARG FOR SJ                       F5G38180
02326   0 07400 4 02336          TSX SJ,4          IS SXD CASE INST POS. ASSOC. WITH LIST             F5G38190
02327   0 00000 0 00000                            SHOULDENT BE WITH CASE 0                           F5G38200
02330   0 02000 0 02334          TRA SI6           YES                                                F5G38210
02331  -0 53400 1 00500          LXD SIV1,1        NO                                                 F5G38220
02332   0 50000 1 01101          CLA SXST,1                                                           F5G38230
02333   0 02000 0 02315          TRA SI5           GO TO COMPILE TRA TO LXD CASE                      F5G38240
02334  -0 53400 4 00501 SI6      LXD SIV2,4        RETURN TO 2 FOLLOWING TSX WITH                     F5G38250
02335   0 02000 4 00002          TRA 2,4           INDEX OF TOP QUANTITY IN 1 AND LIST INDEX IN2      F5G38260
                                  DETERMINE IF THE SXD CASE IS ASSOCIATED WITH AN LXD LIST           F5G38270
02336  -0 63400 4 00507 SJ       SXD SJV2,4                                                           F5G38280
02337   0 50000 0 00465          CLA SXD0                                                             F5G38290
02340  -0 32000 0 00335          ANA DECMK                                                            F5G38300
02341   0 60100 0 00506          STO SJV1                                                             F5G38310
02342   0 10000 0 02363          TZE SJ3           IS THIS THE 0 LXD CASE                             F5G38320
02343  -0 53400 4 00314          LXD ZERO,4        NO, SET COUNT TO 3, N TO 1                         F5G38330
02344  -0 53400 2 00324          LXD LD3,2         2 HAS THE COUNTER                                  F5G38340
02345   0 50000 4 01111 SJ2      CLA SXAS1,4                                                          F5G38350
02346   0 12000 0 02357          TPL SJ1           DOES THE LIST ALREADY HAVE SXD                     F5G38360
02347   0 50000 2 00674          CLA Z2V1+3,2      NO                                                 F5G38370
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02350 -0 73400 1 00000        PDX 0,1              GET INDEX OF TOP QUANTITY                    F5G38380
02351  0 50000 1 00676        CLA LIST1,1                                                       F5G38390
02352  0 76700 0 00022        ALS 18                                                            F5G38400
02353  0 40200 0 00506        SUB SJV1             IS THIS CASE SAME AS CASE HEADUNG LIST N      F5G38410
02354 -0 10000 0 02357        TNZ SJ1                                                           F5G38420
02355 -0 53400 4 00507        LXD SJV2,4           YES                                          F5G38430
02356  0 02000 4 00002        TRA 2,4              RETURN, INDEX OF TOP OF LIST IN 1            F5G38440
02357  1 77777 4 02360 SJ1    TXI SJ1+1,4,-1                                                    F5G38450
02360  2 00001 2 02345        TIX SJ2,2,1          COUNT TO 3                                   F5G38460
02361 -0 53400 4 00507        LXD SJV2,4                                                        F5G38470
02362  0 02000 4 00003        TRA 3,4                                                           F5G38480
02363 -0 53400 4 00507 SJ3    LXD SJV2,4                                                        F5G38490
02364  0 50000 0 01105        CLA SXAS0                                                         F5G38500
02365  0 12000 4 00003        TPL 3,4                                                           F5G38510
02366  0 02000 4 00001        TRA 1,4                                                           F5G38520
                                 PUT WORD OF COMPILED INST ON TAPE                             F5G38530
02367 -0 53400 1 00655 SK     LXD SKV1,1                                                        F5G38540
02370  0 60100 1 00655        STO CLST,1           STORE THE WORD IN CLST                       F5G38550
02371  2 00001 1 02401        TIX SK1,1,1          COUNT NO OF WORDS  IS CLST FULL              F5G38560
02372  0 53400 1 00412        LXA SKK1,1           YES                                          F5G38570
02373 -0 63400 1 00655        SXD SKV1,1           RESET THE INDEX                              F5G38580
02374  0 76600 0 00223        WTB OTAPE            WRITE THE BLOCK ON                           F5G38590
02375  0 70000 1 00655 SK2    CPY CLST,1           THE OUTPUT TAPE                              F5G38600
02376  2 00001 1 02375        TIX SK2,1,1                                                       F5G38610
02377  0 76600 0 00333        IOD                                                               F5G38620
02400  0 02000 4 00001        TRA 1,4                                                           F5G38630
02401 -0 63400 1 00655 SK1    SXD SKV1,1           STORE INDEX OF NEXT WORD                     F5G38640
02402  0 02000 4 00001        TRA 1,4                                                           F5G38650
                                 SUBROUTINE FOR COMPILING TRA TO LXD CASE                      F5G38660
02403 -0 32000 0 00434 SL     ANA Z2K5             FORM                                         F5G38670
02404  0 76700 0 00012        ALS 10               THE                                          F5G38680
02405  0 40000 0 00413        ADD SLK2             ADDRESS                                      F5G38690
02406  0 60100 0 00657        STO SLV2             OF                                           F5G38700
02407  0 50000 0 00443        CLA BBNO             THE                                          F5G38710
02410 -0 32000 0 00335        ANA DECMK                                                         F5G38720
02411  0 77100 0 00022        ARS 18               TRA IN                                       F5G38730
02412 -0 60200 0 00657        ORS SLV2             SLV2                                         F5G38740
02413 -0 63400 4 00656        SXD SLV1,4           STORE RETURJ                                 F5G38750
02414  0 50000 0 00314 SL2    CLA ZERO             PUT 0 LOCATION                               F5G38760
02415  0 07400 4 02367        TSX SK,4             ON TAPE                                      F5G38770
02416  0 50000 0 00350        CLA LTRA                                                          F5G38780
02417  0 07400 4 02367        TSX SK,4             PUT SYMB. ADDR. ON TAPE                      F5G38790
02420  0 50000 0 00657        CLA SLV2                                                          F5G38800
02421  0 07400 4 02367        TSX SK,4             PUT SYMB. ADDR ON TAPE                       F5G38810
02422  0 50000 0 00314        CLA ZERO                                                          F5G38820
02423  0 07400 4 02367        TSX SK,4             ANOTHER 0                                    F5G38830
02424 -0 53400 4 00656        LXD SLV1,4                                                        F5G38840
02425  0 02000 4 00001        TRA 1,4                                                           F5G38850
                                 SUBROUTINE FOR PUTTING HANGING TRA 0 ON TAPE                  F5G38860
02426  0 50000 0 00660 SL1    CLA SLV3                                                          F5G38870
02427  0 12000 4 00001        TPL 1,4              RETURN IF THERE IS NO HANGING TRA0           F5G38880
02430 -0 63400 4 00656        SXD SLV1,4           OTHERWISE , STORE RETURN AND                 F5G38890
02431  0 50000 0 00443        CLA BBNO             GET                                          F5G38900
02432  0 07400 4 00070        TSX SE,4             THE                                          F5G38910
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02433   0 50000 1 06447          CLA BBB+5,1          SYMBOLIC LOCATION                                  F5G38920
02434   0 60100 0 00657          STO SLV2             OF 1ST INST IN BB AND                              F5G38930
02435   0 50000 0 00314          CLA ZERO             STORE IN SYNBOLIS ADDR WORD                        F5G38940
02436   0 60100 0 00660          STO SLV3             SET INDICATOR TO SAY NO HANGING TRA                F5G38950
02437   0 02000 0 02414          TRA SL2                                                                 F5G38960
                                 COMPILE AN LXD LIST                                                     F5G38970
02440   0 50000 2 00715 SM       CLA LLIND,2          IMMEDIATELY RETURN IF LIST IS                      F5G38980
02441   0 12000 4 00001          TPL 1,4              ALREADY COMPOLED                                   F5G38990
02442   0 60200 2 00715          SLW LLIND,2          RECORD LIST ALREADY COMPILED                       F5G39000
02443  -0 63400 4 00661          SXD SMV1,4           STORE RETURN                                       F5G39010
02444   0 50000 2 00422          CLA Z2K1+3,2         COMPUTE THE                                        F5G39020
02445   0 40200 0 00316          SUB ONED             INDEX OF SUB BOTTEM                                F5G39030
02446   0 62200 0 02453          STD SM1              POSITION OF LIDT                                   F5G39040
02447   0 62200 0 02513          STD SM5              SET END TEST                                       F5G39050
02450   0 50000 1 00676 SM6      CLA LIST1,1                                                             F5G39060
02451  -0 12000 0 02521          TMI SM8              DOES THIS ELEMENT OF LIST REPRESENT AN LXD         F5G39070
02452  -3 00000 1 02454          TXL SM1+1,1,0                                                           F5G39080
02453  -3 00000 1 02455 SM1      TXL SM10,1,SET       YES, IS ELEMENT IN SUB BOTTOM POS.                 F5G39090
02454  -0 40000 1 00677          SBM LIST1+1,1        NO                                                 F5G39100
02455   0 60100 0 00662 SM10     STO SMV2             STORE THE TAG AWAY                                 F5G39110
02456   0 50000 0 00443          CLA BBNO             FORN                                               F5G39120
02457  -0 32000 0 00335          ANA DECMK            THE                                                F5G39130
02460   0 76500 0 00034          LRS 28               LOCATION                                           F5G39140
02461   0 50000 1 00676          CLA LIST1,1                                                             F5G39150
02462   0 76300 0 00012          LLS 10                                                                  F5G39160
02463   0 40000 0 00413          ADD SMK1                                                                F5G39170
02464  -0 63400 1 00663          SXD SMV3,1           STORE INDEX OF LIST QUANTITY                       F5G39180
02465   0 60100 0 00664          STO SMV4                                                                F5G39190
02466   0 07400 4 02426          TSX SL1,4            RECORD ANY HANGING TRAO                            F5G39200
02467   0 50000 0 00664          CLA SMV4                                                                F5G39210
02470   0 07400 4 02367          TSX SK,4             COMPILE THE LOCATION                               F5G39220
02471   0 50000 0 00414          CLA SMK2                                                                F5G39230
02472   0 07400 4 02367          TSX SK,4             COMPILE LXD                                        F5G39240
02473   0 50000 0 00443          CLA BBNO                                                                F5G39250
02474   0 07400 4 00070          TSX SE,4             FIND INDEX OF BB                                   F5G39260
02475   0 50000 0 00662          CLA SMV2                                                                F5G39270
02476   0 34000 0 00320 SM3      CAS L4               IS THIS THE CORRECT ENT. REQUIREMENT               F5G39280
02477   0 02000 0 02501          TRA SM2                                                                 F5G39290
02500   0 02000 0 02503          TRA SM4              YES                                                F5G39300
02501   0 76700 0 00001 SM2      ALS 1                NO, SHIFT IT LEFT ONE                              F5G39310
02502   1 77777 1 02476          TXI SM3,1,-1         AND INDEX TO NEXT ENRR. REQUIREMENT                F5G39320
02503  -0 50000 1 06444 SM4      CAL BBB+2,1          FORM                                               F5G39330
02504   0 77100 0 00022          ARS 18               AND COMPILE                                        F5G39340
02505   0 40000 0 00415          ADD SMK4             THE                                                F5G39350
02506   0 07400 4 02367          TSX SK,4                                                                F5G39360
02507   0 50000 0 00662          CLA SMV2             COMPILE THE TAG                                    F5G39370
02510   0 07400 4 02367          TSX SK,4                                                                F5G39380
02511  -0 53400 1 00663          LXD SMV3,1           IS THE ELEMENT IN SUB BOTTOM POSITION              F5G39390
02512  -3 00000 1 02514          TXL SM5+1,1,0                                                           F5G39400
02513  -3 00000 1 02515 SM5      TXL SM7,1,SET                                                           F5G39410
02514   1 77777 1 02450          TXI SM6,1,-1         NO, INDEX TO NEXT LIST POS.                        F5G39420
02515   0 50200 0 00315 SM7      CLS ONEA                                                                F5G39430
02516   0 60100 0 00660          STO SLV3             RECORD THAT THERE IS HANGING TRA 0                 F5G39440
02517  -0 53400 4 00661 SM9      LXD SMV1,4                                                              F5G39450
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02520   0 02000 4 00001          TRA 1,4              RETURN                                                F5G39460
02521   0 10000 0 02515 SM8      TZE SM7              GO TO RECORD HANGING TRA                              F5G39470
02522   0 76000 0 00003          SSP                                                                        F5G39480
02523   0 07400 4 02403          TSX SL,4             RECORD A TRA TO LXD CASE                              F5G39490
02524   0 02000 0 02517          TRA SM9                                                                    F5G39500
                                 THE METHODS OF BRINGNNG IN BLOCKS OF COMPILED INST. AND                    F5G39510
                                 CHECKING FOR ENDINGS IS THE SAME AS IN PASS 2 OF FLOW ANAL.                F5G39520
02525 -2 00144 2 02527 FNDAS     TNX 2FNDS,2,ZINST    IS BLOCK OF INST. ALL USED                            F5G39530
02526   0 07400 4 03472          TSX RDINS,4          YES, READ IN NEXT BLOCK                               F5G39540
02527 -0 50000 2 01076 2FNDS     CAL INST-3,2         IS THIS INST. TAGGED                                  F5G39550
02530 -0 32000 0 00340           ANA STMSK                                                                  F5G39560
02531   0 10000 0 03336          TZE CI7A                                                                   F5G39570
02532 -0 53400 4 00455 CI4       LXD 9CNT,4           YES                                                   F5G39580
02533   2 00001 4 02547          TIX CI5,4,1          COUNT TO 9, IS STAG WORD EXHAUSTED                    F5G39590
02534 -0 63400 2 00447           SXD BBOX,2           YES, GET ANOTHER                                      F5G39600
02535   0 50000 0 00456          CLA STGWD            INCREASE THE NO. OF CURRENT STAG WORD                 F5G39610
02536   0 40000 0 00315          ADD ONEA                                                                   F5G39620
02537   0 60100 0 00456          STO STGWD                                                                  F5G39630
02540   0 07400 4 00032          TSX SE4,4            GET INDEX OF NEXT STAG WORD                           F5G39640
02541   0 50000 1 05061          CLA STAG,1                                                                 F5G39650
02542   0 60100 0 00454          STO STAGN2           GET AND STORE                                         F5G39660
02543   0 76700 0 00002          ALS 2                                                                      F5G39670
02544   0 60100 0 00453          STO STAGN1           THE STAG WORD                                         F5G39680
02545 -0 53400 2 00447           LXD BBOX,2           RESTORE INDEX REGISER 2                               F5G39690
02546 -0 53400 4 00330           LXD LD9,4            RESET COUNT TO 9                                      F5G39700
02547 -0 63400 4 00455 CI5       SXD 9CNT,4                                                                 F5G39710
02550 -0 50000 2 01076           CAL INST-3,2                                                               F5G39720
02551 -0 32000 0 00342           ANA TAGMK            EXTRACT THE TAG                                       F5G39730
02552   0 60100 0 00452          STO TAG                                                                    F5G39740
02553 -0 50000 0 00453           CAL STAGN1                                                                 F5G39750
02554 -0 32000 0 00324           ANA LD3              EXTRACT THE S-TAG                                     F5G39760
02555 -0 73400 4 00000           PDX 0,4                                                                    F5G39770
02556 -0 50000 4 00361           CAL VSTAG,4          CONVERT S-TAG TO 1,2, OR 4                            F5G39780
02557   0 62100 2 01076          STA INST-3,2         REPLACE TAU-TAG BY S-TAG                              F5G39790
02560   0 40200 0 00320          SUB L4               IS THE TAG 4                                          F5G39800
02561 -0 10000 0 02564           TNZ CI5A                                                                   F5G39810
02562 -0 76000 0 00003           SSM                                                                        F5G39820
02563   0 60100 0 00460          STO CIND             YES, RECORD IR 4 NECESSARY                            F5G39830
02564 -0 50000 0 00454 CI5A      CAL STAGN2                                                                 F5G39840
02565   0 76700 0 00011          ALS 9                                                                      F5G39850
02566 -0 76000 0 00001           PBT                  IS AN LXD NECESSARY                                   F5G39860
02567   0 02000 0 02602          TRA SKLX             NO                                                    F5G39870
02570   0 50000 0 00314          CLA ZERO             YES                                                   F5G39880
02571   0 07400 4 02367          TSX SK,4             COMPILE LOCATION OF 0                                 F5G39890
02572   0 50000 0 00414          CLA SMK2             COMPILE LXD                                           F5G39900
02573   0 07400 4 02367          TSX SK,4                                                                   F5G39910
02574   0 50000 0 00452          CLA TAG              COMPILE THE SYMB. ADDR. OF THE CELL                   F5G39920
02575 -0 50100 0 00415           ORA SMK4                                                                   F5G39930
02576   0 07400 4 02367          TSX SK,4                                                                   F5G39940
02577   0 50000 2 01076          CLA INST-3,2         COMPILE THE S-TAG                                     F5G39950
02600 -0 32000 0 00337           ANA ADDMK                                                                  F5G39960
02601   0 07400 4 02367          TSX SK,4                                                                   F5G39970
02602 -0 50000 2 01100 SKLX      CAL INST-1,2                                                               F5G39980
02603 -0 32000 0 00343           ANA LFTMSK                                                                 F5G39990
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02604   0 60200 0 00457          SLW TMP10
02605   0 50000 0 00457          CLA TMP10
02606   0 34000 0 00345          CAS LLXP
02607   0 02000 0 02637          TRA CI1
02610   0 02000 0 02612          TRA SKLY
02611   0 02000 0 02637          TRA CI1
02612  -0 50000 0 00454  SKLY    CAL STAGN2
02613   0 76700 0 00011          ALS 9
02614  -0 76000 0 00001          PBT
02615   0 02000 0 03462          TRA CI3A
02616   0 50000 2 01076          CLA INST-3,2
02617   0 60200 0 00461          SLW CPIND
02620  -0 32000 0 00337          ANA ADDMK
02621   0 40200 0 00320          SUB L4
02622  -0 10000 0 02667          TNZ CI6
02623  -0 50000 2 01074          CAL INST-5,2
02624  -0 32000 0 00343          ANA LFTMSK
02625   0 60200 0 00457          SLW TMP10
02626   0 50000 0 00457          CLA TMP10
02627   0 40200 0 00414          SUB LLXD
02630  -0 10000 0 02667          TNZ CI6
02631   0 50000 2 01072          CLA INST-7,2
02632  -0 32000 0 00337          ANA ADDMK
02633   0 40200 0 00320          SUB L4
02634  -0 10000 0 02667          TNZ CI6
02635   0 76000 0 00141          PSE 97
02636   0 02000 0 02667          TRA CI6
02637   0 34000 0 00347  CI1     CAS LDED
02640   0 02000 0 02642          TRA CI2
02641   0 02000 0 03462          TRA CI3A
02642   0 50000 0 00454  CI2     CLA STAGN2
02643   0 12000 0 02667          TPL CI6
02644   0 50000 2 01101          CLA INST,2
02645   0 07400 4 02367          TSX SK,4
02646   0 50000 2 01100          CLA INST-1,2
02647   0 07400 4 02367          TSX SK,4
02650   0 50000 2 01077          CLA INST-2,2
02651   0 07400 4 02367          TSX SK,4
02652   0 50000 2 01076          CLA INST-3,2
02653   0 07400 4 02367          TSX SK,4
02654   0 50000 0 00314          CLA ZERO
02655   0 60100 0 00461          STO CPIND
02656   0 07400 4 02367          TSX SK,4
02657   0 50000 0 00411          CLA SIK3
02660   0 07400 4 02367          TSX SK,4
02661   0 50000 0 00452          CLA TAG
02662  -0 50100 0 00415          ORA SMK4
02663   0 07400 4 02367          TSX SK,4
02664   0 50000 2 01076          CLA INST-3,2
02665  -0 32000 0 00337          ANA ADDMK
02666   0 07400 4 02367          TSX SK,4
02667  -0 50000 0 00453  CI6     CAL STAGN1
02670   0 76700 0 00002          ALS 2
02671   0 60200 0 00453          SLW STAGN1
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                                                                F5G40000
                                                                F5G40010
IS THIS AN LXP                                                  F5G40020
                                                                F5G40030
  YES.                                                          F5G40031
                                                                F5G40032
                                                                F5G40040
                                                                F5G40041
  IS LXD NECESSARY.                                             F5G40042
  NO.                                                           F5G40043
  YES.  IS S-TAG=4.                                             F5G40044
  RECORD DONT COMPILE.                                          F5G40045
                                                                F5G40046
                                                                F5G40047
  NOT 4.                                                        F5G40048
  IS NEXT INSTR                                                 F5G40049
                                                                F5G40050
  AN LXD                                                        F5G40051
                                                                F5G40052
  WITH REAL                                                     F5G40053
  IR4.                                                          F5G40054
                                                                F5G40055
  IF SO,                                                        F5G40056
                                                                F5G40057
  TURN ON                                                       F5G40058
                                                                F5G40059
  SENSE LIGHT.                                                  F5G40060
  IS IT A DED                                                   F5G40061
                                                                F5G40062
YES                                                             F5G40070
                                                                F5G40080
IS SXD REQUIRED                                                 F5G40090
NEITHER LXP NOR DED, COMPILE THE                                F5G40100
INST.                                                           F5G40110
                                                                F5G40120
                                                                F5G40130
                                                                F5G40140
                                                                F5G40150
                                                                F5G40160
                                                                F5G40170
YES, COMPILE AN SXD, ZERO LOCATION                              F5G40180
RECORD THAT THIS INST. SHOULDNT BE CONPILED                     F5G40190
                                                                F5G40200
SXD IN BCD                                                      F5G40210
                                                                F5G40220
SYMB. ADDR. OF TAU-TAG CELL                                     F5G40230
                                                                F5G40240
                                                                F5G40250
AND TAG WORD                                                    F5G40260
                                                                F5G40270
                                                                F5G40280
  NO SXD REQUIRED.                                              F5G40290
                                                                F5G40300
                                                                F5G40310
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02672 -0 50000 0 00454          CAL STAGN2                                      F5G40320
02673  0 76700 0 00001          ALS 1                                           F5G40330
02674  0 60200 0 00454          SLW STAGN2                                      F5G40340
02675  0 02000 0 02700          TRA CKLOC          GO TO CHECK FOR ENDINGS      F5G40350
02676 -0 76000 0 00003 CI7      SSM                                             F5G40360
02677  0 60100 0 00461          STO CPIND          RECODD LATER COMPILING NECESSARY F5G40370
                                NOW THE END OF BB IS CHECKED FOR                F5G40380
02700  0 50000 2 01101 CKLOC    CLA INST,2         IF NO LOCATION SYMBOL , THIS CANT BE F5G40390
02701  0 10000 0 02723          TZE TR3S           ENSING OTHER THAN CERTAINTY  F5G40400
02702  0 50000 2 01075          CLA INST-4,2       IS THIS LAST INST IN BB      F5G40410
02703  0 40200 0 00444          SUB NXTLOC                                      F5G40420
02704  0 10000 0 02743          TZE ENDBB          YES, LOOK FOR TYPE OF ENDING F5G40430
02705 -0 53400 4 00327          LXD LD8,4          NO, CHECK FOR ENDING OF GROUP OF INST F5G40440
02706 -0 50000 2 01100          CAL INST-1,2                                    F5G40450
02707 -0 32000 0 00335          ANA DECMK          LOOK AT OP CODE              F5G40460
02710  0 40200 4 00374 SUBP     SUB LNTOP+1,4      COMPARE TO OP CODES OF POSSIBLE F5G40470
02711  0 10000 4 02737          TZE TRTIN+1,4      ENDINGS    TRANSFER WHEN FOUND F5G40480
02712  2 00001 4 02710          TIX SUBP,4,1       TRY NEXT POSSIBILITY         F5G40490
02713 -0 50000 2 01100          CAL INST-1,2       NOT FOUND, LOOK FORCONDITIONAL TRANSFER F5G40500
02714 -0 32000 0 00400 6ANA     ANA FSTLT                                       F5G40510
02715  0 60200 0 00457          SLW TMP10                                       F5G40520
02716  0 50000 0 00457          CLA TMP10                                       F5G40530
02717  0 40200 0 00401          SUB FSTT                                        F5G40540
02720  0 10000 0 03162          TZE TTYPE          IS A CONDITIONAL TRANSFER    F5G40550
02721  0 07400 4 02172 NOEND    TSX SCMI,4         NOT AN END OD BB COMPILE INST F5G40560
02722  1 00004 2 02525          TXI FNDAS,2,4      IF IT NEEDS TO BE            F5G40570
02723  0 50000 2 01075 TR3S     CLA INST-4,2       IS THIS LAST INST IN BB      F5G40580
02724  0 40200 0 00444          SUB NXTLOC                                      F5G40590
02725  0 10000 0 03042          TZE SEQTR          YES                          F5G40600
02726  0 02000 0 02721          TRA NOEND          NO                           F5G40610
                                 TRANSFER VECTOR       SEE SUBP+1 ABOVE       F5G40620
02727  0 02000 0 03046          TRA GOTOV          TRA IS OP CODE               F5G40630
02730  0 02000 0 03115          TRA IF2PS          PSE                          F5G40640
02731  0 02000 0 03171          TRA IF2CS          DCT                          F5G40650
02732  0 02000 0 03171          TRA IF2CS          RTT                          F5G40660
02733  0 02000 0 03125          TRA MSECS          MSE                          F5G40670
02734  0 02000 0 03226          TRA IF3CS          TZE                          F5G40680
02735  0 02000 0 03324          TRA STPCSZ           HPR                        F5G40690
02736  0 02000 0 02721 TRTIN    TRA NOEND          TSX                          F5G40700
                                THE FOLLOWING IS 4 WORD TRANSFER VECTOR, SEE ENDBB BELOW F5G40710
02737  0 02000 0 02752          TRA TRACS          TRAIS OP CODE                F5G40720
02740  0 02000 0 03037          TRA DOCS           TXL                          F5G40730
02741  0 02000 0 03042          TRA PAUSE          HPR                          F5G40740
02742  0 02000 0 02755 TRTTR    TRA TRAC3          TTR                          F5G40750
02743 -0 53400 4 00325 ENDBB    LXD LD4,4          THIS INST ENDS A BASIC       F5G40760
02744  0 50000 2 01100          CLA INST-1,2       BLOCK    LOOKAT OP CODE      F5G40770
02745 -0 32000 0 00335          ANA DECMK          FOR TYPE OF ENDING           F5G40780
02746  0 40200 4 00400 6SUB     SUB LTROP+1,4                                   F5G40790
02747  0 10000 4 02743          TZE TRTTR+1,4      TRANSFER IF IOUND            F5G40800
02750  2 00001 4 02746          TIX 6SUB,4,1       TRY NEXT POSSIBILITY         F5G40810
02751  0 02000 0 03042          TRA SEQTR                                       F5G40820
02752 -0 50000 2 01077 TRACS    CAL INST-2,2       OP CODE IS TRA    SEE IF ADDRESS F5G40830
02753 -0 32000 0 00403          ANA PFXMK          IS IN PROGRAM  UNCONDITITONAL TRANSFER F5G40840
02754 -0 10000 0 02772          TNZ GOTON          IF TRANSFER     IT IS A GO TO N F5G40850
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02755 -0 63400 2 00447 TRAC3  SXD BBOX,2          THIS IS GO TO ALPHA                          F5G40860
02756 -0 50000 0 00443        CAL BBNO                                                       F5G40870
02757  0 77100 0 00022        ARS 18                                                         F5G40880
02760  0 60100 0 00462        STO ARG1           STORE BBNO AS ARGUMENT OF SAD               F5G40890
02761  0 07400 4 00067        TSX SE1,4                                                      F5G40900
02762 -0 50000 1 06442        CAL BBB,1                                                      F5G40910
02763  0 07400 4 00044        TSX SE6,4          GET SUCC. TABLE ENTRY                       F5G40920
02764 -0 50000 1 07555        CAL SUCC,1                                                     F5G40930
02765  0 07400 4 02126        TSX SAD,4          GO TO DETERMINE SYMBOLIC ADDRESS            F5G40940
02766 -0 53400 2 00447        LXD BBOX,2                                                     F5G40950
02767  0 60200 2 01077        SLW INST-2,2       TEPLACE SYMBOLIC ADDR.                      F5G40960
02770  0 07400 4 02172        TSX SCMI,4         COMPILE THE INSTR                           F5G40970
02771  1 00004 2 03544        TXI BEGBB,2,4      BEGINNING OF BB, INDEX TO NEXT INSTR        F5G40980
02772 -0 63400 2 00447 GOTON  SXD BBOX,2                                                     F5G40990
02773  0 50000 0 00443        CLA BBNO                                                       F5G41000
02774  0 07400 4 00070        TSX SE,4                                                       F5G41010
02775  0 50000 1 06442        CLA BBB,1          CHECK TO MAKE SURE THIS IS GO TO N           F5G41020
02776  0 77100 0 00041        ARS 33                                                         F5G41030
02777  0 40000 0 00315        ADD ONEA                                                       F5G41040
03000  0 10000 0 03002        TZE GON1                                                       F5G41050
03001  0 07400 4 00004        TSX 4,4        DIAGNOSTIC THIS ISNT GO N                       F5G41060
03002 -0 50000 1 06443 GON1   CAL BBB+1,1                                                    F5G41070
03003  0 77100 0 00041        ARS 33             PUT SXD CASE IN TMP10                       F5G41080
03004  0 60200 0 00457        SLW TMP10                                                      F5G41090
                                  NOW ANY SXD BEFIR GO TO N ARE COMPILED                     F5G41100
03005 -0 53400 2 00324        LXD LD3,2                                                      F5G41110
03006  0 50000 2 00361 GON3   CLA VSTAG,2         DOES THIS THIS IR NEED SXD                  F5G41120
03007 -0 32000 0 00457        ANA TMP10                                                      F5G41130
03010  0 10000 0 03032        TZE GON2                                                       F5G41140
03011 -0 63400 1 00451        SXD ABOX,1         YES                                         F5G41150
03012  0 56000 0 00314        LDQ ZERO           REPLACE LOCATION BY 0 AND                   F5G41160
03013 -0 53400 4 00447        LXD BBOX,4         PUT LOCATION ON THE                         F5G41170
03014  0 50000 4 01101        CLA INST,4         SXD INST.                                   F5G41180
03015 -0 60000 4 01101        STQ INST,4         SXDINST                                     F5G41190
03016  0 07400 4 02367        TSX SK,4                                                       F5G41200
03017  0 50000 0 00411        CLA LSXD                                                       F5G41210
03020  0 07400 4 02367        TSX SK,4                                                       F5G41220
03021 -0 53400 1 00451        LXD ABOX,1                                                     F5G41230
03022 -0 50000 1 06444        CAL BBB+2,1                                                    F5G41240
03023 -0 32000 0 00342        ANA TAGMK                                                      F5G41250
03024 -0 50100 0 00415        ORA IDTAG                                                      F5G41260
03025  0 07400 4 02367        TSX SK,4                                                       F5G41270
03026 -0 50000 0 00457        CAL TMP10                                                      F5G41280
03027 -0 32000 2 00361        ANA VSTAG,2                                                    F5G41290
03030  0 07400 4 02367        TSX SK,4                                                       F5G41300
03031 -0 53400 1 00451        LXD ABOX,1                                                     F5G41310
03032  1 77777 1 03033 GON2   TXI GON2+1,1,-1                                               F5G41320
03033  2 00001 2 03006        TIX GON3,2,1                                                   F5G41330
03034 -0 53400 2 00447        LXD BBOX,2                                                     F5G41340
03035  0 07400 4 02172        TSX SCMI,4         COMPILE THE INST                            F5G41350
03036  1 00004 2 03544        TXI BEGBB,2,4                                                  F5G41360
03037 -0 75400 0 00000 DOCS   PXD 0,0                                                        F5G41370
03040  0 60100 0 01101        STO SXST           T     RECORD THERE IS SEQUDNTIAL TRANSFER   F5G41380
03041  0 02000 0 02755        TRA TRAC3          OTHERWISE DO EXACTLY AS FOR TRA TRANSFER    F5G41390
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03042 -0 75400 0 00000 PAUSE  PXD 0,0                                          F5G41400
                      03042 SEQTR  SYN PAUSE                                   F5G41410
03043  0 60100 0 01101         STO SXST     RECORD SEQUENTIAL TRANSFER         F5G41420
03044  0 07400 4 02172         TSX SCMI,4                                      F5G41430
03045  1 00004 2 03544         TXI BEGBB,2,4                                   F5G41440
03046  0 07400 4 02172 GOTOV   TSX SCMI,4   COMPILE INST IF NECESSARY          F5G41450
03047  0 50000 2 01076         CLA INST-3,2 FIND NO. OF BRANCHES IN VECTOR     F5G41460
03050  0 40200 0 00316         SUB LD1                                         F5G41470
03051  0 62200 0 00463         STD MBOX                                        F5G41480
03052  0 50000 0 00443         CLA BBNO                                        F5G41490
03053  0 77100 0 00022         ARS 18       STORE BBNO FOR SAD ROUTINE         F5G41500
03054  0 60100 0 00462         STO ARG1                                        F5G41510
03055  1 00004 2 03056 GOV4    TXI GOV4+1,2,4                                  F5G41520
03056 -0 63400 2 00450         SXD BBOX1,2                                     F5G41530
03057  0 07400 4 00067         TSX SE1,4                                       F5G41540
03060  0 50000 1 06442         CLA BBB,1                                       F5G41550
03061  0 60200 0 00464         SLW SUCNO    STORE NO OF 1ST SUCCESSOR          F5G41560
03062 -0 53400 2 00450         LXD BBOX1,2                                     F5G41570
03063 -2 00144 2 03065 13TNX   TNX GOV1,2,ZINST IS BLOCK OF INST ALL USED      F5G41580
03064  0 07400 4 03472         TSX RDINS,4  T   READ NEXT BLOCK                F5G41590
03065 -0 63400 2 00450 GOV1    SXD BBOX1,2                                     F5G41600
03066 -0 50000 0 00464         CAL SUCNO                                       F5G41610
03067  0 07400 4 00044         TSX SE6,4                                       F5G41620
03070  0 50000 1 07555         CLA SUCC,1                                      F5G41630
03071  0 07400 4 02126         TSX SAD,4    FINF NEW SYMBOLIC ADDR FOR THIS TRANSFER F5G41640
03072 -0 53400 2 00450         LXD BBOX1,2                                     F5G41650
03073  0 60200 0 00457         SLW TMP10    STORE SYMBOLIC ADDR.               F5G41660
03074 -0 53400 4 00463         LXD MBOX,4                                      F5G41670
03075  2 00001 4 03101         TIX GOV2,4,1 IS THIS THE LAST TRANSFER          F5G41680
03076  0 50000 2 01077         CLA INST-2,2                                    F5G41690
03077  0 40200 0 00444         SUB NXTLOC   1ST INST IN NEXT BB, IS IT         F5G41700
03100  0 10000 0 03104         TZE GOV3                                        F5G41710
03101  0 50000 0 00457 GOV2    CLA TMP10    NO                                 F5G41720
03102  0 60100 2 01077         STO INST-2,2                                    F5G41730
03103  0 07400 4 02172         TSX SCMI,4   COMPILE THE INXT                   F5G41740
03104  1 00004 2 03105 GOV3    TXI GOV3+1,2,4                                  F5G41750
03105 -0 50000 0 00464         CAL SUCNO                                       F5G41760
03106  0 40000 0 00316         ADD ONED                                        F5G41770
03107  0 60200 0 00464         SLW SUCNO                                       F5G41780
03110 -0 53400 4 00463         LXD MBOX,4                                      F5G41790
03111  1 77777 4 03112 GOV5    TXI GOV5+1,4,-1                                 F5G41800
03112 -0 63400 4 00463         SXD MBOX,4                                      F5G41810
03113  3 00000 4 03063         TXH 13TNX,4,0 IS THIS LAST TRA OF VECTOR        F5G41820
03114  0 02000 0 03544         TRA BEGBB    YES                                F5G41830
03115  0 50000 2 01076 IF2PS   CLA INST-3,2 THIS IS PSE LOOK AT ADDRESS TO     F5G41840
03116 -0 32000 0 00404         ANA XXPSX    SEE IF IT IS 164-6                 F5G41850
03117  0 40200 0 00405         SUB XX16X                                       F5G41860
03120  0 10000 0 03125         TZE PSTCS    YES, IT IS A TEST                  F5G41870
03121  0 50000 2 01076         CLA INST-3,2                                    F5G41880
03122 -0 32000 0 00335         ANA DECMK    NO, SEE IF ADDR IS 360             F5G41890
03123  0 40200 0 00406         SUB XX360                                       F5G41900
03124 -0 10000 0 02721         TNZ NOEND    NO, THIS ISNT BB END               F5G41910
03125  0 07400 4 02172 PSTCS   TSX SCMI,4   THIS IS A PSE TEST INST            F5G41920
                      03125 MSECS  SYN PSTCS OR AN MSE INST                    F5G41930
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03126  1 00004 2 03127 PS1    TXI PS1+1,2,4    INEDX TO CONSIEER 1ST TRANSFER                F5G41940
03127 -0 63400 2 00450         SXD BBOX1,2                                                    F5G41950
03130 -0 50000 0 00443         CAL BBNO                                                       F5G41960
03131  0 77100 0 00022         ARS 18                                                         F5G41970
03132  0 60100 0 00462         STO ARG1         STORE BBNO AS ARGUMENT FOR SAD                F5G41980
03133  0 07400 4 00067         TSX SE1,4                                                      F5G41990
03134 -0 50000 1 06442         CAL BBB,1                                                      F5G42000
03135  0 60100 0 00464         STO SUCNO        GETNUMBER OF 1ST SUCCESSOR                    F5G42010
03136  0 40000 0 00316         ADD LD1                                                        F5G42020
03137  0 07400 4 00044         TSX SE6,4        GET THE SECOND SUCC ENTRY                     F5G42030
03140  0 50000 1 07555         CLA SUCC,1                                                     F5G42040
03141  0 07400 4 02126         TSX SAD,4                                                      F5G42050
03142 -0 53400 2 00450         LXD BBOX1,2                                                    F5G42060
03143  0 60200 2 01077         SLW INST-2,2     REPLACE SYMBOLIC ADDRESS                      F5G42070
03144  0 07400 4 02172         TSX SCMI,4                                                     F5G42080
03145  1 00004 2 03146 PS2     TXI PS2+1,2,4    INCREASE INSTR INDEX                          F5G42090
03146  0 50000 2 01077         CLA INST-2,2     IS THIS A SEQUENTIAL TRANSFER                 F5G42100
03147  0 40200 0 00444         SUB NXTLOC                                                     F5G42110
03150  0 10000 0 03307         TZE PS3          YES, SKIP COMPILING THE INST                  F5G42120
03151 -0 63400 2 00450         SXD BBOX1,2      NO                                            F5G42130
03152  0 50000 0 00464         CLA SUCNO                                                      F5G42140
03153  0 07400 4 00044         TSX SE6,4                                                      F5G42150
03154  0 50000 1 07555         CLA SUCC,1                                                     F5G42160
03155  0 07400 4 02126         TSX SAD,4        DETERMINE THE SYMBOLIC ADDRESS                F5G42170
03156 -0 53400 2 00450         LXD BBOX1,2                                                    F5G42180
03157  0 60200 2 01077         SLW INST-2,2     REPLACE SYMBOLIC ADDRESS                      F5G42190
03160  0 07400 4 02172         TSX SCMI,4       COMPILE THE INST.                             F5G42200
03161  1 00004 2 03544         TXI BEGBB,2,4                                                  F5G42210
03162  0 50000 2 01077 TTYPE   CLA INST-2,2     IS THIS TRANSFER TO NEXT INST.                F5G42220
03163  0 34000 2 01101         CAS INST,2                                                     F5G42230
03164  0 02000 0 03166         TRA TTYP1                                                      F5G42240
03165  0 02000 0 02721         TRA NOEND        YES                                           F5G42250
03166  0 40200 0 00402 TTYP1   SUB PCC                                                       F5G42260
03167  0 10000 0 02721         TZE NOEND        YES                                           F5G42270
03170  0 02000 0 03173         TRA CNDTR        NO, IS CONDITIONAL TRANSFER                   F5G42280
03171  0 07400 4 02172 IF2CS   TSX SCMI,4       THIS IS DCT OR RTT                            F5G42290
03172  1 00004 2 03173 RT1     TXI RT1+1,2,4    INDEX TO CONSIDER 1ST TRANSFER                F5G42300
03173 -0 63400 2 00450 CNDTR   SXD BBOX1,2   STORE BBNO. AS ARGUMENT                          F5G42310
03174 -0 50000 0 00443         CAL BBNO         STORE BBNO AS ARGUMENT                        F5G42320
03175  0 77100 0 00022         ARS 18           OF SAD                                        F5G42330
03176  0 60100 0 00462         STO ARG1                                                       F5G42340
03177  0 07400 4 00067         TSX SE1,4                                                      F5G42350
03200 -0 50000 1 06442         CAL BBB,1                                                      F5G42360
03201  0 60100 0 00464         STO SUCNO                                                      F5G42370
03202  0 07400 4 00044         TSX SE6,4        GET THE 1ST SUCC ENTRY                        F5G42380
03203  0 50000 1 07555         CLA SUCC,1                                                     F5G42390
03204  0 07400 4 02126         TSX SAD,4                                                      F5G42400
03205 -0 53400 2 00450         LXD BBOX1,2                                                    F5G42410
03206  0 60200 2 01077         SLW INST-2,2     REPLACE SYMBOLIC ADDRESS                      F5G42420
03207  0 07400 4 02172         TSX SCMI,4       COMPILE THE INST                              F5G42430
03210  1 00004 2 03211 RT2     TXI RT2+1,2,4                                                  F5G42440
03211  0 50000 2 01077         CLA INST-2,2     IS THIS A SEQUENTIAL TRANSFER                 F5G42450
03212  0 40200 0 00444         SUB NXTLOC                                                     F5G42460
03213  0 10000 0 03307         TZE PS3          YES, SKIP COMPILING THE INST                  F5G42470
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03214 -0 63400 2 00450         SXD BBOX1,2                                  F5G42480
03215  0 50000 0 00464         CLA SUCNO                                    F5G42490
03216  0 40000 0 00316         ADD LD1                                      F5G42500
03217  0 07400 4 00044         TSX SE6,4                                    F5G42510
03220  0 50000 1 07555         CLA SUCC,1                                   F5G42520
03221  0 07400 4 02126         TSX SAD,4      DETERMINE THE SYMBOLIC ADDR   F5G42530
03222 -0 53400 2 00450         LXD BBOX1,2                                  F5G42540
03223  0 60200 2 01077         SLW INST-2,2                                 F5G42550
03224  0 07400 4 02172         TSX SCMI,4     COMPILE THE TRANSFER          F5G42560
03225  1 00004 2 03544         TXI BEGBB,2,4                                F5G42570
03226 -0 63400 2 00450 IF3CS   SXD BBOX1,2    THIS IS A TZE INST I. E. AN IF F5G42580
03227 -0 50000 0 00443         CAL BBNO                                     F5G42590
03230  0 77100 0 00022         ARS 18         STORE BB NO. FOR SUBROUTINE   F5G42600
03231  0 60100 0 00462         STO ARG1                                     F5G42610
03232  0 07400 4 00067         TSX SE1,4      ARGUMENT                      F5G42620
03233 -0 50000 1 06442         CAL BBB,1                                    F5G42630
03234  0 60100 0 00464         STO SUCNO                                    F5G42640
03235  0 40000 0 00316         ADD LD1        GET THE SUCC ENTRY            F5G42650
03236  0 07400 4 00044         TSX SE6,4      FOR THE TZE                   F5G42660
03237  0 50000 1 07555         CLA SUCC,1                                   F5G42670
03240  0 07400 4 02126         TSX SAD,4                                    F5G42680
03241 -0 53400 2 00450         LXD BBOX1,2                                  F5G42690
03242  0 60200 2 01077         SLW INST-2,2   REPLACE THE SYMBOLIC ADDREAS   F5G42700
03243  0 07400 4 02172         TSX SCMI,4     COMPILE THE TZE               F5G42710
03244  1 00004 2 03245 IF1     TXI IF1+1,2,4                                F5G42720
03245 -0 50000 2 01100         CAL INST-1,2   CHECK NEXT INST TO SEE        F5G42730
03246 -0 32000 0 00343         ANA LFTMSK     IF IT IS TPL                  F5G42740
03247  0 60200 0 00457         SLW TMP10                                    F5G42750
03250  0 50000 0 00457         CLA TMP10                                    F5G42760
03251  0 40200 0 00344         SUB LTPL                                     F5G42770
03252  0 10000 0 03254         TZE 16CLA                                    F5G42780
03253  0 07400 4 00004 IFHPR   TSX 4,4        IF NOT, DIAGNOSTIC           F5G42790
03254  0 50000 2 01077 16CLA   CLA INST-2,2   DOES THIS EXIT GO TO NEXT BB  F5G42800
03255  0 40200 0 00444         SUB NXTLOC                                   F5G42810
03256 -0 10000 0 03265         TNZ IF2                                      F5G42820
03257  0 50000 2 01073         CLA INST-6,2   YES, DOES NEXT ONE ALSO       F5G42830
03260  0 40200 0 00444         SUB NXTLOC                                   F5G42840
03261 -0 10000 0 03265         TNZ IF2                                      F5G42850
03262 -0 75400 0 00000         PXD 0,0        YES, RECORD SEQUENTIAL TRANSFER F5G42860
03263  0 60100 0 01101         STO SXST                                     F5G42870
03264  1 00010 2 03544         TXI BEGBB,2,8                                F5G42880
03265 -0 63400 2 00450 IF2     SXD BBOX1,2    COMPILE THE TPL               F5G42890
03266  0 50000 0 00464         CLA SUCNO                                    F5G42900
03267  0 07400 4 00044         TSX SE6,4                                    F5G42910
03270  0 50000 1 07555         CLA SUCC,1                                   F5G42920
03271  0 07400 4 02126         TSX SAD,4      FIND AND                      F5G42930
03272 -0 53400 2 00450         LXD BBOX1,2    REPLACE                       F5G42940
03273  0 60200 2 01077         SLW INST-2,2   SYMBOLIC ADDRESS              F5G42950
03274  0 07400 4 02172         TSX SCMI,4                                   F5G42960
03275  1 00004 2 03276 IF3     TXI IF3+1,2,4                                F5G42970
03276 -0 50000 2 01100         CAL INST-1,2   IS THIS TRA                   F5G42980
03277 -0 32000 0 00343         ANA LFTMSK                                   F5G42990
03300  0 60200 0 00457         SLW TMP10                                    F5G43000
03301  0 50000 0 00457         CLA TMP10                                    F5G43010
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03302  0 40200 0 00350          SUB LTRA                                    F5G43020
03303 -0 10000 0 03253          TNZ IFHPR          IF NOT , STOP            F5G43030
03304  0 50000 2 01077          CLA INST-2,2       YES IT IS   IS THIS A    F5G43040
03305  0 40200 0 00444          SUB NXTLOC         SEQUENTIAL TRANSFER      F5G43050
03306 -0 10000 0 03312          TNZ IF4                                     F5G43060
03307 -0 75400 0 00000 PS3      PXD 0,0            YES, RECORD THAT         F5G43070
03310  0 60100 0 01101          STO SXST                                    F5G43080
03311  1 00004 2 03544          TXI BEGBB,2,4                               F5G43090
03312 -0 63400 2 00450 IF4      SXD BBOX1,2        CONPILE THE TRA          F5G43100
03313  0 50000 0 00464          CLA SUCNO                                   F5G43110
03314  0 40000 0 00323          ADD LD2                                     F5G43120
03315  0 07400 4 00044          TSX SE6,4                                   F5G43130
03316  0 50000 1 07555          CLA SUCC,1         IF NECESSARY             F5G43140
03317  0 07400 4 02126          TSX SAD,4          MODIFY THE               F5G43150
03320 -0 53400 2 00450          LXD BBOX1,2        SYMBOLIC                 F5G43160
03321  0 60200 2 01077          SLW INST-2,2       ADDRESS                  F5G43170
03322  0 07400 4 02172          TSX SCMI,4                                  F5G43180
03323  1 00004 2 03544          TXI BEGBB,2,4                               F5G43190
03324  0 50000 2 01074 STPCSZ   CLA INST-5,2                                F5G43200
03325  0 40200 0 00350          SUB LTRA                                    F5G43210
03326 -0 10000 0 02721          TNZ NOEND                                   F5G43220
03327  0 50000 2 01101          CLA INST,2                                  F5G43230
03330  0 40200 2 01073          SUB INST-6,2                                F5G43240
03331 -0 10000 0 02721          TNZ NOEND                                   F5G43250
03332  0 07400 4 02172 STPCS    TSX SCMI,4         COMPILE THE TWO INXT     F5G43260
03333  1 00004 2 03334 STP1     TXI STP1+1,2,4     AND GO TO STAET BB       F5G43270
03334  0 07400 4 02172          TSX SCMI,4                                  F5G43280
03335  1 00004 2 03544          TXI BEGBB,2,4                               F5G43290
                                THIS ROUTINE ELIMINATES EXTRA SXD AND LXD INXT AROUND  F5G43300
                                SUBROUTINE CALL SEQUENCES                   F5G43310
03336 -0 50000 2 01100 CI7A     CAL INST-1,2       IS THIS AN SXD INST      F5G43320
03337 -0 32000 0 00343          ANA LFTMSK                                  F5G43330
03340  0 60200 0 00457          SLW TMP10                                   F5G43340
03341  0 50000 0 00457          CLA TMP10                                   F5G43350
03342  0 40200 0 00411          SUB LSXD                                    F5G43360
03343 -0 10000 0 03412          TNZ CI7C                                    F5G43370
03344 -0 50000 2 01076          CAL INST-3,2       YES, DOES IT HAVE TAG 4  F5G43380
03345 -0 32000 0 00337          ANA ADDMK                                   F5G43390
03346  0 40200 0 00320          SUB L4                                      F5G43400
03347 -0 10000 0 03412          TNZ CI7C                                    F5G43410
03350  0 50000 0 00460          CLA CIND           YES, IS IR4 NECESSARY    F5G43420
03351  0 12000 0 03401          TPL DLSXD                                   F5G43430
03352 -0 50000 2 01074          CAL INST-5,2       YES, IS THE NEXT INST A TSX  F5G43440
03353 -0 32000 0 00343          ANA LFTMSK                                  F5G43450
03354  0 60200 0 00457          SLW TMP10                                   F5G43460
03355  0 50000 0 00457          CLA TMP10                                   F5G43470
03356  0 40200 0 00351          SUB LTSX                                    F5G43480
03357 -0 10000 0 03412          TNZ CI7C                                    F5G43490
03360  0 50000 2 01101          CLA INST,2                                  F5G43500
03361  0 07400 4 02367          TSX SK,4           YES, COMPILE AN SXD INSTR , TAG 4, TO  F5G43510
03362  0 50000 0 00411          CLA LSXD           SPECIAL TEMP. STORAGE LOC.  F5G43520
03363  0 07400 4 02367          TSX SK,4                                    F5G43530
03364  0 50000 0 00354          CLA GSYM                                    F5G43540
03365  0 07400 4 02367          TSX SK,4                                    F5G43550
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03366  0 50000 0 00355         CLA T4SYM                                          F5G43560
03367  0 07400 4 02367         TSX SK,4                                           F5G43570
03370  0 50000 2 01075 CMTSX   CLA INST-4,2        COMPILE THE TSX INST          F5G43580
03371  0 07400 4 02367 CMTS1   TSX SK,4                                           F5G43590
03372  0 50000 2 01074         CLA INST-5,2                                       F5G43600
03373  0 07400 4 02367         TSX SK,4                                           F5G43610
03374  0 50000 2 01073         CLA INST-6,2                                       F5G43620
03375  0 07400 4 02367         TSX SK,4                                           F5G43630
03376  0 50000 2 01072         CLA INST-7,2                                       F5G43640
03377  0 07400 4 02367         TSX SK,4                                           F5G43650
03400  1 00010 2 02525 CI7B    TXI FNDAS,2,8       LOOK AT NEXT INST   LXF        F5G43660
03401  0 50000 2 01101 DLSXD   CLA INST,2                                         F5G43670
03402  0 07400 4 02367         TSX SK,4     IR4 NOT NECESS.  COMPILE BSS 0.       F5G43680
03403  0 50000 0 00352         CLA LBSS                                           F5G43690
03404  0 07400 4 02367         TSX SK,4                                           F5G43700
03405  0 50000 0 00314         CLA ZERO                                           F5G43710
03406  0 07400 4 02367         TSX SK,4                                           F5G43720
03407  0 50000 0 00314         CLA ZERO                                           F5G43730
03410  0 07400 4 02367         TSX SK,4                                           F5G43740
03411  0 02000 0 03370         TRA CMTSX                                          F5G43750
03412 -0 50000 2 01100 CI7C    CAL INST-1,2        IS THIS AN LXD                 F5G43770
03413 -0 32000 0 00343         ANA LFTMSK                                         F5G43780
03414  0 60200 0 00457         SLW TMP10                                          F5G43790
03415  0 50000 0 00457         CLA TMP10                                          F5G43800
03416  0 40200 0 00414         SUB LLXD                                           F5G43810
03417 -0 10000 0 02676         TNZ CI7             NO, GO TO COMPILE THE INST     F5G43820
03420 -0 50000 2 01076         CAL INST-3,2        YES, IS THE TAG 4              F5G43830
03421 -0 32000 0 00337         ANA ADDMK                                          F5G43840
03422  0 40200 0 00320         SUB L4                                             F5G43850
03423 -0 10000 0 02676         TNZ CI7             NO, GO TO COMPILE THE INST.    F5G43860
03424  0 50000 0 00460         CLA CIND            YES.  IS IR4 NECESSARY.        F5G43870
03425  0 12000 0 03460         TPL CI7E            NO, GO TO REPRESS LATER COMPILING OF INST F5G43880
03426 -0 76000 0 00141         MSE 97                CHECK FOR LXP WHICH WAS LXD-D. F5G43881
03427  0 02000 0 03432         TRA CI7C1             NO SUCH.                     F5G43882
03430  0 76000 0 00003         SSP                   THERE WAS, SUPPRESS LATER COMPILING F5G43883
03431  0 02000 0 03460         TRA CI7E              OF INST.                     F5G43884
03432 -0 50000 2 01074 CI7C1   CAL INST-5,2          IS FOLLOWING INSTR AN SXD.   F5G43885
03433 -0 32000 0 00343         ANA LFTMSK                                         F5G43900
03434  0 60200 0 00457         SLW TMP10                                          F5G43910
03435  0 50000 0 00457         CLA TMP10                                          F5G43920
03436  0 40200 0 00411         SUB LSXD                                           F5G43930
03437 -0 10000 0 03450         TNZ CI7D                                           F5G43940
03440 -0 50000 2 01072         CAL INST-7,2        YES, IS THE TAG A 4            F5G43950
03441 -0 32000 0 00337         ANA ADDMK                                          F5G43960
03442  0 40200 0 00320         SUB L4                                             F5G43970
03443 -0 10000 0 03450         TNZ CI7D                                           F5G43980
03444  0 50000 2 01075         CLA INST-4,2     IS SXD FIRST INSTR                F5G43990
03445  0 40200 0 00444         SUB NXTLOC    OF NEXT BB.                          F5G44000
03446  0 10000 0 03450         TZE CI7D      YES, COMPILE LX.                     F5G44010
03447  1 00010 2 02525         TXI FNDAS,2,8      NO--DELETE LX, SX.              F5G44020
03450  0 50000 0 00314 CI7D    CLA ZERO             CLMPILE THE LXD WITH GARBAGE  F5G44030
03451  0 07400 4 02367         TSX SK,4             SYMBOLADDEAA AND TAG 4        F5G44040
03452  0 50000 0 00414         CLA LLXD                                           F5G44050
03453  0 07400 4 02367         TSX SK,4                                           F5G44060
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03454   0 50000 0 00354         CLA GSYM                                                F5G44070
03455   0 07400 4 02367         TSX SK,4                                                F5G44080
03456   0 50000 0 00355         CLA T4SYM                                               F5G44090
03457   0 07400 4 02367         TSX SK,4                                                F5G44100
03460   0 60100 0 00461 CI7E    STO CPIND           SURPRESS LATER COMPILING INST  SET + F5G44110
03461   0 02000 0 02700         TRA CKLOC                                               F5G44120
03462   0 50000 2 01076 CI3A    CLA INST-3,2        IS THE S-TAG EQUAL TO 4             F5G44130
03463   0 60200 0 00461         SLW CPIND           RECORD INST. NOT TO BE COMPILED     F5G44140
03464  -0 32000 0 00337         ANA ADDMK                                               F5G44150
03465   0 40200 0 00320         SUB L4                                                  F5G44160
03466  -0 10000 0 02667         TNZ CI6                                                 F5G44170
03467  -0 75400 0 00000         PXD 0,0             YES, RECORD IR4 NOT NECESSARY       F5G44180
03470   0 60100 0 00460         STO CIND                                                F5G44190
03471   0 02000 0 02667         TRA CI6             SINCE LXP OR DED, SKIP COMPILING INST. F5G44200
                                 THIS ROUTINE READS ANOTHER BLOCK OF COMPILED INST INTO CS F5G44210
                                 AND SHIFTS THE EXTRA INST TO THE BEGINNING OF BLOCK     F5G44220
03472  -0 63400 4 00445 RDINS   SXD OUTBX,4          SAVE RETURN INDEX                   F5G44230
03473   0 50000 0 00320         CLA L4  SET ERRBX FOR 5 TRIES                           F5G44240
03474   0 60100 0 00446         STO ERRBX                                               F5G44250
03475  -0 63400 1 00447         SXD BBOX,1          SAVE INDEX 1                        F5G44260
03476  -0 53400 4 00331         LXD LD12,4          SHIFT EXTRA INST FROM END           F5G44270
03477   0 50000 4 00735 D1CLA   CLA NDINS,4         OF BLOCK TO BEGINNING               F5G44280
03500   0 60100 4 01101         STO INST,4                                              F5G44290
03501   2 00001 4 03477         TIX D1CLA,4,1       IS BLOCK SHIFTED                    F5G44300
03502   0 76200 0 00224 D1RDS   RTB INSTTP          SELECT INST TAPE                    F5G44310
03503   0 53400 1 00362         LXA RECSC,1         YES, SET INDEX FOR NO. OF RECORDS   F5G44320
03504   0 70000 4 01065 D1CPY   CPY INST-12,4        COPY BLOCK OF INST                  F5G44330
03505   1 00001 4 03504         TXI D1CPY,4,1       SET FOR NEXT WORD                   F5G44340
03506   0 02000 0 03516         TRA D2END           END OF FILE                         F5G44350
03507  -2 00001 1 03512         TNX D1BCK,1,1       END OF RECORD    IS IT END OF LAST RECORD F5G44360
03510   0 76200 0 00224         RTB INSTTP          NO, READ NEXT RECORD                F5G44370
03511   0 02000 0 03504         TRA D1CPY                                               F5G44380
03512   0 76600 0 00333 D1BCK   IOD                 TEST FOR TAPE ERROR                 F5G44390
03513  -0 76000 0 00012         RTT                                                     F5G44400
03514   0 02000 0 03530         TRA INERR           ERROR                               F5G44410
03515   3 00143 4 03525         TXH D1XX,4,ZINST-1   IF 3RD FULL REC. NOT END OF FILE  F5G44420
03516  -0 75400 4 00000 D2END   PXD 0,4             REACHED END OF INSTR                F5G44430
03517   0 40000 0 00327         ADD LD8             PUT TEST FOR LAST INST              F5G44440
03520   0 62200 0 02525         STD FNDAS INTO MAIN ROUTINE                             F5G44450
03521   0 50000 0 00363         CLA LCOUT           PUT ADDR OF FINAL EXIT INTO  MAIN   F5G44460
03522   0 60100 0 02526         STO FNDAS+1         ROUTINE                             F5G44470
03523   0 50000 0 00336         CLA ENDMK                                               F5G44480
03524   0 60100 4 01065         STO INST-12,4                                           F5G44490
03525  -0 53400 4 00445 D1XX    LXD OUTBX,4         NO ERROR, RESTORE INDEX REGISTERS   F5G44500
03526  -0 53400 1 00447         LXD BBOX,1                                              F5G44510
03527   0 02000 4 00001         TRA 1,4             RETURN TO MAIN ROUTINE              F5G44520
03530   0 50000 0 00446 INERR   CLA ERRBX           ERROR IN READING  IS THIS 1ST TRY   F5G44530
03531   0 10000 0 03540         TZE HTRD2           TO READ IN                          F5G44540
03532   0 40200 0 00315         SUB ONEA            YES, STORE INDICATION AND TRY AGAIN F5G44550
03533   0 60100 0 00446         STO ERRBX                                               F5G44560
03534   0 76400 0 00204 D2BST   BST INSTTP          BACKSPACE OVER RECORDS JUST READ    F5G44570
03535   1 00001 1 03536         TXI D2TIX,1,1                                           F5G44580
03536  -2 00001 1 03534 D2TIX   TNX D2BST,1,RECNO                                       F5G44590
03537   0 02000 0 03502         TRA D1RDS           TAPE BACKSPACED   TRY AGAIN        F5G44600
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03540   0 07400 4 00004 HTRD2  TSX 4,4              ERROR ON 5TH TRY  DIAGNOSTIC                F5G44610
03541  -0 53400 2 00331 PASS2  LXD LD12,2                                                       F5G44620
03542   0 77200 0 00203        REW OTAPE                                                        F5G44630
03543   1 00145 2 03544 1TXI   TXI 1TXI+1,2,ZINST+1                                             F5G44640
                                 INITIALIZE FOR START OF BB                                    F5G44650
03544  -0 63400 2 00450 BEGBB  SXD BBOX1,2          STORE INDEX OF POSITION ON ONST TABOE     F5G44660
03545   0 50000 0 00316        CLA ONED                                                         F5G44670
03546   0 40000 0 00443        ADD BBNO                                                         F5G44680
03547   0 60100 0 00443        STO BBNO                                                         F5G44690
03550   0 77100 0 00022        ARS 18                WAS THIS THE LAST BB                       F5G44700
03551   0 40200 0 07774        SUB KEYS                                                         F5G44710
03552   0 40000 0 00315        ADD ONEA                                                         F5G44720
03553   0 10000 0 04413        TZE LSTBB             YES, GL  GO WRITE PARTIAL BLOLK            F5G44730
03554   0 50000 0 01101        CLA SXST                NO                                       F5G44740
03555  -0 12000 0 03560        TMI BEGBBY                                                       F5G44750
03556   0 50000 0 00337        CLA ADDMK                                                        F5G44760
03557   0 60100 0 01101        STO SXST                                                         F5G44770
03560   0 50000 0 00443 BEGBBY CLA BBNO                                                         F5G44780
03561   0 07400 4 00070        TSX SE,4                                                         F5G44790
03562  -0 50000 1 06444        CAL BBB+2,1           GET ENTRANCE REQUIREMENT                   F5G44800
03563   0 77100 0 00022        ARS 18                FOR IR4                                    F5G44810
03564   0 40200 0 00340        SUB STMSK             STORE + OR - IF IR4                        F5G44820
03565   0 60100 0 00460        STO CIND              ISNT OR IS NECESSARY                       F5G44830
03566   0 50000 0 00315        CLA ONEA              RECORD THERE ISNT HANGING TRA 0            F5G44840
03567   0 60100 0 00660        STO SLV3                                                         F5G44850
03570  -0 50000 0 00443        CAL BBNO              FIND THE 1ST INST IN NEXT                  F5G44860
03571   0 40000 0 00316        ADD ONED                                                         F5G44870
03572   0 07400 4 00070        TSX SE,4              BB                                         F5G44880
03573   0 50000 1 06447        CLA BBB+5,1                                                      F5G44890
03574   0 60100 0 00444        STO NXTLOC                                                       F5G44900
                                 DETERMINE WHICH LXD CASES EXIST , RESULT IN Z1V5              F5G44910
03575   0 56000 0 00314 Z1     LDQ ZERO              INITIALIZE THE EXISTENCE                   F5G44920
03576  -0 60000 0 00667        STQ Z1V5              INDICATOR WORD                             F5G44930
03577   0 50000 1 06442        CLA BBB,1             GET AND STORE NO. OF 1ST PRED IN           F5G44940
03600   0 62100 0 00665        STA Z1V2              NEXT BB                                    F5G44950
03601  -0 50000 0 00443        CAL BBNO                                                         F5G44960
03602   0 07400 4 00070        TSX SE,4                                                         F5G44970
03603  -0 50000 1 06442        CAL BBB,1             STORE THE NO OF                            F5G44980
03604   0 62100 0 00666        STA Z1V3              1ST PRED IN                                F5G44990
03605   0 62100 0 00670        STA Z1V8              THIS BB                                    F5G45000
03606   0 50000 0 00666        CLA Z1V3                                                         F5G45010
03607   0 34000 0 00665 Z15    CAS Z1V2              IS THIS PRED IN SAME BB                    F5G45020
03610   0 02000 0 03612        TRA Z12               YES                                        F5G45030
03611   0 02000 0 03626        TRA Z2                NO                                         F5G45040
03612   0 07400 4 00055 Z12    TSX SE5,4                                                        F5G45050
03613   0 50000 1 07337        CLA PRED,1            DETERMINE THE                              F5G45060
03614  -0 32000 0 00332        ANA LT7               LXD CASE                                   F5G45070
03615   0 76700 0 00003        ALS 3                                                            F5G45080
03616  -0 73400 4 00000        PDX 0,4                                                          F5G45090
03617  -0 50000 0 00416        CAL Z1K3              STORE BIT AS INDICATOR                     F5G45100
03620   0 77100 4 00007        ARS 7,4               FOR THIS                                   F5G45110
03621  -0 60200 0 00667        ORS Z1V5              LXD CASE                                   F5G45120
03622   0 50000 0 00666        CLA Z1V3                                                         F5G45130
03623   0 40000 0 00315        ADD ONEA              ARRANGE TO DEAL WITH NEXT                  F5G45140
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03624  0 62100 0 00666          STA Z1V3              PRED                                                F5G45150
03625  0 02000 0 03607          TRA Z15                                                                   F5G45160
                                     THIS OPEN S. R. FORMS THE LXD LISTS FROM TNE INFO LEFT IN          F5G45170
                                     Z1V5 BY Z1                                                         F5G45180
                                                                                                        F5G45190
03626  0 56000 0 00314 Z2       LDQ ZERO                                                                F5G45200
03627  0 53400 1 00422          LXA Z2K2,1                                                              F5G45210
03630 -0 60000 1 00715 Z21      STQ LLIND,1           SET THE 3 INDEXDS TO THE SUB                      F5G45220
03631  0 50000 1 00422          CLA Z2K1+3,1          BOTTOM POSITIONS                                  F5G45230
03632  0 40200 0 00316          SUB ONED              IN THE 3 LISTS AND ALL                            F5G45240
03633  0 60100 1 00674          STO Z2V1+3,1          INDICATORS TO SAY COMPILED                        F5G45250
03634  2 00001 1 03630          TIX Z21,1,1                                                             F5G45260
03635 -0 53400 1 00331          LXD LD12,1                                                              F5G45270
03636  0 50000 0 00416          CLA MZE               PLACE -0 S IN THE                                 F5G45280
03637  0 60100 1 00712 Z28      STO LIST1+12,1        LXD LISTS                                         F5G45290
03640  2 00001 1 03637          TIX Z28,1,1                                                             F5G45300
03641 -0 53400 1 00422          LXD Z2K2,1            SET TO BEGINNING OF CASE LIST                     F5G45310
03642  0 56000 0 00667 Z25      LDQ Z1V5              DID                                               F5G45320
03643  0 50000 1 00432          CLA CASE+7,1          THIS                                              F5G45330
03644  0 73400 2 00000          PAX 0,2               CASE                                              F5G45340
03645 -0 77300 2 00007          RQL 7,2               OCCURR                                            F5G45350
03646  0 16200 0 03711          TQP Z26                                                                 F5G45360
03647  0 50000 0 00434          CLA Z2K5              YES, SET NO OF ONES IN                            F5G45370
03650  0 60100 0 00674          STO Z2V2              DIFFERENCE TO HIGH NUMBER                         F5G45380
03651  0 53400 2 00422          LXA Z2K2,2            INITIALIZE TO 1ST LIST                            F5G45390
03652  0 56000 0 00314    Z23   LDQ ZERO        IS P004                                                 F5G45400
03653  0 50000 2 00674          CLA Z2V1+3,2                                                            F5G45410
03654 -0 73400 4 00000    R004  PDX 0,4     QUANTITY IN THE LIST                                        F5G45420
03655  0 50000 4 00676          CLA LIST1,4           IS THE TOP                                        F5G45430
03656 -0 32000 1 00432          ANA CASE+7,1          YES, DETERMINE                                    F5G45440
03657 -0 40000 4 00676          SBM LIST1,4           CONTAINED IN THIS                                 F5G45450
03660 -0 10000 0 03676          TNZ Z27               CASE                                              F5G45460
03661  0 50000 1 00432          CLA CASE+7,1          YES, DETERMINE                                    F5G45470
03662  0 40200 4 00676          SUB LIST1,4           THE NO.                                           F5G45480
03663  0 76500 0 00025          LRS 21                OF ONES                                           F5G45490
03664  0 20000 0 00433          MPY Z2K4              IN THE                                            F5G45500
03665  0 62100 0 03667          STA Z22 LOGICAL                                                         F5G45510
03666  0 50000 0 00432          CLA Z2K3              DIFFERENCE                                        F5G45520
03667  0 77100 0 00000 Z22      ARS SET                                                                 F5G45530
03670 -0 32000 0 00434          ANA Z2K5                                                                F5G45540
03671  0 34000 0 00674          CAS Z2V2                IS THE NUMBER OF ONES IN THE                    F5G45550
03672  0 02000 0 03676          TRA Z27                 DIFFERENCE LESS THAN OR EQUAL TO                F5G45560
03673  0 02000 0 03676          TRA Z27                 THE PREVIOUS MINIMUM.  NO                       F5G45570
03674  0 60100 0 00674          STO Z2V2              YES, STORE NEW MIN                                F5G45580
03675 -0 63400 2 00675          SXD Z2V3,2            STORE INDEX OF LIST OF GIVING NEW MIN             F5G45590
03676  2 00001 2 03652 Z27      TIX Z23,2,1           COUNT TO 3 LISTS   ARE WE THRU                    F5G45600
03677 -0 53400 2 00675          LXD Z2V3,2            UES, GET INDEX OF LIST WITH MIN DIFF              F5G45610
03700  0 50000 2 00674          CLA Z2V1+3,2          STIRE                                             F5G45620
03701 -0 73400 4 00000          PDX 0,4               THIS                                              F5G45630
03702  0 50000 1 00432          CLA CASE+7,1          CASE AT TOP OF                                    F5G45640
03703  1 00001 4 03704 Z24      TXI Z24+1,4,1         THAT LIST                                         F5G45650
03704  0 60100 4 00676          STO LIST1,4                                                             F5G45660
03705 -0 75400 4 00000          PXD 0,4               STORE INDEX OF TOP                                F5G45670
03706  0 60100 2 00674          STO Z2V1+3,2          POSITION IN THAT LIST                             F5G45680
03707  0 50000 0 00416          CLA MZE               STORE INDICATION THAT THE
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03710   0 60100 2 00715          STO LLIND,2          LIST IS TO BE COMPILED                          F5G45690
03711   2 00001 1 03642 Z26      TIX Z25,1,1          COUNT THE 7 CASES                               F5G45700
                                   EXPAND TNE LXD LISTS                                              F5G45710
03712   0 50000 0 00434 Z3       CLA Z2K5             IS THE                                          F5G45720
03713  -0 40000 0 00700          SBM LIST1+2          BOTTOM ENTRY OF                                 F5G45730
03714   0 10000 0 04003          TZE Z307             LIST1 A CASE 7                                  F5G45740
03715   0 50000 0 00700          CLA LIST1+2          NO, DO THE BOTTOMS                              F5G45750
03716  -0 32000 0 00704          ANA LIST2+2          OF LISTS 1 AND 2 HAVE                           F5G45760
03717   0 10000 0 03766          TZE Z35              A NON ZERO INTERSECTION                         F5G45770
03720   0 34000 0 00700          CAS LIST1+2          YES, DOES INTERSECTION EQUAL 1                  F5G45780
03721   0 02000 0 03723          TRA Z31                                                              F5G45790
03722   0 02000 0 03760          TRA Z33              YES                                             F5G45800
03723   0 34000 0 00704 Z31      CAS LIST2+2          IS IT EQUAL TO BOTTOM OF 2                      F5G45810
03724   0 02000 0 03726          TRA Z32                                                              F5G45820
03725   0 02000 0 03763          TRA Z34              YES                                             F5G45830
03726   0 60100 0 00701 Z32      STO LIST1+3          STORE INTERSECTION IN SUB1                      F5G45840
03727  -0 76000 0 00003          SSM                  POSITITON AND -(INTER.) IN                      F5G45850
03730   0 60100 0 00705          STO LIST2+3          SUB2 POS.                                       F5G45860
03731   0 02000 0 04015          TRA Z306                                                             F5G45870
03732  -0 76000 0 00003 Z38      SSM                  ENTER -INTER1 AND 3                             F5G45880
03733   0 60100 0 00711          STO LIST3+3          IN SUB3 POS.                                    F5G45890
03734   0 02000 0 04015          TRA Z306                                                             F5G45900
03735  -0 76000 0 00003 Z39      SSM                  ENTER - INTER 1 AND 3                           F5G45910
03736   0 60100 0 00701          STO LIST1+3          INSUV1 POS.                                     F5G45920
03737   0 02000 0 04015          TRA Z306                                                             F5G45930
03740   0 50000 0 00704 Z300     CLA LIST2+2          DO BOTTOM ENTRIES                               F5G45940
03741  -0 32000 0 00710          ANA LIST3+2          OF 2 AND 3 HAVE                                 F5G45950
03742   0 10000 0 04015          TZE Z306             NONZERO INTERSECTION                            F5G45960
03743   0 34000 0 00704          CAS LIST2+2          YES, IS INTRE 2 AND 3                           F5G45970
03744   0 02000 0 03746          TRA Z301                                                             F5G45980
03745   0 02000 0 03755          TRA Z303             YES                                             F5G45990
03746   0 34000 0 00710 Z301     CAS LIST3+2          IS INTERSECTION EQUAL TO BOTTOM OF LIST 3        F5G46000
03747   0 02000 0 03751          TRA Z302                                                             F5G46010
03750   0 02000 0 04013          TRA Z304             YES                                             F5G46020
03751   0 60100 0 00711 Z302     STO LIST3+3          STORE INTER 2 AND 3 IN SUB 3 POS.               F5G46030
03752  -0 76000 0 00003          SSM                  AND -INTER IN                                   F5G46040
03753   0 60100 0 00705          STO LIST2+3          SUB 2 POS.                                      F5G46050
03754   0 02000 0 04015          TRA Z306                                                             F5G46060
03755  -0 76000 0 00003 Z303     SSM                  ENTER -(INTER 2 AND 3 )                         F5G46070
03756   0 60100 0 00711          STO LIST3+3          IN SUB 3 POS.                                   F5G46080
03757   0 02000 0 04015          TRA Z306                                                             F5G46090
03760  -0 76000 0 00003 Z33      SSM                  ENTER -(INTER 1 AND 2 )                         F5G46100
03761   0 60100 0 00705          STO LIST2+3          IN SUB 2 POS.                                   F5G46110
03762   0 02000 0 04015          TRA Z306                                                             F5G46120
03763  -0 76000 0 00003 Z34      SSM                  STORE -(INTER 1 AND 2 )                         F5G46130
03764   0 60100 0 00701          STO LIST1+3          IN SUB 1 POS.                                   F5G46140
03765   0 02000 0 04015          TRA Z306                                                             F5G46150
03766   0 50000 0 00700 Z35      CLA LIST1+2          DO BOTTOM ENTRIES IN                            F5G46160
03767  -0 32000 0 00710          ANA LIST3+2          1 AND 3 HAVE NONZERO                            F5G46170
03770   0 10000 0 03740          TZE Z300             INTERSECTION                                    F5G46180
03771   0 34000 0 00700          CAS LIST1+2          YES, IS IT EQUAL TO BOT. 1                      F5G46190
03772   0 02000 0 03774          TRA Z36                                                              F5G46200
03773   0 02000 0 03732          TRA Z38              YES                                             F5G46210
03774   0 34000 0 00710 Z36      CAS LIST3+2          TO THE BOTTOM ENTRY IN 3                        F5G46220
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03775  0 02000 0 03777        TRA Z37                                    F5G46230
03776  0 02000 0 03735        TRA Z39              YES                   F5G46240
03777  0 60100 0 00711 Z37    STO LIST3+3          ENTER INTER 1 AND 3 IN SUB F5G46250
04000 -0 76000 0 00003        SSM                  3 POS. AND -( INTER ) IN F5G46260
04001  0 60100 0 00701        STO LIST1+3          SUB1 POS.             F5G46270
04002  0 02000 0 04015        TRA Z306                                   F5G46280
04003 -0 63400 0 00671 Z307   SXD Z2V1,0           CREATE THE LIST       F5G46290
04004  0 50000 0 00321        CLA L7                                     F5G46300
04005  0 60100 0 00676        STO LIST1                                  F5G46310
04006  0 50000 0 00317        CLA L3                                     F5G46320
04007  0 60100 0 00677        STO LIST1+1                                F5G46330
04010  0 50000 0 00315        CLA ONEA                                   F5G46340
04011  0 60100 0 00700        STO LIST1+2                                F5G46350
04012  0 02000 0 04053        TRA Z4                                     F5G46360
04013 -0 76000 0 00003 Z304   SSM                  ENTER - INTER 2 AND 3 F5G46370
04014  0 60100 0 00705 Z305   STO LIST2+3          INSUB2 POS.           F5G46380
04015 -0 53400 2 00324 Z306   LXD LD3,2            SET COUNT TO 3        F5G46390
04016  0 53400 1 00314        LXA ZERO,1           SET TO INSPECT 1ST LIST F5G46400
04017  0 50000 1 00700 Z309   CLA LIST1+2,1                              F5G46410
04020  0 10000 0 04031        TZE Z308             IS THE BOTTOM ENTRY ZERO F5G46420
04021  0 40200 0 00315        SUB ONEA             NO                    F5G46430
04022 -0 32000 1 00700        ANA LIST1+2,1        DOES IT HAVE TWO ONES F5G46440
04023  0 10000 0 04031        TZE Z308                                   F5G46450
04024  0 60100 0 00457        STO TMP10            YES                   F5G46460
04025  0 50000 1 00701        CLA LIST1+3,1        IS THE SUB BOTTOM     F5G46470
04026 -0 10000 0 04031        TNZ Z308             ENTRY ZERO            F5G46480
04027  0 50000 0 00457        CLA TMP10            YES                   F5G46490
04030  0 60100 1 00701        STO LIST1+3,1                              F5G46500
04031  1 77774 1 04032 Z308   TXI Z308+1,1,-4      PREPARE FOR NEXT LIST F5G46510
04032  2 00001 2 04017        TIX Z309,2,1         COUNT TO 3            F5G46520
04033  0 50000 0 00434        CLA Z2K5                                   F5G46530
04034 -0 40000 0 00677        SBM LIST1+1                                F5G46540
04035 -0 10000 0 04053        TNZ Z4                                     F5G46550
04036  0 50000 0 00700        CLA LIST1+2                                F5G46560
04037  0 40200 0 00315        SUB ONEA                                   F5G46570
04040 -0 32000 0 00700        ANA LIST1+2                                F5G46580
04041 -0 10000 0 04053        TNZ Z4                                     F5G46590
04042  0 50000 0 00700        CLA LIST1+2                                F5G46600
04043  0 60100 0 00701        STO LIST1+3                                F5G46610
04044  0 50000 0 00434        CLA Z2K5                                   F5G46620
04045  0 40200 0 00700        SUB LIST1+2                                F5G46630
04046  0 60100 0 00700        STO LIST1+2                                F5G46640
04047  0 40200 0 00315        SUB ONEA                                   F5G46650
04050  0 32000 0 00700        ANS LIST1+2                                F5G46660
04051 -0 50000 0 00701        CAL LIST1+3                                F5G46670
04052 -0 60200 0 00700        ORS LIST1+2                                F5G46680
                    DETECT AND COMPILE ANY SEQUENTIAL TRANSFER           F5G46690
04053  0 56000 0 00416 Z4     LDQ MZE              PUT MINUS ZEROS IN    F5G46700
04054 -0 60000 0 01125        STQ SXAS             THE ASSOXIATED        F5G46710
04055  0 53400 4 00322        LXA L19,4            SXDPOSITIONS          F5G46720
04056 -0 60000 4 01125 Z411   STQ SXST+20,4                              F5G46730
04057  2 00001 4 04056        TIX Z411,4,1                               F5G46740
04060  0 50000 0 01101        CLA SXST                                   F5G46750
04061 -0 12000 0 04140        TMI Z5               IS THERE A SEQUENTIAL TRANSFER F5G46760
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04062 -0 50000 0 00443        CAL BBNO          YES                                  F5G46770
04063  0 77100 0 00022        ARS 18                                                 F5G46780
04064  0 40200 0 00315        SUB ONEA                                               F5G46790
04065  0 60100 0 00457        STO TMP10         PUT NO OF PREV. BB IN TMP10          F5G46800
04066  0 50000 0 00670        CLA Z1V8          INITIALIZE 1ST PRED NO THIS BB       F5G46810
04067  0 60100 0 00666 Z49    STO Z1V3                                               F5G46820
04070  0 07400 4 00055        TSX SE5,4                                              F5G46830
04071 -0 50000 1 07337        CAL PRED,1                                             F5G46840
04072 -0 32000 0 00337        ANA ADDMK         IS THIS THE SEQUENTIAL               F5G46850
04073  0 40200 0 00457        SUB TMP10         TRANSFERS PRED ENTRY                 F5G46860
04074  0 10000 0 04100        TZE Z410                                               F5G46870
04075 -0 50000 0 00666        CAL Z1V3          NO, TRY NEXT ONE                     F5G46880
04076  0 40000 0 00315        ADD ONEA                                               F5G46890
04077  0 02000 0 04067        TRA Z49                                                F5G46900
04100  0 50000 0 00666 Z410   CLA Z1V3          GET THE PRED NO                      F5G46910
04101  0 07400 4 02211        TSX SH,4          FORM THE SXD CASE                    F5G46920
04102  0 50000 0 00466        CLA SXD1                                               F5G46930
04103  0 40000 0 00467        ADD SXD2                                               F5G46940
04104  0 40000 0 00470        ADD SXD3                                               F5G46950
04105  0 10000 0 04117        TZE Z44           IS THIS A 0 SXD CASE                 F5G46960
04106  0 53400 4 00320        LXA L4,4          ISNT 0 SXD CASE                      F5G46970
04107  0 50000 4 00471 Z41    CLA SXD1+3,4      RECORD SXD CASE                      F5G46980
04110  0 60100 4 01105        STO SXST+4,4      IN POSITION ASSOCIATED               F5G46990
04111  2 00001 4 04107        TIX Z41,4,1       WITH SEQUENTIAL TRANSFER             F5G47000
04112  0 53400 1 00314        LXA ZERO,1        COMPILE THE SXD                      F5G47010
04113  0 07400 4 02242        TSX SI,4          INST. WITH                           F5G47020
04114  0 02000 0 04140        TRA Z47           (1) ASSOCIATED SXD WITH 0 LXD CASE   F5G47030
04115  0 07400 4 02440 Z42    TSX SM,4          (2)ASSOCIATED       WITH AN LXD LIST F5G47040
04116  0 02000 0 04140        TRA Z47           (3) NOT ASSOCIATED  ( TRA COMPILED ) F5G47050
04117 -0 53400 4 00465 Z44    LXD SXD0,4                                             F5G47060
04120 -3 00000 4 04136        TXL Z46,4,0       DOES IT HAVE A 0 LXD CASE            F5G47070
04121 -0 75400 4 00000        PXD 0,4           NO                                   F5G47080
04122  0 77100 0 00022        ARS 18            LXD CASE TO AC  (ADDR)               F5G47090
04123  0 60100 0 00715        STO Z4V1                                               F5G47100
04124 -0 53400 2 00324        LXD LD3,2         SET COUNT TO 3 , N=1                 F5G47110
04125  0 50000 2 00674 Z45    CLA Z2V1+3,2      GET INDEX                            F5G47120
04126 -0 73400 1 00000        PDX 0,1           OF TOP QUANTITY IN LIST N            F5G47130
04127  0 50000 1 00676        CLA LIST1,1       IS THE LXD CASE OF THIS SXD          F5G47140
04130  0 40200 0 00715        SUB Z4V1          CASE THE SAME AS                     F5G47150
04131  0 10000 0 04115        TZE Z42           THE TOP  QUANTITY IN LIST N          F5G47160
04132  2 00001 2 04125        TIX Z45,2,1       NO, COUNT TO 3                       F5G47170
04133  0 50000 0 00715        CLA Z4V1          COMPILE A                            F5G47180
04134  0 07400 4 02403        TSX SL,4          TRA  (LXD )                          F5G47190
04135  0 02000 0 04140        TRA Z47                                                F5G47200
04136  0 50200 0 00315 Z46    CLS ONEA          RECORD THAT THERE                    F5G47210
04137  0 60100 0 00660 Z48    STO SLV3          IS A HANGING TRA OCASE               F5G47220
                              04140 Z47 SYN Z48+1                                    F5G47230
                                   FORM THE SXD LIST AND THE SYN CARD LIST           F5G47240
04140  0 50000 0 00316 Z5     CLA ONED          SET INDEX IN SYN TABLE               F5G47250
04141  0 60100 0 00716        STO Z5V1                                               F5G47260
04142  0 50000 0 00670        CLA Z1V8          RESET 1 ST PRED IN BB                F5G47270
04143  0 60100 0 00666 Z53    STO Z1V3                                               F5G47280
04144  0 40200 0 00665        SUB Z1V2          IS THIS PRED IN SAME BB              F5G47290
04145  0 10000 0 04263        TZE Z6            NO, ADD FINISHED                     F5G47300
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04146  0 50000 0 01101        CLA SXST        YES                                    F5G47310
04147 -0 12000 0 04153        TMI Z51         WAS THERE A SEQUENTIAL TRANSFER        F5G47320
04150 -0 32000 0 00337        ANA ADDMK       YES, EXTRACT ADDRESS                   F5G47330
04151  0 40200 0 00666        SUB Z1V3        HAS PRED ALREDY BEEN CONSIDERED        F5G47340
04152  0 10000 0 04213        TZE Z55         AS A SEQUENTIAL TRANSFER               F5G47350
04153  0 50000 0 00666 Z51    CLA Z1V3        NO                                     F5G47360
04154  0 07400 4 02211        TSX SH,4        GENERATE SXD CASE                      F5G47370
04155  0 50000 0 00466        CLA SXD1        IS THE                                 F5G47380
04156  0 40000 0 00467        ADD SXD2        SXD CASE                               F5G47390
04157  0 40000 0 00470        ADD SXD3        ZERO                                   F5G47400
04160  0 10000 0 04213        TZE Z55                                                F5G47410
04161  0 53400 1 00314        LXA ZERO,1      NO, PREPARE TO SCAN SXD LIST           F5G47420
04162  0 50000 1 01101 Z503   CLA SXST,1      IS                SUBSXD0              F5G47430
04163 -0 32000 0 00335        ANA DECMK                                              F5G47440
04164  0 60100 0 00457        STO TMP10                                              F5G47450
04165  0 50000 0 00465        CLA SXD0                                               F5G47460
04166 -0 32000 0 00335        ANA DECMK                                              F5G47470
04167  0 40200 0 00457        SUB TMP10                                              F5G47480
04170 -0 10000 0 04216        TNZ Z54                                                F5G47490
04171  0 50000 1 01102        CLA SXST+1,1    THIS SXD CASE                          F5G47500
04172  0 40200 0 00466        SUB SXD1                                               F5G47510
04173 -0 10000 0 04216        TNZ Z54                                                F5G47520
04174  0 50000 1 01103        CLA SXST+2,1    SAME AS                                F5G47530
04175  0 40200 0 00467        SUB SXD2                                               F5G47540
04176 -0 10000 0 04216        TNZ Z54                                                F5G47550
04177  0 50000 1 01104        CLA SXST+3,1    THE ONE ALREADY                        F5G47560
04200  0 40200 0 00470        SUB SXD3        STORED                                 F5G47570
04201 -0 10000 0 04216        TNZ Z54                                                F5G47580
04202  0 50000 1 01101        CLA SXST,1      YES, STORE INDICATION                  F5G47590
04203 -0 53400 2 00716        LXD Z5V1,2                                             F5G47600
04204 -0 32000 0 00337        ANA ADDMK       SYN,2  CARD                            F5G47610
04205  0 60100 2 02125        STO SYN,2       IN THE                                 F5G47620
04206  0 50000 0 00465        CLA SXD0        SYN                                    F5G47630
04207  0 76700 0 00022        ALS 18          LIST                                   F5G47640
04210  0 62200 2 02125        STD SYN,2                                              F5G47650
04211  1 00001 2 04212 Z52    TXI Z52+1,2,1                                          F5G47660
04212 -0 63400 2 00716        SXD Z5V1,2      PREPARE TO DEAL WITH NEXT PRED         F5G47670
04213  0 50000 0 00666 Z55    CLA Z1V3                                               F5G47680
04214  0 40000 0 00315        ADD ONEA                                               F5G47690
04215  0 02000 0 04143        TRA Z53                                                F5G47700
04216  0 50000 1 01101 Z54    CLA SXST,1                                             F5G47710
04217  0 12000 0 04232        TPL Z502        IS THIS SXD POS. EMPTY                 F5G47720
04220 -0 53400 2 00324        LXD LD3,2       YES                                    F5G47730
04221 -3 00000 1 04232        TXL Z502,1,0    IS THIS ST CASE                        F5G47740
04222  3 77773 1 04233        TXH Z504,1,-4-1 NO, IS THIS 0 LIST CASE                F5G47750
04223  3 77767 1 04242        TXH Z507,1,-8-1 NO              1ST                    F5G47760
04224  3 77763 1 04241        TXH Z506,1,-12-1                2ED                    F5G47770
04225  3 77757 1 04240        TXH Z505,1,-16-1                3RD                    F5G47780
04226  0 07400 4 04252        TSX Z500,4      ENTER THE SXD CASE IN THE LIST         F5G47790
04227  0 50000 0 00416        CLA MZE                                                F5G47800
04230  0 60100 1 01105        STO SXST+4,1    STORE END MARK FOR SYN CAEDS           F5G47810
04231  0 02000 0 04213        TRA Z55                                                F5G47820
04232  1 77774 1 04162 Z502   TXI Z503,1,-4   EXAMINE NEXT SXD CASE                  F5G47830
04233 -0 50000 0 00465 Z504   CAL SXD0        ZERO LIST CASE                         F5G47840
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04234 -0 32000 0 00335          ANA DECMK           IS THE LXD CASE 0                F5G47850
04235 -0 10000 0 04232          TNZ Z502                                             F5G47860
04236  0 07400 4 04252          TSX Z500,4          YES, ENTER SXD CASE IN           F5G47870
04237  0 02000 0 04213          TRA Z55             ASSOCIATED       POSITION        F5G47880
04240  2 00001 2 04241 Z505     TIX Z505+1,2,1      GENERATE INDEX OF LIST           F5G47890
04241  2 00001 2 04242 Z506     TIX Z506+1,2,1                                       F5G47900
04242 -0 50000 2 00674 Z507     CAL Z2V1+3,2        IS                               F5G47910
04243 -0 73400 4 00000          PDX 0,4             THE                              F5G47920
04244  0 50000 0 00465          CLA SXD0            LXD                              F5G47930
04245  0 77100 0 00022          ARS 18              CASE THE                         F5G47940
04246  0 40200 4 00676          SUB LIST1,4         SAME                             F5G47950
04247 -0 10000 0 04232          TNZ Z502                                             F5G47960
04250  0 07400 4 04252          TSX Z500,4          YES                              F5G47970
04251  0 02000 0 04213          TRA Z55                                              F5G47980
                                SUBROUTINE FOR ENTERING SXD CASE IN SXD LIST         F5G47990
                                                                                     F5G48000
04252  0 50000 0 00465 Z500     CLA SXD0                                             F5G48010
04253  0 60100 1 01101          STO SXST,1                                           F5G48020
04254  0 50000 0 00466          CLA SXD1                                             F5G48030
04255  0 60100 1 01102          STO SXST+1,1                                         F5G48040
04256  0 50000 0 00467          CLA SXD2                                             F5G48050
04257  0 60100 1 01103          STO SXST+2,1                                         F5G48060
04260  0 50000 0 00470          CLA SXD3                                             F5G48070
04261  0 60100 1 01104          STO SXST+3,1                                         F5G48080
04262  0 02000 4 00001          TRA 1,4                                              F5G48090
                                COMPILE THE SXD LIST                                 F5G48100
04263  0 53400 1 00333 Z6       LXA LM20,1          SET TO START OF SXD LIST         F5G48110
04264  0 50000 1 01101 Z61      CLA SXST,1                                           F5G48120
04265 -0 12000 0 04274          TMI Z7              IS THIS SXD POSITION EMPTY       F5G48130
04266 -0 63400 1 04271          SXD Z6V1,1          NO                               F5G48140
04267  0 07400 4 02242          TSX SI,4            COMPILE THE SXD CASE WITH        F5G48150
04270  0 76100 0 00000          NOP                 (1)   0 LXD CASE,  OR            F5G48160
04271  3 00000 0 00000 Z6V1     TXH 0,0,SET         (2) THIS RETURN CANT OCCURR      F5G48170
04272 -0 53400 1 04271          LXD Z6V1,1          (3) TRA ALREADY CONPILED         F5G48180
04273  1 77774 1 04264          TXI Z61,1,-4                                         F5G48190
                                COMPILE TNE LXD LISTS AND ASSOCIATED SXD S           F5G48200
04274 -0 53400 2 00324 Z7       LXD LD3,2           SET TO BEGIN SCAN OF LISTS       F5G48210
04275  0 50000 2 00422 Z72      CLA Z2K1+3,2                                         F5G48220
04276 -0 73400 1 00000          PDX 0,1             PUT INDEX OF BOTTOM POSITION IN 1 F5G48230
04277  0 50000 1 00676          CLA LIST1,1                                          F5G48240
04300 -0 12000 0 04350          TMI Z75             YES, IS IT A TRA(0) CASE         F5G48250
04301  0 10000 0 04320          TZE Z73             IS THE LIST FILLED               F5G48260
04302  0 50000 1 00677          CLA LIST1+1,1       PERHAPS, IS IT A FOR SURE        F5G48270
04303  0 10000 0 04350          TZE Z75              IT IS IF EITHER THE SUB BOTTOM  F5G48280
04304  0 12000 0 04350          TPL Z75             ENTRY IS -0 OR POSITIVE          F5G48290
04305  0 50000 0 00720          CLA Z7V2                                             F5G48300
04306 -0 12000 0 04320          TMI Z73             IS THIS 1ST TIME THRU            F5G48310
04307  0 50000 2 00443 Z76      CLA Z7K1+3,2        YES                              F5G48320
04310 -0 73400 1 00000          PDX 0,1             IS THERE ASSOCIATED              F5G48330
04311  0 50000 1 01101          CLA SXST,1          SXDLIST                          F5G48340
04312 -0 63400 2 00717          SXD Z7V1,2                                           F5G48350
04313 -0 12000 0 04344          TMI Z74                                              F5G48360
04314  0 07400 4 02242          TSX SI,4            YES, COMPILE SXD CASE            F5G48370
04315  0 02000 0 04317          TRA Z71                                              F5G48380
04316  0 02000 0 04333          TRA Z77             COMPILE
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04317 -0 53400 2 00717 Z71    LXD  Z7V1,2                                    F5G48390
04320  2 00001 2 04275 Z73    TIX  Z72,2,1       COUNT TO 3                   F5G48400
04321  0 50200 0 00720        CLS  Z7V2          IS THIS 1ST TIME THRU        F5G48410
04322  0 60100 0 00720        STO  Z7V2                                       F5G48420
04323 -0 12000 0 04274        TMI  Z7            YES, GO BACK     CLASXST     F5G48430
04324  0 50000 0 01105        CLA  SXAS0         IS THERE A 0 ASSOCIATED SXD CASE F5G48440
04325 -0 12000 0 04353        TMI  Z8                                         F5G48450
04326  0 53400 1 00334        LXA  LM4,1         YES                          F5G48460
04327  0 07400 4 02242        TSX  SI,4          COMPILE SXD CASE             F5G48470
04330  0 02000 0 04353        TRA  Z8                                         F5G48480
04331  0 02000 0 04353        TRA  Z8                                         F5G48490
04332  0 02000 0 04353        TRA  Z8                                         F5G48500
04333 -0 53400 2 00717 Z77    LXD  Z7V1,2                                     F5G48510
04334  0 50000 2 00715        CLA  Z4V1,2                                     F5G48520
04335 -0 12000 0 04344        TMI  Z74                                        F5G48530
04336  0 50000 2 00443        CLA  Z7K1+3,2                                   F5G48540
04337 -0 73400 1 00000        PDX  0,1                                        F5G48550
04340  0 50000 1 01101        CLA  SXST,1                                     F5G48560
04341  0 77100 0 00022        ARS  18                                         F5G48570
04342  0 07400 4 02403        TSX  SL,4                                       F5G48580
04343  0 02000 0 04317        TRA  Z71                                        F5G48590
04344  0 50000 2 00674 Z74    CLA  Z2V1+3,2      COMPILE THE LXD LIST         F5G48600
04345 -0 73400 1 00000        PDX  0,1                                        F5G48610
04346  0 07400 4 02440        TSX  SM,4                                       F5G48620
04347  0 02000 0 04317        TRA  Z71                                        F5G48630
04350  0 50000 0 00720 Z75    CLA  Z7V2          IS THIS 1ST TIME THRU        F5G48640
04351 -0 12000 0 04307        TMI  Z76           NO, 2ED TIME                 F5G48650
04352  0 02000 0 04320        TRA  Z73           YES                          F5G48660
                              COMPILE ANY SYN CARDS                           F5G48670
04353 -0 50000 0 00443 Z8     CAL  BBNO          FORM                         F5G48680
04354  0 77100 0 00022        ARS  18            AND                          F5G48690
04355  0 60100 0 00457        STO  TMP10         STORE                        F5G48700
04356  0 07400 4 00067        TSX  SE1,4                                      F5G48710
04357 -0 50000 1 06442        CAL  BBB,1         -(IDSXD)-(BBNO)+(1ST PRED)*2**25 F5G48720
04360 -0 32000 0 00337        ANA  ADDMK                                      F5G48730
04361  0 76700 0 00012        ALS  10                                         F5G48740
04362  0 40200 0 00457        SUB  TMP10                                      F5G48750
04363  0 40200 0 00410        SUB  IDSXD                                      F5G48760
04364  0 60100 0 00457        STO  TMP10                                      F5G48770
04365 -0 53400 2 00716        LXD  Z5V1,2        SET TO START OF SYN LIST     F5G48780
04366 -3 00001 2 04407 Z81    TXL  Z83,2,1       ARE WE THRU                  F5G48790
04367  2 00001 2 04370 Z82    TIX  Z82+1,2,1     DECREASE INDEX               F5G48800
04370 -0 50000 2 02125        CAL  SYN,2                                      F5G48810
04371 -0 32000 0 00335        ANA  DECMK         COMPILE THE SYN CARD         F5G48820
04372  0 77100 0 00010        ARS  8                                          F5G48830
04373  0 40200 0 00457        SUB  TMP10                                      F5G48840
04374  0 07400 4 02367        TSX  SK,4                                       F5G48850
04375  0 50000 0 00346        CLA  LSYN                                       F5G48860
04376  0 07400 4 02367        TSX  SK,4                                       F5G48870
04377 -0 50000 2 02125        CAL  SYN,2                                      F5G48880
04400 -0 32000 0 00337        ANA  ADDMK                                      F5G48890
04401  0 76700 0 00012        ALS  10                                         F5G48900
04402  0 40200 0 00457        SUB  TMP10                                      F5G48910
04403  0 07400 4 02367        TSX  SK,4                                       F5G48920
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04404   0 50000 0 00314          CLA ZERO                                                F5G48930
04405   0 07400 4 02367          TSX SK,4                                                F5G48940
04406   0 02000 0 04366          TRA Z81                                                 F5G48950
04407  -0 53400 2 00450 Z83      LXD BBOX1,2          GET INDEX OF COMPILED INDT         F5G48960
04410   0 50000 0 00416          CLA MZE              RECORD NO SEQUENTIAL TRANSFER      F5G48970
04411   0 60100 0 01101          STO SXST                                                F5G48980
04412   0 02000 0 02525          TRA FNDAS                                               F5G48990
                                      WRITE TH E LAST BLOCK OF C.I. T. ON TAPE          F5G49000
                                      AFTER PUTTING RELATIVE CONSTANT ROUTINES AT END   F5G49010
                                                                                        F5G49020
04413   0 76200 0 00224 LSTBB    RTB INSTTP           AN END OF                          F5G49030
04414   0 70000 0 00457          CPY TMP10            FILE SEPARATES RELATIVE CONST. ROUTINES F5G49040
04415   0 02000 0 04420          TRA EF3              END FILE ALREADY READ              F5G49050
04416   0 02000 0 04413          TRA LSTBB            READ END FILE                      F5G49060
04417   0 07400 4 00004          TSX 4,4  DIAGNOSTIC, ERROR                              F5G49070
04420  -0 53400 4 00325 EF3      LXD LD4,4              TRY 4 TIMES                      F5G49080
04421   0 53400 3 00337 EFRTB    LXA ADDMK,3          READ IN NEXT RECORD                F5G49090
04422   0 76200 0 00224          RTB INSTTP           OF RELATIVE CONSTANT SUBROUTINES   F5G49100
04423   0 70000 1 04516 EFCPY    CPY RELSR,1                                             F5G49110
04424   1 77777 1 04423          TXI EFCPY,1,-1                                          F5G49120
04425   0 02000 0 04436          TRA EFREW            END OF FILE , END OF INST.         F5G49130
04426   0 76600 0 00333          IOD                                                     F5G49140
04427  -0 76000 0 00012          RTT                                                     F5G49150
04430   0 02000 0 04451          TRA EFERR                                               F5G49160
04431  -0 63400 1 04432          SXD EFTXL,1          STORE END TEST                     F5G49170
04432  -3 00000 2 04421 EFTXL    TXL EFRTB,2,SET      COMPILE THE INSTRUCTIONS           F5G49180
04433   0 50000 2 04516          CLA RELSR,2                                             F5G49190
04434   0 07400 4 02367          TSX SK,4                                                F5G49200
04435   1 77777 2 04432          TXI EFTXL,2,-1                                          F5G49210
04436   0 77200 0 00204 EFREW    REW INSTTP           REWIND THE TAPE                    F5G49220
04437   0 53400 1 00412          LXA SKK1,1           SET 1 TO LENGTH OF CS BLOCK        F5G49230
04440  -0 53400 4 00655          LXD SKV1,4           INDEX OF NEXTCLST POSITION         F5G49240
04441  -0 63400 4 04444          SXD LSTXL,4                                             F5G49250
04442   3 00143 4 04447          TXH LSWEF,4,LCLST-1    IS BLOCK EMPTY                   F5G49260
04443   0 76600 0 00223          WTB OTAPE            NO, WRITE                          F5G49270
04444  -3 00000 1 04447 LSTXL    TXL LSWEF,1,-        IT ON TAPE                         F5G49280
04445   0 70000 1 00655          CPY CLST,1                                              F5G49290
04446   1 77777 1 04444          TXI LSTXL,1,-1                                          F5G49300
04447   0 77000 0 00203 LSWEF    WEF OTAPE            WRITE AN END FILE                  F5G49310
04450   0 02000 0 00030          TRA R                                                   F5G49320
04451   0 76400 0 00204 EFERR    BST INSTTP                                              F5G49330
04452   2 00001 4 04421          TIX EFRTB,4,1                                           F5G49340
04453   0 07400 4 00004          TSX 4,4  4TH ERROR, TO DIAGNOSTIC                       F5G49350
                04454             BSS PTL4        SPACE FOR PATCHES                     F5G49360
04516   0 00000 0 00000 RELSR     START OF REL. CONST. ROUTINES                         F5G49370
                00000             ORG 0                                               F5G49371
00000   0 00004 0 00030           HTR R,0,4              CONTROL CARD PART 1.         F5G49372
00001   0 00000 0 05215           HTR CMTAG-1                                         F5G49373
                00000             ORG 0                                               F5G49374
00000   0 07337 0 07337           HTR PRED,0,PRED        CONTROL CARD PART 1B.        F5G49375
00001   0 00000 0 07470           HTR I9A+2                                           F5G49376
                00000             ORG 0                                               F5G49377
00000   0 04740 0 04740           HTR QS,0,QS            CONTROL CARD, PART 1C.       F5G49378
00001   0 00000 0 04773           HTR QS8+1                                           F5G49379
                00000             ORG 0
```

```
00000  0 04740 0 04740          HTR QPU,0,QPU
00001  0 00000 0 04773          HTR QPU8+1
                   00000         ORG 0
00000  0 04740 0 04740          HTR QSU,0,QSU
00001  0 00000 0 04773          HTR QSU8+1
                   00000         ORG 0
00000  0 00320 0 00317          HTR BLV09,0,BL12
00001  0 00000 0 00655          HTR BLIST
                   00000         ORG 0
00000  0 00320 0 00320          HTR START,0,START
00001  0 00000 0 00647          HTR ASCON
                   00000         ORG 0
00000  0 03541 0 00317          HTR L3,0,PASS2
00001  0 00000 0 04516          HTR RELSR
                   03541         END PASS2
```

CONTROL CARD, PART 1D.

CONTROL CARD, PART 1E.

CONTROL CARD, PART 2.

CONTROL CARD, PART 3.

CONTROL CARD, PART 4.

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F5G49380
F5G49381
F5G49382
F5G49383
F5G49384
F5G49385
F5G49386
F5G49387
F5G49388
F5G49389
F5G49390
F5G49391
F5G49392
F5G49393
F5G49394
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9           REM APPLIED PROGRAMMING/ FORTRAN. 704 = EST.NO. 8081, JOB NO. 1.
1                                    APPLIED PROGRAMMING/ FORTRAN. 704 = EST.NO. 8081, JOB NO. 1.

                                     THE FOLLOWING CONVENTIONS ARE USED IN THIS LISTING=

                                     ** IN THE ADDRESS, TAG, OR DECREMENT OF AN INSTRUCTION
                                     INDICATES THAT THIS FIELD WILL BE MODIFIED BY THE PROGRAM.
                                     * IN COL/36 INDICATES THE INSTRUCTION IS A TRANSFER OUT OF
                                     THIS LOGICAL BLOCK OR SUBROUTINE.
                                     C IN COL/34 INDICATES THE INSTRUCTION WAS CORRECTED.
                                     P IN COL/32 INDICATES THE INSTRUCTION WAS INSERTED (PATCH).

                                     * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                                     704 FORTRAN 2 / SECTION 5PRIME / A. S. NOBLE, JR. / 12 FEB 58

                                     5PRIME COMPILES ASSIGN CONSTANTS, FIXED POINT CONSTANTS
                                     FLOATING POINT CONSTANTS, REGION SIX CONSTANTS AND FORMAT
                                     STATEMENTS. THE FOLLOWING TABLES ARE PUT ON DRUMS FOR USE IN
                                     THE ASSEMBLY PROGRAM ... SIZ, TEIFNO, EQUIT, CLOSUB, FORSUB.
                        00030        ORG 24
                                     SETCIT/ CALLS=DIAG.
                                     SET UP CIT BUFFER, COUNTER, AND TAPE FOR COMPILING.
     00030   0 76400 0 00203 5PRIME  BST CITTAP                    BACKSPACE CIT TAPE OVER EOF MARK
     00031   0 76400 0 00203         BST CITTAP                    AND LAST RECORD.
     00032   0 53400 2 00420         LXA TERC,2                    SET TAPE ERROR COUNTER FOR 5 TRYS.
     00033   0 76200 0 00223         RTB CITTAP                    SELECT CIT TAPE FOR READING.
     00034   0 53400 1 00413         LXA L(0),1                    COPY LAST
     00035   0 70000 1 00445 CPYCIT  CPY CIB,1                     CIT RECORD
     00036   1 77777 1 00035         TXI CPYCIT,1,-1               INTO CIT BUFFER.
     00037   0 07400 4 00004         TSX DIAG,4                  * EOF ERROR - GO TO DIAGNOSTIC.
     00040   0 76400 0 00203         BST CITTAP                    REPOSITION CIT TAPE, AND
     00041  -0 76000 0 00012         RTT                           IF TAPE RECORD
D    00042   1 00000 0 00045         TXI RTTON1,0                  WAS READ CORRECTLY,
     00043  -0 63400 1 00044         SXD BBOX,1                    SAVE CIT COUNTER,
     00044   1 00000 0 00047 BBOX    TXI 5P1ASC,0,**             * AND GO READ ASSIGN CONSTANTS.
     00045   2 00001 2 00033 RTTON1  TIX CPYCIT-2,2,1              OTHERWISE, GO REREAD RECORD UNLESS
     00046   0 07400 4 00004         TSX DIAG,4                  * 5 ATTEMPTS FAILED - GO TO DIAG.
                                      END OF PROGRAM SETCIT.
                                     * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                                     5P1ASC/ CALLS=5PS1R,5PS2C.
                                     READ IN AND COMPILE ASSIGN CONSTANTS.
     00047   0 76400 0 00202 5P1ASC  BST TABTAP                    POSITION TABLE TAPE, AND
     00050   0 07400 4 00304         TSX 5PS1R,4                 * GO READ ASSIGN CONSTANTS.
     00051  -3 00000 1 00053         TXL SETOP,1,0                 IF NO ENTRIES, GO SET OP TO OCT.
     00052   0 07400 4 00331         TSX 5PS2C,4                 * GO COMPILE ASSIGN CONSTANTS.
     00053   0 50000 0 00431 SETOP   CLA OCTLOP                    SET WORD2 OF COMPILED INSTRUCTION
     00054   0 60100 0 00442         STO WORD2                     TO (OCT000) BCD FOR FUTURE USE.
                                      END OF PROGRAM 5P1ASC.
                                     * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                                     5P2FXC/ CALLS=5PS1R,5PS2C.
                                     READ IN AND COMPILE FIXCON.
```

```
00055   0 53400 2 00416 5P2FXC LXA L(3),2                    POSITION
00056   0 76400 0 00202        BST TABTAP                    TABLE TAPE
00057   2 00001 2 00056        TIX 5P2FXC+1,2,1              TO FIXCON.
00060   0 07400 4 00304        TSX 5PS1R,4                 * GO READ FIXCON INTO BUFFER.
00061  -3 00000 1 00065        TXL 5P3F3D,1,0              * IF NO ENTRIES, GO READ IN FORSUB.
00062   0 50000 0 00426        CLA FIXSYM                    SET WORD1 OF COMPILED
00063   0 60100 0 00441        STO WORD1                     INSTRUCTION TO (200000) BCD.
00064   0 07400 4 00331        TSX 5PS2C,4                 * GO COMPILE FIXCON ENTRIES.
                                    END OF PROGRAM 5P2FXC.
                               * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                               5P3F3D/ CALLS=5PS1R,5PS3D.
                               TRANSFER FORSUB TABLE FROM TAPE 2 TO DRUM 3.
00065   0 53400 2 00420 5P3F3D LXA L(5),2                    POSITION
00066   0 76400 0 00202        BST TABTAP                    TABLE TAPE
00067   2 00001 2 00066        TIX 5P3F3D+1,2,1              TO DO TAG B
00070   0 76200 0 00222        RTB TABTAP                    RECORD COUNT
00071   0 70000 0 00440        CPY 5PERAS                    AND ADD 23
00072  -0 53400 1 00440        LXD 5PERAS,1                  TO THIS TO
00073   1 00027 1 00074        TXI BKSPC,1,23                POSITION
00074   0 76400 0 00202 BKSPC  BST TABTAP                    TABLE TAPE
00075   2 00001 1 00074        TIX BKSPC,1,1                 TO FORSUB.
00076   0 07400 4 00304        TSX 5PS1R,4                 * GO READ FORSUB INTO BUFFER.
00077   0 60000 0 00613        STZ WRDCNT                    IF THERE WERE
00100  -3 00000 1 00107        TXL EMPTY1,1,0                ENTRIES MADE IN
00101  -0 75400 1 00433 L(SIX) PXD SIX,1                     FORSUB TABLE
00102   0 76000 0 00006        COM                           COMPUTE THE
00103   0 40100 0 00425        ADM DECR1                     WORD COUNT
00104   0 62200 0 00613        STD WRDCNT                    AND THEN
00105   0 07400 4 00345        TSX 5PS3D1,4                * GO WRITE FORSUB ONTO DRUM3.
D  00106   1 00000 0 00110        TXI 5P4FLC,0                * WHEN DONE, GO READ IN FLOCON.
00107   0 07400 4 00351 EMPTY1 TSX 5PS3D3,4                * IF FORSUB IS EMPTY, RECORD WRD CNT.
                                    END OF PROGRAM 5P3F3D.
                               * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                               5P4FLC/ CALLS=5PS1R,5PS2C.
                               READ IN AND COMPILE FLOCON.
00110   0 76200 0 00222 5P4FLC RTB TABTAP                    FIND
00111   0 70000 0 00440        CPY 5PERAS                    NEXT
D  00112   1 00000 0 00111        TXI 5P4FLC+1,0                END OF FILE
D  00113   1 00000 0 00115        TXI EOFILE,0                  ON TABLE TAPE
00114   1 77773 0 00110 MINUS5 TXI 5P4FLC,0,-5               TO LOCATE FLOCON.
00115   0 76600 0 00333 EOFILE IOD                           WHEN DONE,
00116  -0 76000 0 00012        RTT                           MAKE SURE TAPE CHECK
00117   0 76100 0 00000        NOP                           LIGHT IS TURNED OFF, AND
00120   0 07400 4 00304        TSX 5PS1R,4                 * GO READ FLOCON INTO BUFFER.
00121  -3 00000 1 00125        TXL 5P5R6C,1,0              * IF NO ENTRIES, GO COMPILE REGION6.
00122   0 50000 0 00427        CLA FLOSYM                    SET WORD1 OF COMPILED
00123   0 60100 0 00441        STO WORD1                     INSTRUCTION TO (300000) BCD.
00124   0 07400 4 00331        TSX 5PS2C,4                 * GO COMPILE FLOCON ENTRIES.
                                    END OF PROGRAM 5P4FLC.
                               * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                               5P5R6C/ CALLS=5PS2C.
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                                        COMPILE REGION-SIX CONSTANTS.
00125   0 50000 0 00430 5P5R6C CLA SIXSYM                    SET WORD1 OF COMPILED
00126   0 60100 0 00441        STO WORD1                     INSTRUCTION TO (600000) BCD.
00127   0 50000 0 00101        CLA L(SIX)                    SET COMPILING
00130   0 62100 0 00333        STA COMP                      SUBROUTINE (5PS2)
00131  -0 53400 1 00114        LXD MINUS5,1                  TO PICK UP THE FIVE CONSTANTS.
00132   0 07400 4 00331        TSX 5PS2C,4                 * GO COMPILE REGION-SIX CONSTANTS.
                                     END OF PROGRAM 5P5R6C.
                                    * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                                    5P6FTC/ CALLS=5PS1R,5PS4W.
                                    READ IN AND COMPILE FORMAT TABLE.
00133   0 50000 0 00137 5P6FTC CLA TXLOP                     SET OP SWITCH
00134   0 63000 0 00306        STP OPSW1                     IN READING ROUTINE (5PS1)
00135   0 50000 0 00424        CLA L(10)                     TO TEST FOR CORRECT TABLE NUMBER.
00136   0 07400 4 00304        TSX 5PS1R,4                 * GO READ IN FORMAT TABLE.
00137  -3 00000 1 00154 TXLOP  TXL 5P7CBW,1,0              * IF NO ENTRIES, GO WRITE OUT CIT.
00140   0 50000 0 00432        CLA 4MATOP                    SET WORD2 OF COMPILED
00141   0 60100 0 00442        STO WORD2                     INSTRUCTION TO (BCD000) BCD.
00142   0 53400 2 00413        LXA L(0),2                    MOVE
00143   0 50000 2 00614 COMPW1 CLA BUFFER,2                  FORMAT
00144   0 60100 0 00441        STO WORD1                     ENTRY
00145   1 77777 2 00146        TXI COMPW3,2,-1               INTO
00146   0 50000 2 00614 COMPW3 CLA BUFFER,2                  WORD1 AND
00147   0 60100 0 00443        STO WORD3                     WORD3.
00150   0 07400 4 00370        TSX 5PS4W,4                 * THEN GO COMPILE FORMAT TABLE.
00151   1 00002 1 00152        TXI TESTF,1,2                 IF NO ENTRIES REMAIN,
00152  -3 00000 1 00154 TESTF  TXL 5P7CBW,1,0              * THEN GO WRITE OUT CIT BUFFER.
00153   1 77777 2 00143        TXI COMPW1,2,-1               OTHERWISE, CONTINUE COMPILING.
                                     END OF PROGRAM 5P6FTC.
                                    * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                                    5P7CBW.
                                    TERMINATE COMPILING.
00154   0 76600 0 00223 5P7CBW WTB CITTAP                    WRITE
00155  -0 53400 2 00044        LXD BBOX,2                    THE CONTENTS
00156  -0 63400 2 00162        SXD TESTC,2                   OF THE
00157   0 53400 2 00413        LXA L(0),2                    CIT BUFFER
00160   0 70000 2 00445 WRCIB  CPY CIB,2                     ONTO
00161   1 77777 2 00162        TXI TESTC,2,-1                TAPE3
00162   3 00000 2 00160 TESTC  TXH WRCIB,2,**                FOLLOWED BY
00163   0 77000 0 00203        WEF CITTAP                    AN END OF FILE.
                                     END OF PROGRAM 5P7CBW.
                                    * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                                    5P8S2D/ CALLS=5PS1R,5PS3D.
                                    TRANSFER SIZ TABLE FROM TAPE 2 TO DRUM 2.
00164  -0 50000 0 00137 5P8S2D CAL TXLOP                    SET OP SWITCH IN 5PS1R
00165   0 63000 0 00310        STP OPSW2                     TO COPY EIFNO, BUT SKIP TABNO TEST.
00166   0 07400 4 00304        TSX 5PS1R,4                 * GO READ IN SIZ TABLE + EIFNO.
00167   0 50000 0 00612        CLA TABNUM                    MOVE EIFNO
00170   0 60100 0 00611        STO EIFNO                     INTO PROPER LOCATION.
00171   0 50000 0 00351        CLA SETDRM                    SET DRUM ROUTINE (5PS3D)
00172   0 40200 0 00414        SUB L(1)                      TO WRITE ONTO DRUM2.
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00173  0 60100 0 00351         STO SETDRM                    SET DRUM ADDRESS
00174 -0 75400 0 02000 DRMLOC  PXD 1024,0                    FOR REMAINING DRUM TABLES
00175  0 62100 0 00174         STA DRMLOC                    TO ZERO.
00176 -3 00000 1 00202         TXL EMPTY2,1,0                IF THERE WERE ENTRIES MADE
00177  0 50000 0 00613         CLA WRDCNT                    IN SIZ TABLE, PICKUP WRDCNT AND,
00200  0 07400 4 00346         TSX 5PS3D2,4                * GO WRITE SIZ ONTO DRUM2.
D 00201  1 00000 0 00203       TXI 5P9T4D,0                * WHEN DONE, GO READ IN TEIFNO.
00202  0 07400 4 00351 EMPTY2  TSX 5PS3D3,4                * IF SIZ IS EMPTY, GO RECORD WRD CNT.
                                END OF PROGRAM 5P8S2D.
                               * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                               5P9T4D/ CALLS=5PS1R,5PS3D.
                               TRANSFER TEIFNO TABLE FROM TAPE 2 TO DRUM 4.
00203  0 53400 2 00420 5P9T4D  LXA L(5),2                    MOVE TABLE TAPE
00204  0 76200 0 00222         RTB TABTAP                    OVER END OF FILE AND 1ST FOUR
00205  2 00001 2 00204         TIX 5P9T4D+1,2,1              TABLES TO POSITION FOR TEIFNO.
00206  0 50000 0 00137         CLA TXLOP                     SET OP SWITCH IN 5PS1R
00207  0 63000 0 00310         STP OPSW2                     TO MAKE TABLE NUMBER TEST.
00210  0 50000 0 00413         CLA L(0)                      PICKUP TEIFNO TABLE NUMBER, AND
00211  0 07400 4 00304         TSX 5PS1R,4                 * GO READ IN TEIFNO TABLE.
00212  0 50000 0 00137         CLA TXLOP                     SET OP SWITCH IN 5PS3D
00213  0 63000 0 00354         STP DRMSW                     TO WRITE EIFNO ON DRUM.
00214  0 50000 0 00351         CLA SETDRM                    SET DRUM ROUTINE
00215  0 40000 0 00415         ADD L(2)                      TO WRITE ONTO
00216  0 60100 0 00351         STO SETDRM                    DRUM 4.
00217 -3 00000 1 00222         TXL EMPTY3,1,0                IF THERE WERE ENTRIES MADEIN TEIFNO
00220  0 07400 4 00344         TSX 5PS3D,4                 * GO WRITE EIFNO AND TEIFNO ON DRUM4.
D 00221  1 00000 0 00223       TXI 5P10ED,0                * WHEN DONE, GO READ IN EQUIT.
00222  0 07400 4 00351 EMPTY3  TSX 5PS3D3,4                * IF TEIFNO IS EMPTY, RECORD WRD CNT.
                                END OF PROGRAM 5P9T4D.
                               * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                               5P10ED/ CALLS=5PS1R,5PS3D.
                               TRANSFER EQUIT TABLE FROM TAPE 2 TO DRUM 1.
00223  0 53400 1 00421 5P10ED  LXA L(7),1                    MOVE TABLE TAPE
00224  0 76200 0 00222         RTB TABTAP                    OVER 7 RECORDS
00225  2 00001 1 00224         TIX 5P10ED+1,1,1              TO POSITION FOR EQUIT.
00226  0 50000 0 00422         CLA L(8)                      PICKUP EQUIT TABLE NUMBER, AND
00227  0 07400 4 00304         TSX 5PS1R,4                 * GO READ IN EQUIT TABLE.
00230 -0 50000 0 00137         CAL TXLOP                     SET OP SWITCH IN 5PS3D
00231  0 63000 0 00354         STP DRMSW                     TO SKIP WRITING OF EIFNO.
00232  0 50000 0 00351         CLA SETDRM                    SET DRUM ROUTINE
00233  0 40200 0 00416         SUB L(3)                      TO WRITE ONTO
00234  0 60100 0 00351         STO SETDRM                    DRUM1.
00235 -3 00000 1 00270         TXL EMPTY4,1,0                IF EQUIT IS EMPTY, RECORD WRDCNT.
00236 -0 53400 4 00613         LXD WRDCNT,4                  OTHERWISE,
00237  0 53400 3 00413         LXA L(0),3                    COMPUTE A
00240  0 76000 0 00000 EQCHS   CLM                           LOGICAL
00241  0 36100 1 00614 CLASS   ACL BUFFER,1                  CHECK
00242  0 56000 1 00614         LDQ BUFFER,1                  SUM
00243 -0 60000 2 03550         STQ NEWEQ,2                   FOR
00244  1 77777 1 00245         TXI NXT1,1,-1                 EACH
00245  1 77777 2 00246 NXT1    TXI NXT2,2,-1                 EQUIVALENCE
00246  0 36100 1 00614 NXT2    ACL BUFFER,1                  CLASS
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00247  0 56000 1 00614         LDQ BUFFER,1                AND
00250 -0 60000 2 03550         STQ NEWEQ,2                 MOVE
00251  1 77777 1 00252         TXI NXT3,1,-1               EACH
00252  1 77777 2 00253 NXT3    TXI NXT4,2,-1               CLASS
00253  1 77776 4 00254 NXT4    TXI NXT5,4,-2               FOLLOWED
00254  0 16200 0 00241 NXT5    TQP CLASS                   BY ITS
00255  0 60200 2 03550 L(NEQ)  SLW NEWEQ,2                 CHECK
00256  1 77777 2 00257         TXI NXT6,2,-1               SUM
00257  3 00001 4 00240 NXT6    TXH EQCHS,4,1               INTO NEWEQ.
00260 -0 75400 2 00000         PXD ,2                      COMPUTE
00261  0 76000 0 00006         COM                         THE
00262  0 40100 0 00425         ADM DECR1                   NEW
00263  0 62200 0 00613         STD WRDCNT                  WORDCOUNT
00264  0 77100 0 00022         ARS 18                      AND
00265  0 73400 1 00000         PAX ,1                      THE
00266  0 40000 0 00255         ADD L(NEQ)                  NEW
00267  0 62100 0 00362         STA CADDRM                  MEMORY ADDRESS, AND
00270  0 07400 4 00351 EMPTY4  TSX 5PS3D3,4              * GO WRITE EQUIT ON DRUM 1.
                                END OF PROGRAM 5P10ED.
                               * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                               5P11CD/ CALLS=5PS1R,5PS3D.
                               TRANSFER CLOSUB TABLE FROM TAPE 2 TO DRUM 3.
00271  0 50000 0 00423 5P11CD  CLA L(9)                    PICKUP CLOSUB TABLE NUMBER, AND
00272  0 07400 4 00304         TSX 5PS1R,4                * GO READ IN CLOSUB TABLE.
00273  0 50000 0 00351         CLA SETDRM                  SET DRUM ROUTINE
00274  0 40000 0 00415         ADD L(2)                    TO WRITE ONTO
00275  0 60100 0 00351         STO SETDRM                  DRUM3.
00276 -3 00000 1 00301         TXL EMPTY5,1,0              IF THERE WERE ENTRIES MADEIN CLOSUB
00277  0 07400 4 00344         TSX 5PS3D,4                * GO WRITE CLOSUB ONTO DRUM3.
00300  1 00000 0 00302 5PXR1   TXI END5P,0,**              THEN GO CALL SECTION SIX.
00301  0 07400 4 00351 EMPTY5  TSX 5PS3D3,4               * IF CLOSUB IS EMPTY, RECORD WRDCNT.
00302  0 76200 0 00221 END5P   RTB SYSTAP                  SPACE OVER DIAGNOSTIC RECORD,
00303  1 00000 0 00004 5PXR2   TXI SECSIX,0,**            * THEN GO CALL SECTION SIX.
                                END OF PROGRAM 5P11CD.
                               * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                                END OF PROGRAM 5PRIME.
                               * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                               5PS1R,4/ CALLERS=5P1ASC,5P2FXC,5P3F3D,5P4FLC,5P6FTC,5P8S2D,
                               5P9T4D,5P10ED,5P11CD. CALLS=DIAG.
                               READ A RECORD FROM TAPE 2.
00304  0 53400 2 00420 5PS1R   LXA TERC,2                   SET TAPE ERROR COUNTER FOR 5 TRYS.
00305  0 76200 0 00222 READ    RTB TABTAP                  SELECT TABLE TAPE FOR READING.
D 00306 -3 00000 0 00315 OPSW1  TXL SKIP,0                  IF OP SWITCH IS SET TO TXH,
00307  0 70000 0 00612         CPY TABNUM                  THEN COPY 1ST WORD INTO TABNUM.
D 00310  3 00000 0 00315 OPSW2  TXH SKIP,0                  IF OP SWITCH IS SET TO TXH,
00311  0 34000 0 00612         CAS TABNUM                  THEN COMPARE C(AC) WITH TABNUM=
D 00312  1 00000 0 00314        TXI STOP,0                  IF INCORRECT RECORD - GO TO STOP.
00313  1 00000 0 00315 5PXR4   TXI SKIP,0,**               IF EQUAL - THEN CONTINUE.
00314  0 07400 4 00004 STOP    TSX DIAG,4                 * IF INCORRECT RECORD - GO TO DIAG.
00315  0 70000 0 00613 SKIP    CPY WRDCNT                  READ WORD COUNT,
00316  0 53400 1 00413         LXA L(0),1                  AND THEN READ
```

```
00317  0 70000 1 00614 COPY    CPY BUFFER,1                COMPLETE TABLE
00320  1 77777 1 00317         TXI COPY,1,-1               INTO BUFFER.
00321  0 07400 4 00004         TSX DIAG,4                * IF END OF FILE - GO TO DIAGNOSTIC.
00322  0 76600 0 00333         IOD                         WHEN DONE,
00323 -0 76000 0 00012         RTT                         IF TAPE RECORD
D 00324  1 00000 0 00326       TXI RTTON,0                 WAS READ CORRECTLY,
00325  0 02000 4 00001         TRA 1,4                   * RETURN TO MAIN ROUTINE.
00326  0 76400 0 00202 RTTON   BST TABTAP                  OTHERWISE, BACKSPACE TAPE, AND
00327  2 00001 2 00305         TIX READ,2,1                GO REREAD RECORD UNLESS
00330  0 07400 4 00004         TSX DIAG,4                * 5 ATTEMPTS FAILED - GO TO DIAG.
                                END OF PROGRAM 5PS1R.
                               * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                               5PS2C,4/ CALLS=5PS4W. CALLERS=5P1ASC,5P2FXC,5P4FLC,5P5R6C.
                               COMPILE 4-WORD INSTRUCTIONS FROM BUFFER ENTRIES.
00331 -0 63400 4 00313 5PS2C   SXD 5PXR4,4                 SAVE C(XR4) FOR EXIT.
00332  0 53400 2 00413         LXA L(0),2                  MOVE
00333  0 50000 2 00614 COMP    CLA BUFFER,2                ENTRY
00334  0 60100 0 00443         STO WORD3                   INTO WORD3,
00335  0 07400 4 00370         TSX 5PS4W,4               * AND GO COMPILE INSTRUCTION.
00336  1 00001 1 00337         TXI TEST,1,1                IF NO ENTRIES REMAIN,
00337 -3 00000 1 00342 TEST    TXL EXIT2,1,0               THEN TAKE EXIT2.
00340  0 60000 0 00441         STZ WORD1                   SET WORD1 TO ZERO,
00341  1 77777 2 00333         TXI COMP,2,-1               AND COMPILE SUCCEEDING ENTRIES.
00342 -0 53400 4 00313 EXIT2   LXD 5PXR4,4                 RESTORE C(XR4), AND
00343  0 02000 4 00001         TRA 1,4                   * RETURN TO MAIN ROUTINE.
                                END OF PROGRAM 5PS2C.
                               * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                               5PS3D,4/ CALLERS=5P3F3D,5P8S2D,5P9T4D,5P10ED,5P11CD.
                               WRITE TABLE ONTO DRUM FOLLOWED BY CHECKSUM.
00344  0 50000 0 00613 5PS3D   CLA WRDCNT                  SET C(XR1)
00345  0 77100 0 00022 5PS3D1  ARS 18                     EQUAL TO
00346  0 73400 1 00614 5PS3D2  PAX BUFFER,1               THE WORD COUNT
00347  0 40000 0 00346         ADD 5PS3D2                  AND INITIALIZE
00350  0 62100 0 00362         STA CADDRM                  CAD ADDRESS.
00351  0 76600 0 00303 5PS3D3  WDR 3                       WRITE ONTO
00352  0 76000 0 00000         CLM                         THE DRUM,
00353  0 46000 0 00174         LDA DRMLOC                  ACCORDING TO SWITCH SETTING.
D 00354 -3 00000 0 00357 DRMSW  TXL DRMSW+3,0              IF OP SWITCH IS TXH,
00355  0 70000 0 00611         CPY EIFNO                   WRITE EIFNO FOLLOWED
00356  0 70000 0 00611         CPY EIFNO                   BY ITS CHECKSUM.
00357  0 70000 0 00613         CPY WRDCNT                  WRITE WORD COUNT FOLLOWED
00360  0 70000 0 00613         CPY WRDCNT                  BY ITS CHECKSUM, AND THEN
00361 -3 00000 1 00367         TXL EXIT3,1,0               UNLESS THE BUFFER IS EMPTY,
00362 -0 70000 1 00000 CADDRM  CAD **,1                    WRITE THE
00363  2 00001 1 00362         TIX CADDRM,1,1              CONTENTS OF BUFFER
00364  0 70000 0 00413         CPY L(0)                    ONTO DRUM FOLLOWED
00365  0 60200 0 00440         SLW 5PERAS                  BY ZERO AND THEN
00366  0 70000 0 00440         CPY 5PERAS                  THE LOGICAL CHECKSUM.
00367  0 02000 4 00001 EXIT3   TRA 1,4                   * RETURN TO MAIN ROUTINE.
                                END OF PROGRAM 5PS3D.
                               * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
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                                        5PS4W,4/ CALLERS=5P6FTC,5PS2C.
                                        MOVE 4-WORD INSTRUCTION INTO CIB, AND WRITE CIB ONTO TAPE3.
00370 -0 63400 1 00300 5PS4W   SXD 5PXR1,1                    SAVE C(XR1) AND
00371 -0 63400 2 00303         SXD 5PXR2,2                    SAVE C(XR2).
00372 -0 53400 2 00044         LXD BBOX,2                     IF THE NUMBER OF
00373  3 77634 2 00402         TXH MOVE-1,2,-100              WORDS ENTERED = 100,
00374  0 76600 0 00223         WTB CITTAP                     THEN
00375  0 53400 1 00413         LXA L(0),1                     WRITE
00376  0 70000 1 00445 WRITE   CPY CIB,1                      THE CONTENTS
00377  1 00001 2 00400         TXI TESTB,2,1                  OF THE CIT
00400 -3 00000 2 00402 TESTB   TXL MOVE-1,2,0                 BUFFER
00401  1 77777 1 00376         TXI WRITE,1,-1                 ONTO TAPE3.
00402  0 53400 1 00417         LXA L(4),1                     MOVE
00403  0 50000 1 00445 MOVE    CLA WORD1+4,1                  NEW
00404  0 60100 2 00445         STO CIB,2                      4 WORD
00405  1 77777 2 00406         TXI TESTA,2,-1                 INSTRUCTION
00406  2 00001 1 00403 TESTA   TIX MOVE,1,1                   INTO CIT BUFFER.
00407 -0 63400 2 00044         SXD BBOX,2                     ADJUST BUFFER COUNT.
00410 -0 53400 1 00300         LXD 5PXR1,1                    RESTORE C(XR1),
00411 -0 53400 2 00303         LXD 5PXR2,2                    RESTORE C(XR2), AND
00412  0 02000 4 00001         TRA 1,4                      * EXIT TO MAIN ROUTINE.
                                        END OF PROGRAM 5PS4W.
                                       * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                                        CONSTANTS USED BY 5 PRIME.
00413  0 00000 0 00000 L(0)    PZE 0
00414  0 00000 0 00001 L(1)    PZE 1
00415  0 00000 0 00002 L(2)    PZE 2
00416  0 00000 0 00003 L(3)    PZE 3
00417  0 00000 0 00004 L(4)    PZE 4
00420  0 00000 0 00005 L(5)    PZE 5
00421  0 00000 0 00007 L(7)    PZE 7
00422  0 00000 0 00010 L(8)    PZE 8
00423  0 00000 0 00011 L(9)    PZE 9
00424  0 00000 0 00012 L(10)   PZE 10
00425  0 00001 0 00000 DECR1   PZE 0,0,1
00426  020000000000     FIXSYM BCD 1200000
00427  030000000000     FLOSYM BCD 1300000
00430  060000000000     SIXSYM BCD 1600000
00431  462363000000     OCTLOP BCD 1OCT000
00432  222324000000     4MATOP BCD 1BCD000
00433 +233000000000     SIX    OCT 233000000000,77777,0,1000000,0
00434 +000000077777
00435 +000000000000
00436 +000001000000
00437 +000000000000
                                        END OF 5 PRIME CONSTANTS.
                                       * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                                        WORKING STORAGE USED BY 5 PRIME.
                 00440 5PERAS BSS 1
00441  050000000000     WORD1  BCD 1500000
00442  635121000000     WORD2  BCD 1TRA000
00443  000000000000     WORD3  BCD 1000000
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00444  000000000000     WORD4   BCD 1000000
                00445 CIB      BSS 100
                00611 EIFNO    BSS 1
                00612 TABNUM   BSS 1
                00613 WRDCNT   BSS 1
                00614 BUFFER   BSS 1500
                03550 NEWEQ    BSS 1500
                                    END OF 5 PRIME WORKING STORAGE.
                                   * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                                   SYNONYMS USED BY 5 PRIME.
                00351 SETDRM   SYN 5PS3D3                    LOCATION OF WDR INSTRUCTION.
                00420 TERC     SYN L(5)                      TAPE ERROR COUNTER.
                00001 SYSTAP   SYN 1                         FORTRAN SYSTEM TAPE.
                00002 TABTAP   SYN 2                         TABLE TAPE.
                00003 CITTAP   SYN 3                         COMPILED INSTRUCTION TAPE.
                00004 DIAG     SYN 4                         DIAGNOSTIC ROUTINE.
                00004 SECSIX   SYN 4                         SECTION SIX = NEXT SECTION.
                                    END OF 5 PRIME SYNONYMS.
                                   * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                00030          END 5PRIME
0SHARE ASSEMBLER STATISTICS
0TAPE  TOTAL      1 FAIL      2 FAIL      3 FAIL      4 FAIL
 INP       0           0           0           0           0
 LIB       0           0           0           0           0
 COL     395           0           0           0           0
0NUMBER OF ON-LINE INPUT RECORDS        395
0NUMBER OF OFF-LINE PRINT RECORDS       408
0NUMBER OF SYMBOLS,  DEF   104,DEFOP     0,UNDEF     0
```

```
1          REM ************ FORTRAN II SECTION PRE-SIX ********************F6A00010
1                                  ************ FORTRAN II SECTION PRE-SIX ********************F6A00010
                                   FORTRAN 2   RECORD 92  -  PRE-6.                              F6A00011
                                                                                                 F6A00012
                                   CONTROL ENTERS THIS RECORD AT LOCATION 400 (OCTAL)             F6A00013
                                                                                                 F6A00014
                        00030          ORG 24                                                   F6A00020
00030   0 00000 0 00000 PC1    HTR 0                                                           F6A00030
00031   0 00000 0 00000 PC2    HTR 0                                                           F6A00040
00032   0 00000 0 00000 PC3    HTR 0                                                           F6A00050
00033   0 00000 0 00000 PC4    HTR 0                                                           F6A00060
00034   0 00000 0 00000 PC5    HTR 0                                                           F6A00070
00035   0 00000 0 00000 PC6    HTR 0                                                           F6A00080
00036   0 00000 0 00000 SUBIN  HTR 0                                                           F6A00090
                                   SECTION PRE 6                                             F6A00100
                                   TRANSFER VECTOR COMPILING                                 F6A00110
                                                                                             F6A00120
                        00037          ORG 31                                                   F6A00130
00037   0 77200 0 00202 START  REW 2                                                           F6A00140
00040   0 77200 0 00203        REW 3                                                           F6A00150
00041   0 77200 0 00204        REW 4                                                           F6A00160
00042   0 07400 4 01406        TSX APCH2,4        TO SKIP BCD FILE.                            F6A00170
00043   0 76200 0 00222 P1     RTB 2              ON TAPE 2.                                   F6A00180
00044   0 70000 0 01355 CH1    CPY ERAS1                                                       F6A00190
00045   0 02000 0 00044        TRA CH1                                                         F6A00200
00046   0 02000 0 00050        TRA P2             END OF FILE.                                 F6A00210
00047   0 02000 0 00043        TRA P1             END OF REC.                                  F6A00220
00050   2 00001 2 00043 P2     TIX P1,2,1                                                      F6A00230
00051   0 76200 0 00222        RTB 2                  RECORD 3                                 F6A00240
00052   0 77100 0 00377        ARS 255                                                         F6A00250
00053   0 77100 0 00377        ARS 255                                                         F6A00260
00054  -0 76000 0 00012        RTT                                                             F6A00270
00055   0 76100 0 00000        NOP                                                             F6A00280
                                   READ TRANSFER VECTOR FROM DRUM 3                          F6A00290
00056   0 53400 2 00142        LXA P16,2                                                       F6A00300
00057   0 76200 0 00303 RDRM   RDR 3                                                           F6A00310
T       00060  -0 75400 0 00000 MDA    PXD                                                     F6A00320
        00061   0 46000 0 00060        LDA MDA                                                 F6A00330
        00062  -0 70000 0 04574        CAD TV-2                                                F6A00340
        00063   0 76000 0 00006        COM                                                     F6A00350
        00064  -0 70000 0 04575        CAD TV-1                                                F6A00360
        00065   0 76000 0 00006        COM                                                     F6A00370
        00066   0 10000 0 00071        TZE RDRF                                                F6A00380
        00067   2 00001 2 00057        TIX RDRM,2,1                                            F6A00390
        00070   0 07400 4 00004        TSX 4,4                                                 F6A00400
        00071  -0 53400 3 04574 RDRF   LXD TV-2,3                                            F6A00410
D       00072  -3 00000 1 00110        TXL SDF,1                                               F6A00420
        00073   0 53400 2 00142        LXA P16,2                                               F6A00430
        00074   0 76200 0 00303 RDRM1  RDR 3                                                  F6A00440
T       00075  -0 75400 0 00002 FDA    PXD 2                                                   F6A00450
        00076   0 46000 0 00075        LDA FDA                                                 F6A00460
        00077  -0 70000 1 04574 CPY    CAD TV-2,1                                              F6A00470
        00100   2 00001 1 00077        TIX CPY,1,1                                             F6A00480
        00101   0 70000 0 01366        CPY SUM                                                 F6A00490
        00102   0 76000 0 00006        COM
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00103 -0 70000 0 01366          CAD SUM                                          F6A00500
00104  0 76000 0 00006          COM                                              F6A00510
00105  0 10000 0 00110          TZE SDF                                          F6A00520
00106  2 00001 2 00074          TIX RDRM1,2,1                                    F6A00530
00107  0 07400 4 00004          TSX 4,4                                          F6A00540
00110  0 50000 0 04574  SDF     CLA TV-2          WD CT. OF TRANSFER VECTOR.     F6A00550
00111  0 60100 0 00032          STO PC3           STORE LENGTH IN PROGRAM CARD.  F6A00560
00112  0 10000 0 00133          TZE NOVC                                         F6A00570
00113  0 40200 0 01342          SUB C18                                          F6A00580
00114  0 62200 0 00127          STD P8                                           F6A00590
00115 -0 53400 5 01307          LXD C1,5          INITIALIZE TAPE 4 (SETXR1 AND 4=0)  F6A00600
00116 -0 50000 4 04573  P9      CAL TV-3,4        STORAGE.                       F6A00610
00117  0 60200 1 02461          SLW REC-1,1       SELECT NAME AND                F6A00620
00120  0 60200 1 02457          SLW REC-3,1       COMPILE CIT.                   F6A00630
00121  0 60000 1 02456          STZ REC-4,1                                      F6A00640
00122 -0 50000 0 01311          CAL BCD                                          F6A00650
00123  0 60200 1 02460          SLW REC-2,1                                      F6A00660
00124  1 00004 1 00125          TXI P7,1,4                                       F6A00670
00125  3 00143 1 00131  P7      TXH WRIT4,1,99                                   F6A00680
00126  1 00001 4 00127  P11     TXI P8,4,1                                       F6A00690
00127  3 00127 4 00135  P8      TXH P10,4,*                                      F6A00700
00130  0 02000 0 00116          TRA P9                                           F6A00710
00131  0 07400 2 01254  WRIT4   TSX SUB1,2        WRITE RECORD ON                F6A00720
00132  0 02000 0 00126          TRA P11           TAPE 4.                        F6A00730
00133 -0 53400 1 01307  NOVC    LXD C1,1          SETXR1=0                       F6A00740
00134  0 02000 0 00135          TRA P10                                          F6A00750
                                SUBDEF COMPILING                                 F6A00760
00135  0 53400 4 00142  P10     LXA P16,4         SET READ ERROR COUNTER.        F6A00770
00136  0 02000 0 00143          TRA P17                                          F6A00780
00137  0 76400 0 00202  P15     BST 2                                            F6A00790
00140  2 00001 4 00143          TIX P17,4,1                                      F6A00800
00141  0 07400 4 00004          TSX 4,4                                          F6A00810
00142  0 42000 0 00005  P16     HPR 5                                            F6A00820
00143  0 76200 0 00222  P17     RTB 2             READ SUBDEF TABLE INTO         F6A00830
00144  0 53400 2 01310          LXA C2,2          SUB-1,-2,...                   F6A00840
00145  0 70000 2 04574  P18     CPY SUB-2,2                                      F6A00850
00146  1 00001 2 00145          TXI P18,2,1                                      F6A00860
00147  0 02000 0 01341          TRA EOF2                                         F6A00870
00150  0 77100 0 00377          ARS 255                                          F6A00880
00151  0 77100 0 00377          ARS 255                                          F6A00890
00152 -0 76000 0 00012          RTT                                              F6A00900
00153  0 02000 0 00137          TRA P15                                          F6A00910
00154  0 50000 0 00032          CLA PC3                                          F6A00920
00155  0 77100 0 00022          ARS 18                                           F6A00930
00156  0 60100 0 00035          STO PC6                                          F6A00940
00157 -0 50000 0 04574          CAL SUB-2         STORE SUBDEF WORD COUNT.       F6A00950
00160  0 60100 0 00036          STO SUBIN                                        F6A00960
00161  0 10000 0 01233          TZE NOSUB         TEST FOR SUBROUTINE.           F6A00970
00162 -0 50000 0 04573  P19     CAL SUB-3         STORE NAME OF SUBROUTINE FOR PROGRAM CARD.  F6A00980
00163  0 60200 0 00034          SLW PC5                                          F6A00990
00164  0 50000 0 00035          CLA PC6                                          F6A01000
00165  0 40000 0 01307          ADD C1                                           F6A01010
00166  0 60100 0 00035          STO PC6           SET RELATIVE                   F6A01020
00167  0 60000 0 01356          STZ RCT           COUNT TO 0.                    F6A01030
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00170 -0 50000 0 01314         CAL  C5          COMPILE CITS.                                    F6A01040
00171  0 60200 1 02461         SLW  REC-1,1                                                      F6A01050
00172  0 07400 2 01265         TSX  SUB2,2      COMPLETES CIT ONE.                               F6A01060
00173  0 02000 0 00175         TRA  P20             CIT 1                                        F6A01070
00174  0 07400 2 01254         TSX  SUB1,2      IF VEC, WRITE OFF TAPE FOUR.                     F6A01080
00175  0 60000 1 02461  P20    STZ  REC-1,1     COMPILE CIT, WD1=0,                              F6A01090
00176  0 07400 2 01265         TSX  SUB2,2      WD 2=HTR, WD 3=0, WD 4=0.                        F6A01100
00177  0 02000 0 00201         TRA  P22                                                          F6A01110
00200  0 07400 2 01254         TSX  SUB1,2      IF NEC, WRITE OFF TAPE FOUR.                     F6A01120
00201  0 60000 1 02461  P22    STZ  REC-1,1     CIT 3                                            F6A01130
00202  0 07400 2 01265         TSX  SUB2,2                                                       F6A01140
00203  0 02000 0 01415         TRA  NAME                                                         F6A01150
00204  0 07400 2 01254         TSX  SUB1,2                                                       F6A01160
00205  0 02000 0 01415  COMPX  TRA  NAME                                                         F6A01170
00206  0 07400 2 01275         TSX  SUB3,2      TO STORE CIT 4 IN TAPE 4 BUFFER.                 F6A01180
00207  0 02000 0 00211         TRA  P26                                                          F6A01190
00210  0 07400 2 01254         TSX  SUB1,2                                                       F6A01200
00211 -0 50000 0 01320  P26    CAL  C9                                                           F6A01210
00212  0 07400 2 01275         TSX  SUB3,2      TO STORE IN T-4 BUFFER PROLOGUE CIT 5            F6A01220
00213  0 02000 0 00215         TRA  P28                                                          F6A01230
00214  0 07400 2 01254         TSX  SUB1,2                                                       F6A01240
00215 -0 50000 0 01321  P28    CAL  C10         TO STORE IN T-4 BUFFER PROLOGUE CIT 6.           F6A01250
00216  0 07400 2 01275         TSX  SUB3,2                                                       F6A01260
00217  0 02000 0 00221         TRA  P30                                                          F6A01270
00220  0 07400 2 01254         TSX  SUB1,2                                                       F6A01280
00221  0 56000 0 01307  P30    LDQ  C1          INIT DELETE                                      F6A01290
00222 -0 60000 0 01357         STQ  DELIN       INDICATOR NOT ZERO.                              F6A01300
00223  0 50000 0 04574         CLA  SUB-2       COMPUTE TEST                                     F6A01310
00224  0 77100 0 00022         ARS  18          ADDRESS FOR END                                  F6A01320
00225  0 40200 0 01317         SUB  C8          OF ARG LIST.                                     F6A01330
00226  0 60100 0 01360         STO  ARGCT       ARGCT CONTAINS WD CT. OF SUBDEF-1.               F6A01340
00227  0 10000 0 01243         TZE  F1          =0 IF NO ARGUMENTS                               F6A01350
00230  0 40000 0 01322         ADD  C11                                                          F6A01360
00231  0 62100 0 01333         STA  AGTST       AGTST CONTAINS NO. OF ARGS-SUB+4                 F6A01370
                               FORM ARG ARRAY INDICATOR TABLE                                    F6A01380
00232 -0 50000 0 01322  A1     CAL  C11         INIT ARG LIST,                                   F6A01390
00233  0 62100 0 00306         STA  A10         SET ADDRESS A10=SUB-4.                           F6A01400
00234  0 53400 2 00142         LXA  P16,2                                                        F6A01410
00235  0 76200 0 00302  A4     RDR  2           READ SIZE TABLE WORD COUNT.                      F6A01420
00236  0 46000 0 00237         LDA  A2                                                           F6A01430
T 00237 -0 75400 0 00000  A2    PXD  0                                                           F6A01440
00240 -0 70000 0 01350         CAD  EA1                                                          F6A01450
00241  0 76000 0 00006         COM                                                               F6A01460
00242 -0 70000 0 01351         CAD  EA2                                                          F6A01470
00243  0 76000 0 00006         COM                                                               F6A01480
00244  0 10000 0 00247         TZE  A3                                                           F6A01490
00245  2 00001 2 00235         TIX  A4,2,1                                                       F6A01500
00246  0 07400 4 00004         TSX  4,4                                                          F6A01510
00247  0 50000 0 01350  A3     CLA  EA1                                                          F6A01520
00250  0 77100 0 00001         ARS  1                                                            F6A01530
00251  0 60100 0 01350         STO  EA1         EA1 NOW CONTAINS NO. OF 2-WORD ENTRIES IN SIZE   F6A01540
                                                TABLE.                                           F6A01541
00252 -0 53400 2 01307  A18    LXD  C1,2        SET ARRAY IND. TABLE                             F6A01550
00253  0 60000 2 05310  A19    STZ  ARIND,2     TO ZERO,                                         F6A01560
```

```
00254   1 00001 2 00255          TXI  A20,2,1          TABLE                                F6A01570
00255   3 00035 2 00257  A20     TXH  CH4,2,29                                              F6A01580
00256   0 02000 0 00253          TRA  A19                                                   F6A01590
00257   0 53400 2 01350  CH4     LXA  EA1,2                                                 F6A01600
00260  -3 00000 2 00342          TXL  B1,2,0           TEST FOR NO ARRAYS.                  F6A01610
00261  -0 63400 1 01352          SXD  IRIST,1          SAVE TAPE 4 INDEX.                   F6A01620
00262   0 53400 1 00142          LXA  P16,1                                                 F6A01630
00263   0 76200 0 00302  A8      RDR  2                                                     F6A01640
00264   0 46000 0 00265          LDA  A5                                                    F6A01650
T 00265  -0 75400 0 00002  A5    PXD  2                                                     F6A01660
00266  -0 70000 2 06546  A6      CAD  DIM,2            READ SIZ TABLE.                      F6A01670
00267  -0 70000 0 01351          CAD  EA2                                                   F6A01680
00270   2 00001 2 00266          TIX  A6,2,1                                                F6A01690
00271   0 70000 0 01351          CPY  EA2                                                   F6A01700
00272   0 76000 0 00006          COM                                                        F6A01710
00273  -0 70000 0 01351          CAD  EA2                                                   F6A01720
00274   0 76000 0 00006          COM                                                        F6A01730
00275   0 10000 0 00300          TZE  A7                                                    F6A01740
00276   2 00001 1 00263          TIX  A8,1,1                                                F6A01750
00277   0 07400 4 00004          TSX  4,4                                                   F6A01760
00300   0 50000 0 01324  A7      CLA  C13              INIT ARIND TABLE.                    F6A01770
00301  -0 53400 1 01352          LXD  IRIST,1                                               F6A01780
00302   0 60100 0 01351          STO  EA2                                                   F6A01790
00303   0 50000 0 01323          CLA  C12                                                   F6A01800
00304   0 62100 0 00316          STA  A14                                                   F6A01810
00305   0 53400 2 01350  A9      LXA  EA1,2                                                 F6A01820
00306   0 50000 0 04572  A10     CLA  SUB-4            SELECT ARG.                          F6A01830
00307   0 34000 2 06546          CAS  DIM,2            IS ARGUMENT AN ARRAY.                F6A01840
00310   0 02000 0 00312          TRA  A11                                                   F6A01850
00311   0 02000 0 00315          TRA  A13              YES                                  F6A01860
00312   2 00001 2 00306  A11     TIX  A10,2,1                                               F6A01870
00313   0 50000 0 01334  A12     CLA  ZERO             ARG IS NOT ARRAY. SET BIT TO ZERO    F6A01880
00314   0 02000 0 00316          TRA  A14                                                   F6A01890
00315   0 50000 0 01325  A13     CLA  C14              ARG IS ARRAY, SET BIT TO BE 1.       F6A01900
00316  -0 60200 0 05310  A14     ORS  ARIND STORE INSTORE INDICATOR                         F6A01910
00317   0 50000 0 01325          CLA  C14                                                   F6A01920
00320   0 77100 0 00001  A17     ARS  1                                                     F6A01930
00321   0 60100 0 01325          STO  C14                                                   F6A01940
00322  -0 50000 0 01351          CAL  EA2              MODIFY ARIND COUNT.                  F6A01950
00323   0 40200 0 01317          SUB  C8                                                    F6A01960
00324   0 60100 0 01351          STO  EA2                                                   F6A01970
00325   0 10000 0 00334          TZE  A15              WORD FULL TEST.                      F6A01980
00326   0 50000 0 00306  A16     CLA  A10              MODIFY ARG                           F6A01990
00327   0 40200 0 01317          SUB  C8               LIST ADDRESS.                        F6A02000
00330   0 62100 0 00306          STA  A10                                                   F6A02010
00331   0 40200 0 01333          SUB  AGTST                                                 F6A02020
00332   0 10000 0 00342          TZE  B1               NO MORE ARGUMENTS.                   F6A02030
00333   0 02000 0 00305          TRA  A9                                                    F6A02040
00334   0 50000 0 01324  A15     CLA  C13                                                   F6A02050
00335   0 60100 0 01351          STO  EA2                                                   F6A02060
00336   0 50000 0 00316          CLA  A14                                                   F6A02070
00337   0 40000 0 01317          ADD  C8                                                    F6A02080
00340   0 62100 0 00316          STA  A14                                                   F6A02090
00341   0 02000 0 01432          TRA  APCH3+1                                               F6A02100
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00342 -0 63400 1 01352  B1     SXD IRIST,1        SAVE TAPE 4 INDEX                                F6A02110
                               FORM OP TABLES FROM SEARCHING CIT                                   F6A02120
00343  0 60000 0 01361         STZ TP2CT          SET TAPE 2 RECORD COUNT TO ZERO,                 F6A02130
00344  0 76200 0 00222  B3     RTB 2              READY TAPE 2.                                    F6A02140
00345  0 70000 0 01351  CH2    CPY EA2                                                             F6A02150
00346  0 02000 0 00345         TRA CH2                                                             F6A02160
00347  0 02000 0 00351         TRA B2             EOF                                              F6A02170
00350  0 02000 0 00344         TRA B3             EOR                                              F6A02180
00351 -0 53400 1 01307  B2     LXD C1,1           INIT OP BLOCK. SET XR1=0                         F6A02190
00352  0 53400 4 00357  B8     LXA B5,4               READ TAPE 3                                  F6A02200
00353  0 02000 0 00360         TRA B6                                                              F6A02210
00354  0 76400 0 00203  B4     BST 3                                                               F6A02220
00355  2 00001 4 00360         TIX B6,4,1                                                          F6A02230
00356  0 07400 4 00004         TSX 4,4                                                             F6A02240
00357  0 42000 0 00005  B5     HPR 5                                                               F6A02250
00360  0 76200 0 00223  B6     RTB 3              SELECT CIT TAPE.                                 F6A02260
00361  0 53400 2 01310         LXA C2,2           SETXR2=-1                                        F6A02270
00362  0 70000 2 02624  B7     CPY CIT-2,2        COPY A RECORD OF CIT TAPE INTO CIT-1,-2,         F6A02280
00363  1 00001 2 00362         TXI B7,2,1                                                          F6A02290
00364  0 02000 0 00517         TRA B28            END OF FILE                                      F6A02300
00365  0 77100 0 00377         ARS 255            END OF RECORD                                    F6A02310
00366  0 77100 0 00377         ARS 255                                                             F6A02320
00367 -0 76000 0 00012         RTT                                                                 F6A02330
00370  0 02000 0 00354         TRA B4                                                              F6A02340
00371 -0 63400 2 00515         SXD B27,2          SAVE TAPE 3 RECORD LENGTH(-2)                    F6A02350
00372 -0 53400 4 01307         LXD C1,4           INIT TAPE 3 BLOCK.                               F6A02360
00373  0 50000 0 01356         CLA RCT                                                             F6A02370
00374 -0 10000 0 00377         TNZ B9             TRANSFER IF RELATIVE COUNT NOT ZERO.             F6A02380
00375 -0 50000 0 02625         CAL CIT-1          STORE INITIAL                                    F6A02390
00376  0 60200 0 01353         SLW SLINT          SYM LOCATION.                                    F6A02400
00377  0 50000 0 01357  B9     CLA DELIN          IS DELIND ZERO.                                  F6A02410
00400  0 10000 0 00414         TZE B11            TRANSFER IF YES.                                 F6A02420
00401 -0 50000 4 02624         CAL CIT-2,4        SELECT CIT. IS OP QPR.                           F6A02430
00402  0 77100 0 00022         ARS 18                                                              F6A02440
00403  0 34000 0 01332         CAS QPR                                                             F6A02450
00404  0 02000 0 00425         TRA B12                                                             F6A02460
00405  0 02000 0 00407         TRA B10            EQUAL. OP IS QPR.                                F6A02470
00406  0 02000 0 00425         TRA B12            NOT EQUAL                                        F6A02480
00407  0 60000 0 01357  B10    STZ DELIN          QPR OP. SET DELETE INDICATOR TO ZERO.            F6A02490
00410  0 50000 0 01356  B16    CLA RCT                                                             F6A02500
00411  0 40000 0 01317         ADD C8             INCREMENT RCT BY 1,                              F6A02510
00412  0 60100 0 01356         STO RCT            AND GO MODIFY TAPE THREE INDEX.                  F6A02520
00413  0 02000 0 00514         TRA B26                                                             F6A02530
00414  0 50000 0 01317  B11    CLA C8             SET DELETE INDIC. EQUAL ONE                      F6A02540
00415  0 60100 0 01357         STO DELIN          AND GO MODIFY TAPE 3 INDEX.                      F6A02550
00416  0 02000 0 00514         TRA B26                                                             F6A02560
00417  0 50000 4 02622  EXT21  CLA CIT-4,4                                                        F6A02570
00420  0 77100 0 00022         ARS 18                                                              F6A02580
00421  0 40000 0 01356         ADD RCT                                                             F6A02590
00422  0 60100 0 01356         STO RCT                                                             F6A02600
00423  0 02000 0 00514         TRA B26                                                             F6A02610
00424  000000226262     BSS    BCD 1000BSS                                                         F6A02620
00425  0 34000 0 00424  B12    CAS BSS            OP NOT QPR. TEST FOR BSS OP.                     F6A02630
00426  0 02000 0 00430         TRA EXT20                                                           F6A02640
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00427  0 02000 0 00417         TRA EXT21      OP EQUAL BSS.                                  F6A02650
00430  0 02000 0 01370  EXT20  TRA APCH1      OP NOT QPR NOR BSS.                            F6A02660
00431  0 62100 0 00432         STA B13        INITIALIZE ARGUMENT LIST ADDRESS.              F6A02670
00432  0 50000 0 04572  B13    CLA SUB-4      SEARCH ARG LIST                                F6A02680
00433  0 34000 4 02623         CAS CIT-3,4    FOR EQUAL SYMBOLIC                             F6A02690
00434  0 02000 0 00436         TRA B15        ADDRESS.                                       F6A02700
00435  0 02000 0 00444         TRA B14        EQUAL, GO TO B14 TO COMPILE OP TABLE ENTRY.    F6A02710
00436  0 50000 0 00432  B15    CLA B13        SYMBOLIC ADDRESS NOT AN ARGUMENT. UPDATE       F6A02720
00437  0 40200 0 01317         SUB C8         ARGUMENT COUNTER.                              F6A02730
00440  0 62100 0 00432         STA B13                                                       F6A02740
00441  0 40200 0 01333         SUB AGTST      TEST FOR ALL ARGUMENTS TREATED.                F6A02750
00442  0 10000 0 00410         TZE B16        NO MORE ARGUMENTS. TRANSFER.                   F6A02760
00443  0 02000 0 00432         TRA B13        GO CHECK AGAINST NEXT ARGUMENT.                F6A02770
00444  0 50200 0 01322  B14    CLS C11        EQUAL, MUST COMPILE OP TABLE ENTRY.            F6A02780
00445  0 40200 0 00432         SUB B13                                                       F6A02790
00446  0 40000 0 01317         ADD C8                                                        F6A02800
00447  0 60100 0 01354         STO ARGNO          COMPUTE ADDRESS                            F6A02810
00450  0 40200 0 01317         SUB C8         COMPUTE ADDRESS                                F6A02820
00451  0 76500 0 00043         LRS 35         OF BIT IN ARIND                                F6A02830
00452  0 22000 0 01324         DVH C13        TABLE.                                         F6A02840
00453 -0 60000 0 01355         STQ ERAS1                                                     F6A02850
00454  0 62100 0 00461         STA B18                                                       F6A02860
00455  0 50000 0 01323         CLA C12                                                       F6A02870
00456  0 40200 0 01355         SUB ERAS1                                                     F6A02880
00457  0 62100 0 00460         STA B17                                                       F6A02890
00460  0 56000 0 00460  B17    LDQ *          TEST FOR ARRAY.                                F6A02900
00461  0 76300 0 00461  B18    LLS *                                                         F6A02910
T      00462 -0 75400 0 00000  PXD                                                          F6A02920
00463  0 76300 0 00001         LLS 1                                                         F6A02930
00464  0 10000 0 00470         TZE B19        NOT ARRAY.                                     F6A02940
00465  0 50000 4 02622         CLA CIT-4,4    ARG IS ARRAY, SO STORE RELATIVE ADDRESS OF     F6A02950
00466  0 60100 1 06544         STO OP-2,1     CIT AS WORD 2 OF OP TABLE ENTRY.               F6A02960
00467  0 02000 0 00471         TRA B20                                                       F6A02970
00470  0 60000 1 06544  B19    STZ OP-2,1     ARG IS NOT ARRAY. SET WORD 2 OF OP ENTRY=0.    F6A02980
00471  0 50000 0 01354  B20    CLA ARGNO      ASSEMBLE WORD ONE OF OP TABLE ENTRY.           F6A02990
00472  0 76700 0 00022         ALS 18                                                        F6A03000
00473  0 40000 0 01356         ADD RCT                                                       F6A03010
00474  0 60100 1 06545         STO OP-1,1                                                    F6A03020
00475  1 00002 1 00476         TXI B21,1,2    MODIFY TAPE 2                                  F6A03030
00476  3 00441 1 00500  B21    TXH B22,1,289  BLOCK.                                         F6A03040
00477  0 02000 0 00410         TRA B16                                                       F6A03050
00500  0 76600 0 00222  B22    WTB 2          WRITE OFF                                      F6A03060
00501 -0 53400 1 01307         LXD C1,1       TAPE 2.                                        F6A03070
00502  0 70000 1 06545  B25    CPY OP-1,1                                                    F6A03080
00503  1 00001 1 00504         TXI B23,1,1                                                   F6A03090
00504  3 00441 1 00506  B23    TXH B24,1,289                                                 F6A03100
00505  0 02000 0 00502         TRA B25                                                       F6A03110
00506 -0 53400 1 01307  B24    LXD C1,1       SET XR1 EQUAL ZERO                             F6A03120
00507  0 50000 0 01361         CLA TP2CT      UPDATE TAPE TWO RECORD COUNT.                  F6A03130
00510  0 40000 0 01317         ADD C8                                                        F6A03140
00511  0 60100 0 01361         STO TP2CT                                                     F6A03150
00512  0 76600 0 00333         IOD                                                           F6A03160
00513  0 02000 0 00410         TRA B16                                                       F6A03170
00514  1 00004 4 00515  B26    TXI B27,4,4    MODIFY TAPE 3 BLOCK TO SELECT NEXT CIT (FROM   F6A03180
```

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00515  3 00515 4 00352  B27    TXH B8,4,*      TAPE 3).                                  F6A03181
00516  0 02000 0 00377         TRA B9          TEST END OF TAPE 3 BLOCK.                 F6A03190
00517  0 77200 0 00203  B28    REW 3                                                     F6A03200
00520  3 00000 1 00522         TXH B29,1,0     EOF TAPE 3. REWIND TAPE 3.                F6A03210
00521  0 02000 0 00531         TRA B34         ANY OP ENTRIES TO BE WRITTEN ON T-2.      F6A03220
00522 -0 63400 1 00527  B29    SXD B31,1       NO.                                       F6A03230
00523  0 76600 0 00222         WTB 2           YES, SAVE COUNT OF WORDS TO BE WRITTEN.   F6A03240
00524 -0 53400 1 01320         LXD C9,1                                                  F6A03250
00525  0 70000 1 06546  B30    CPY OP,1        WRITE OFF ON                              F6A03260
00526  1 00001 1 00527         TXI B31,1,1     TAPE 2.                                   F6A03270
00527  3 00527 1 00534  B31    TXH B35,1,*         NECESSARY                             F6A03280
00530  0 02000 0 00525         TRA B30                                                   F6A03290
00531  0 50000 0 01361  B34    CLA TP2CT       IS RECORD COUNT ZERO.                     F6A03300
00532 -0 10000 0 00540         TNZ B36         NO. OKAY TO TRANSFER TO READ TAPE TWO.    F6A03310
00533  0 07400 4 00004         TSX 4,4         YES, ERROR.                               F6A03320
00534  0 50000 0 01361  B35    CLA TP2CT                                                 F6A03330
00535  0 76600 0 00333         IOD             UPDATE TAPE TWO RECORD COUNT.             F6A03340
00536  0 40000 0 01317         ADD C8                                                    F6A03350
00537  0 60100 0 01361         STO TP2CT                                                 F6A03360
00540  0 77000 0 00202  B36    WEF 2           WEF TAPE 2.                               F6A03370
00541  0 76400 0 00202         BST 2                                                     F6A03380
00542  0 53400 1 01361         LXA TP2CT,1     BACK SPACE TO                             F6A03390
00543  0 76400 0 00202  B37    BST 2           BEGIN OF FILE.                            F6A03400
00544  2 00001 1 00543         TIX B37,1,1                                               F6A03410
00545  0 77100 0 00377         ARS 255                                                   F6A03420
00546  0 77100 0 00377         ARS 255                                                   F6A03430
00547 -0 76000 0 00012         RTT                                                       F6A03440
00550  0 76100 0 00000         NOP                                                       F6A03450
00551 -0 53400 1 01352         LXD IRIST,1                                               F6A03460
00552  0 60000 0 01356         STZ RCT         SET RELATIVE COUNT TO ZERO.               F6A03470
00553  0 50000 0 01326         CLA C15                                                   F6A03480
00554  0 60100 0 01357         STO DELIN       SET DELETE INDICATOR TO NOT-ZERO.         F6A03490
00555 -0 53400 2 01334  READ2  LXD ZERO,2                                               F6A03500
00556  0 53400 4 00563  D5     LXA D1,4        SET READ-ERROR COUNTER.                   F6A03510
00557  0 02000 0 00564         TRA D2                                                    F6A03520
00560  0 76400 0 00202  D3     BST 2           READ TAPE 2 FILE 6                        F6A03530
00561  2 00001 4 00564         TIX D2,4,1      INTO STORAGE.                             F6A03540
00562  0 07400 4 00004         TSX 4,4                                                   F6A03550
00563  0 42000 0 00005  D1     HPR 5                                                     F6A03560
00564  0 76200 0 00222  D2     RTB 2                                                     F6A03570
00565  0 76100 0 00000         NOP                                                       F6A03580
00566  0 70000 2 06545  D4     CPY OP-1,2                                                F6A03590
00567  1 00001 2 00566         TXI D4,2,1                                                F6A03600
00570  0 02000 0 00576         TRA D89         E.O.F.                                    F6A03610
00571  0 77100 0 00377         ARS 255                                                   F6A03620
00572  0 77100 0 00377         ARS 255                                                   F6A03630
00573 -0 76000 0 00012         RTT                                                       F6A03640
00574  0 02000 0 00560         TRA D3                                                    F6A03650
00575  0 02000 0 00556         TRA D5                                                    F6A03660
00576  0 60000 0 01350  D89    STZ EA1                                                   F6A03670
00577 -0 63400 2 01350         SXD EA1,2                                                 F6A03680
00600  0 76100 0 00000         NOP                                                       F6A03690
00601  0 50000 0 01350  D30    CLA EA1         TEST WD COUNT OF OP TABLE.                F6A03700
                                                                                         F6A03710
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00602  0 40200 0 01345        SUB C21
00603 -0 12000 0 00605        TMI D6
00604  0 07400 4 00004        TSX 4,4
00605  0 77200 0 00202  D6    REW 2
00606  0 60000 0 01363        STZ CONCT
00607  0 50000 0 01317        CLA C8
00610  0 60100 0 01354        STO ARGNO
00611  0 50000 0 01350        CLA EA1
00612  0 40200 0 01342        SUB C18
00613  0 62200 0 00636        STD D14
00614  0 60000 1 02461  D7    STZ REC-1,1
00615 -0 50000 0 01327        CAL C16
00616  0 60200 1 02460        SLW REC-2,1
00617  0 50000 0 01354        CLA ARGNO
00620  0 76700 0 00022        ALS 18
00621  0 40000 0 01307        ADD C1
00622  0 60100 1 02456        STO REC-4,1
00623  0 60000 1 02457        STZ REC-3,1
00624  1 00004 1 00625        TXI D8,1,4
00625  3 00143 1 00647  D8    TXH D9,1,99
00626  0 60000 0 01362  D10   STZ DELTA
00627 -0 53400 2 01307        LXD C1,2
00630  0 50000 2 06545  D11   CLA OP-1,2
00631  0 77100 0 00022        ARS 18
00632  0 34000 0 01354        CAS ARGNO
00633  0 02000 0 00635        TRA D12
00634  0 02000 0 00651        TRA D13
00635  1 00002 2 00636  D12   TXI D14,2,2
00636  3 00636 2 00640  D14   TXH D15,2,*
00637  0 02000 0 00630        TRA D11
00640  0 50000 0 01354  D15   CLA ARGNO
00641  0 40000 0 01317        ADD C8
00642  0 60100 0 01354        STO ARGNO
00643  0 40200 0 01360        SUB ARGCT
00644 -0 12000 0 00614        TMI D7
00645  0 10000 0 00614        TZE D7
00646  0 02000 0 00761        TRA E1
00647  0 07400 2 01254  D9    TSX SUB1,2
00650  0 02000 0 00626        TRA D10
00651  0 50000 2 06544  D13   CLA OP-2,2
00652  0 77100 0 00022        ARS 18
00653  0 60100 0 01364        STO DELDD
00654  0 40200 0 01362        SUB DELTA
00655  0 60100 0 01365        STO GAMMA
00656  0 56000 0 01364        LDQ DELDD
00657 -0 60000 0 01362        STQ DELTA
00660  0 50000 0 01365        CLA GAMMA
00661  0 10000 0 00722        TZE D25
00662  0 50000 0 01363        CLA CONCT
00663  0 10000 0 00677        TZE CH6
00664  0 40000 0 01330        ADD C17
00665  0 40200 0 01317        SUB C8
00666  0 62100 0 00667        STA D17
00667  0 50000 0 06546  D17   CLA HTAB
```

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                                                                    F6A03720
                                                                    F6A03730
                                                                    F6A03740
MORE THAN 2000 WORDS IS ERROR.                                      F6A03750
REWIND TAPE 2.                                                      F6A03760
SET CONCT EQUAL ZERO                                                F6A03770
INIT. ARG. NUMBER TO ONE.                                           F6A03780
                                                                    F6A03790
                                                                    F6A03800
SUBTRACT ONE (IN DECREMENT)                                         F6A03810
SET END OF OP BLOCK TEST. (EA1-1)                                   F6A03820
COMPILE CLA N,4                                                     F6A03830
WHERE N IS THE ARGUMENT NUMBER.                                     F6A03840
SL=0                                                                F6A03850
OP=CLA                                                              F6A03860
SA=0                                                                F6A03870
RA=N,4                                                              F6A03880
                                                                    F6A03890
                                                                    F6A03900
TEST CIT BLOCK FULL. IF YES, GO WRITE OFF.                          F6A03910
SET DELTA ZERO.                                                     F6A03920
INIT. IR2 TO ZERO.                                                  F6A03930
SELECT OP TABLE ENTRY.                                              F6A03940
                                                                    F6A03950
COMPARE IT WITH ARG NO.                                             F6A03960
                                                                    F6A03970
EQUAL ARGUMENT, GO COMPILE STORE.                                   F6A03980
UPDATE OP TABLE COUNTER.                                            F6A03990
TEST FOR END OF OP TABLE.                                           F6A04000
                                                                    F6A04010
MODIFY ARG NUMBER (INCREASE IT BY ONE).                             F6A04020
                                                                    F6A04030
                                                                    F6A04040
TEST END OF ARG. NUMBERS.                                           F6A04050
NO.                                                                 F6A04060
NO.                                                                 F6A04070
FINISHED.                                                           F6A04080
WRITE OFF ON                                                        F6A04090
TAPE 4.                                                             F6A04100
COMPILE STORE.                                                      F6A04110
                                                                    F6A04120
COMPUTE GAMMA WHICH IS THE AMOUNT NECESSARY TO                      F6A04130
ADD TO GET EFFECTIVE ADDRESS FOR STA.                               F6A04140
                                                                    F6A04150
                                                                    F6A04160
                                                                    F6A04170
IS INCREMENT ZERO.                                                  F6A04180
YES                                                                 F6A04190
NO. TEST FOR ANY INCREMENT TABLE.                                   F6A04200
NO INCREMENT TABLE.                                                 F6A04210
YES, THERE IS AN INCREMENT TABLE.                                   F6A04220
SET ADDRESS OF D17=LOCATION OF                                      F6A04230
LAST GAMMA STORED.                                                  F6A04240
IS LAST GAMMA                                                       F6A04250
```

```
00670   0 40200 0 01365         SUB GAMMA       EQUAL CURRENT GAMMA.                                    F6A04260
00671   0 10000 0 00743         TZE EX1         YES, ADDEND ALREADY IN TABLE                            F6A04270
00672   0 50000 0 00667         CLA D17         NO,                                                     F6A04280
00673   0 40200 0 01317         SUB C8          MODIFY ADDRESS IN HTAB.                                 F6A04290
00674   0 62100 0 00667         STA D17                                                                 F6A04300
00675   0 40200 0 01330         SUB C17         ANY MORE ENTRIES IN HTAB.                               F6A04310
00676   0 12000 0 00667         TPL D17         YES.                                                    F6A04320
00677   0 50000 0 01330  CH6    CLA C17         NOT IN TABLE.                                           F6A04330
00700   0 40000 0 01363         ADD CONCT                                                               F6A04340
00701   0 62100 0 00703         STA D18                                                                 F6A04350
00702   0 50000 0 01365         CLA GAMMA                                                               F6A04360
00703   0 60100 0 00703  D18    STO *           SET BY CH6 TO HTAB+CONCT. STORE GAMMA.                  F6A04370
00704   0 50000 0 01363         CLA CONCT       UP CONCOUNT BY ONE.                                     F6A04380
00705   0 40000 0 01317         ADD C8                                                                  F6A04390
00706   0 60100 0 01363         STO CONCT                                                               F6A04400
00707   0 60000 1 02461  D19    STZ REC-1,1     COMPILE ADD.                                            F6A04410
00710  -0 50000 0 01331         CAL ADD             ADD                                                 F6A04420
00711   0 60200 1 02460         SLW REC-2,1                                                             F6A04430
00712  -0 50000 0 01335         CAL TABCT                                                               F6A04440
00713   0 60200 1 02457         SLW REC-3,1     SA=9(                                                   F6A04450
00714   0 50000 0 01363         CLA CONCT                                                               F6A04460
00715   0 40200 0 01317         SUB C8                                                                  F6A04470
00716   0 76700 0 00022         ALS 18          RELATIVE LOCATION OF HTAB CONSTANT.                     F6A04480
00717   0 60100 1 02456         STO REC-4,1                                                             F6A04490
00720   1 00004 1 00721         TXI D16,1,4     MODIFY TAPE 4 BLOCK.                                    F6A04500
00721   3 00143 1 00737  D16    TXH D20,1,99    TEST TAPE 4 BLOCK FULL.                                 F6A04510
00722   0 60000 1 02461  D25    STZ REC-1,1     COMPILE STA, ONE SUCH CIT FOR EACH TIME ARG.            F6A04520
00723  -0 50000 0 01337         CAL STA         APPEARS IN OP TABLE.                                    F6A04530
00724   0 60200 1 02460         SLW REC-2,1                                                             F6A04540
00725  -0 50000 0 01353         CAL SLINT       TEST INITIAL SYMBOLIC LOCATION.                         F6A04550
00726  -0 10000 0 00730         TNZ D21         TRANSFER IF NOT ZERO.                                   F6A04560
00727  -0 50000 0 01313         CAL C4          ZERO. SET SA EQUAL TO $$000.                            F6A04570
00730   0 60200 1 02457  D21    SLW REC-3,1                                                             F6A04580
00731   0 56000 2 06545         LDQ OP-1,2                                                              F6A04590
00732   0 76300 0 00022         LLS 18                                                                  F6A04600
00733  -0 60000 1 02456         STQ REC-4,1                                                             F6A04610
00734   1 00004 1 00735         TXI D22,1,4                                                             F6A04620
00735   3 00143 1 00755  D22    TXH D23,1,99    TEST TAPE 4 BLOCK FULL.                                 F6A04630
00736   0 02000 0 00635  D24    TRA D12         NO.                                                     F6A04640
00737  -0 63400 2 01352  D20    SXD IRIST,2                                                             F6A04650
00740   0 07400 2 01254         TSX SUB1,2      GO WRITE A CIT RECORD ON TAPE 4.                        F6A04660
00741  -0 53400 2 01352         LXD IRIST,2                                                             F6A04670
00742   0 02000 0 00722         TRA D25                                                                 F6A04680
00743   0 50000 0 00667  EX1    CLA D17         ADDEND ALREADY IN TABLE                                 F6A04690
00744   0 40200 0 01330         SUB C17                                                                 F6A04700
00745   0 76700 0 00022         ALS 18                                                                  F6A04710
00746   0 60100 1 02456         STO REC-4,1                                                             F6A04720
00747   0 60000 1 02461         STZ REC-1,1                                                             F6A04730
00750  -0 50000 0 01331         CAL ADD                                                                 F6A04740
00751   0 60200 1 02460         SLW REC-2,1                                                             F6A04750
00752  -0 50000 0 01335         CAL TABCT                                                               F6A04760
00753   0 60200 1 02457         SLW REC-3,1                                                             F6A04770
00754   1 00004 1 00721         TXI D16,1,4                                                             F6A04780
00755  -0 63400 2 01352  D23    SXD IRIST,2                                                             F6A04790
```

```
00756  0 07400 2 01254        TSX SUB1,2
00757 -0 53400 2 01352        LXD IRIST,2
00760  0 02000 0 00635        TRA D12
00761  0 53400 2 00766  E1    LXA E3,2          READ TAPE 3
00762  0 02000 0 00767        TRA E4
00763  0 76400 0 00203  E2    BST 3
00764  2 00001 2 00767        TIX E4,2,1        SET READ ERROR COUNTER.
00765  0 07400 4 00004        TSX 4,4
00766  0 42000 0 00005  E3    HPR 5
00767  0 76200 0 00223  E4    RTB 3             READ A RECORD FROM TAPE 3.
00770  0 53400 4 01310        LXA C2,4          SET COUNTER TO -1, TO READ INTO
00771  0 70000 4 02624  E5    CPY CIT-2,4       CIT-1,-2,---
00772  1 00001 4 00771        TXI E5,4,1
00773  0 02000 0 01061        TRA E14           EOF.
00774  0 77100 0 00377        ARS 255
00775  0 77100 0 00377        ARS 255
00776 -0 76000 0 00012        RTT
00777  0 02000 0 00763        TRA E2
01000 -0 63400 4 01041        SXD E8,4
01001 -0 53400 4 01307        LXD C1,4
01002  0 50000 0 01360        CLA ARGCT         TEST ARGUMENT COUNT FOR ZERO.
01003  0 10000 0 01012        TZE E6            YES, TRANSFER.
01004  0 50000 0 01356        CLA RCT           NO, TEST RCT FOR ZERO.
01005 -0 10000 0 01012        TNZ E6            RCT NOT ZERO.
01006 -0 50000 0 01353        CAL SLINT         TEST FIRST SUMBOLIC LOC.
01007 -0 10000 0 01012        TNZ E6            TRANSFER IF NOT ZERO.
01010 -0 50000 0 01313        CAL C4            $$
01011  0 60200 0 02625        SLW CIT-1
01012 -0 50000 4 02624  E6    CAL CIT-2,4
01013  0 77100 0 00022        ARS 18            IS OP QPR.
01014  0 40200 0 01332        SUB QPR
01015  0 10000 0 01043        TZE E9            YES, TRANSFER.
01016  0 40000 0 01332        ADD QPR
01017  0 40200 0 01053        SUB QXD           IS OP QXD.
01020  0 10000 0 01050        TZE EX3           YES, TRANSFER.
01021  0 50000 0 01357        CLA DELIN         IS DELETE IND
01022  0 10000 0 01054        TZE E11           ZERO. TRANSFER IF YES.
01023 -0 50000 4 02624        CAL CIT-2,4       COPY CIT FROM TAPE 3 INTO
01024  0 60200 1 02460 E10    SLW REC-2,1       TAPE 4 BUFFER.
01025 -0 50000 4 02625        CAL CIT-1,4           BLOCK
01026  0 60200 1 02461        SLW REC-1,1
01027 -0 50000 4 02623        CAL CIT-3,4
01030  0 60200 1 02457        SLW REC-3,1
01031 -0 50000 4 02622        CAL CIT-4,4
01032  0 60200 1 02456        SLW REC-4,1
01033  0 50000 0 01356        CLA RCT               ADD TO RCT
01034  0 40000 0 01317        ADD C8            UPDATE RELATIVE COUNT BY ONE.
01035  0 60100 0 01356        STO RCT
01036  1 00004 1 01037        TXI E7,1,4        MODIFY TAPE 4 BUFFER COUNTER.
01037  3 00143 1 01057  E7    TXH E13,1,99      TEST END OF TAPE 4 BLOCK.
01040  1 00004 4 01041  E12   TXI E8,4,4        NO, MODIFY TAPE 3 BLOCK COUNTER.
01041  3 01041 4 00761  E8    TXH E1,4,*        TEST END OF TAPE 3 BLOCK.
01042  0 02000 0 01012        TRA E6            NO.
01043  0 60100 0 01357  E9    STO DELIN         QPR. SET DELIN=0.
```

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F6A04800
F6A04810
F6A04820
F6A04830
F6A04840
F6A04850
F6A04860
F6A04870
F6A04880
F6A04890
F6A04900
F6A04910
F6A04920
F6A04930
F6A04940
F6A04950
F6A04960
F6A04970
F6A04980
F6A04990
F6A05000
F6A05010
F6A05020
F6A05030
F6A05040
F6A05050
F6A05060
F6A05070
F6A05080
F6A05090
F6A05100
F6A05110
F6A05120
F6A05130
F6A05140
F6A05150
F6A05160
F6A05170
F6A05180
F6A05190
F6A05200
F6A05210
F6A05220
F6A05230
F6A05240
F6A05250
F6A05260
F6A05270
F6A05280
F6A05290
F6A05300
F6A05310
F6A05320
F6A05330
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01044 -0 50000 0 01340        CAL TRA          SELECT OP=TRA,                          F6A05340
01045  0 60200 1 02460  EX2   SLW REC-2,1      AND RETURN TO GET REST                  F6A05350
01046  0 60000 1 02461        STZ REC-1,1      OF CIT.                                 F6A05360
01047  0 02000 0 01027        TRA E10+3                                                F6A05370
01050 -0 50000 0 01052  EX3   CAL LXD          OP IS QXD.                              F6A05380
01051  0 02000 0 01024        TRA E10                                                  F6A05390
01052  436724000000    LXD   BCD 1LXD000                                              F6A05400
01053  000000506724    QXD   BCD 1000QXD                                              F6A05410
01054  0 50000 0 01317  E11   CLA C8           DELETE INSTRUCTION. SET DELETE INDICATOR F6A05420
01055  0 60100 0 01357        STO DELIN        TO NOT ZERO, AND TRANSFER               F6A05430
01056  0 02000 0 01040        TRA E12          TO TEST TAPE 4 BLOCK FULL.              F6A05440
01057  0 07400 2 01254  E13   TSX SUB1,2       WRITE OFF ON                            F6A05450
01060  0 02000 0 01040        TRA E12          TAPE 4.                                 F6A05460
01061  0 50000 0 01363  E14   CLA CONCT        END OF TAPE 3.                          F6A05470
01062  0 10000 0 01113        TZE E20          TRANSFER SINCE 9) TABLE NOT NEC.        F6A05480
01063  0 50000 0 01330        CLA C17              IF NECESSARY                        F6A05490
01064  0 62100 0 01072        STA E17          COMPILE 9) TABLE.                       F6A05500
01065  0 60000 0 01350        STZ EA1          SET EA1=0.                              F6A05510
01066 -0 50000 0 01335        CAL TABCT                                                F6A05520
01067  0 60200 1 02461        SLW REC-1,1      SL=9)                                   F6A05530
01070 -0 50000 0 01346  E18   CAL OCT          OP=OCT.                                 F6A05540
01071  0 60200 1 02460        SLW REC-2,1                                              F6A05550
01072 -0 50000 0 01072  E17   CAL *            SA=THE NECESSARY CONSTANT.              F6A05560
01073  0 60200 1 02457        SLW REC-3,1                                              F6A05570
01074  0 60000 1 02456        STZ REC-4,1      RA=0                                    F6A05580
01075  1 00004 1 01076        TXI E15,1,4      MODIFY TAPE 4 BLOCK COUNT.              F6A05590
01076  3 00143 1 01111  E15   TXH E16,1,99     TEST END OF TAPE 4 BLOCK.               F6A05600
01077  0 50000 0 01072  E19   CLA E17          TO GET NEXT CONSTANT IN 9) TABLE.       F6A05610
01100  0 40200 0 01317        SUB C8                                                   F6A05620
01101  0 62100 0 01072        STA E17                                                  F6A05630
01102  0 50000 0 01350        CLA EA1          INCREASE EA1 BY ONE.                    F6A05640
01103  0 40000 0 01317        ADD C8                                                   F6A05650
01104  0 60100 0 01350        STO EA1                                                  F6A05660
01105  0 40200 0 01363        SUB CONCT                                                F6A05670
01106  0 10000 0 01113        TZE E20          TRANSFER IF ALL NEC 9) TABLE CITS COMPILED. F6A05680
01107  0 60000 1 02461        STZ REC-1,1      SET SL=0                                F6A05690
01110  0 02000 0 01070        TRA E18          AND GO COMPILE REST OF CIT.             F6A05700
01111  0 07400 2 01254  E16   TSX SUB1,2                                               F6A05710
01112  0 02000 0 01077        TRA E19                                                  F6A05720
01113  0 07400 4 01406  E20   TSX APCH2,4       TO SKIP BCD FILE.                       F6A05730
01114  0 76200 0 00222  E21   RTB 2            SKIPPING TO FILE 5.                     F6A05740
01115  0 70000 0 01355  CH3   CPY ERAS1                                                F6A05750
01116  0 02000 0 01115        TRA CH3                                                  F6A05760
01117  0 02000 0 01121        TRA E22          END OF FILE.                            F6A05770
01120  0 02000 0 01114        TRA E21          END OF RECORD.                          F6A05780
01121  2 00001 2 01114  E22   TIX E21,2,1                                              F6A05790
01122  0 76200 0 00222        RTB 2            SKIP FIRST 3 RECORDS IN FILE FIVE.      F6A05800
01123  0 76200 0 00222        RTB 2                                                    F6A05810
01124  0 76200 0 00222        RTB 2                                                    F6A05820
01125  0 77100 0 00377        ARS 255                                                  F6A05830
01126  0 77100 0 00377        ARS 255                                                  F6A05840
01127 -0 76000 0 00012        RTT                                                      F6A05850
01130  0 76100 0 00000        NOP                                                      F6A05860
01131  0 53400 2 01136        LXA E24,2        SET READ ERROR COUNTER.                 F6A05870
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01132   0 02000 0 01137          TRA E25                                                    F6A05880
01133   0 76400 0 00202   E23    BST 2                                                      F6A05890
01134   2 00001 2 01137          TIX E25,2,1                                                F6A05900
01135   0 07400 4 00004          TSX 4,4                                                    F6A05910
01136   0 42000 0 00005   E24    HPR 5                                                      F6A05920
01137   0 76200 0 00222   E25    RTB 2                                                      F6A05930
01140   0 53400 4 01310          LXA C2,4      READ HOLARG TABLE                            F6A05940
01141   0 70000 4 04574   E26    CPY SUB-2,4   INTO SUB-1,-2,---                            F6A05950
01142   1 00001 4 01141          TXI E26,4,1                                                F6A05960
01143   0 02000 0 01347          TRA EOF3                                                   F6A05970
01144   0 77100 0 00377          ARS 255                                                    F6A05980
01145   0 77100 0 00377          ARS 255                                                    F6A05990
01146  -0 76000 0 00012          RTT                                                        F6A06000
01147   0 02000 0 01133          TRA E23                                                    F6A06010
01150   0 50000 0 04574   E27    CLA SUB-2     TEST WORD COUNT OF HOLARG TABLE.             F6A06020
01151   0 10000 0 01214          TZE E33       EXIT, NO HOLARG.                             F6A06030
01152   0 40200 0 01342          SUB C18                                                    F6A06040
01153   0 60100 0 01350          STO EA1       STORE WD. COUNT-1 IN EA1                     F6A06050
01154   0 50000 0 01150          CLA E27       INITIALIZE ADDRESS FOR SEARCHING HOLARG TABLE. F6A06060
01155   0 40200 0 01317          SUB C8                                                     F6A06070
01156   0 62100 0 01164          STA E29                                                    F6A06080
01157   0 60000 0 01351          STZ EA2       SET EA2=0.                                   F6A06090
01160  -0 50000 0 01343          CAL C19       SET SL OF FIRST CIT FOR EACH HOLLERITH       F6A06100
01161   0 60200 1 02461          SLW REC-1,1   ARGUMENT=11.                                 F6A06110
01162  -0 50000 0 01311   E28    CAL BCD                                                    F6A06120
01163   0 60200 1 02460          SLW REC-2,1   SET OP=BCD.                                  F6A06130
01164   0 50000 0 01164   E29    CLA *         (SUB-3 TO START)                             F6A06140
01165   0 34000 0 01344          CAS C20       TEST FOR END OF ARGUMENT.                    F6A06150
01166   0 02000 0 01170          TRA LIB10     NO.                                          F6A06160
01167   0 02000 0 01206          TRA LIB12     TRANSFER WHEN CITS FOR A GIVEN ARGUMENT DONE. F6A06170
01170   0 60100 1 02457   LIB10  STO REC-3,1   SA=6 CHARACTERS OF THE ARGUMENT.             F6A06180
01171   0 60000 1 02456   LIB11  STZ REC-4,1   RA=0.                                       F6A06190
01172   1 00004 1 01173          TXI E30,1,4   MODIFY TAPE 4 BLOCK COUNT.                   F6A06200
01173   3 00143 1 01212   E30    TXH E31,1,99  TEST TAPE 4 BLOCK FULL.                      F6A06210
01174   0 50000 0 01164   E32    CLA E29       MODIFY ADDRESS IN HOLARG TABLE.              F6A06220
01175   0 40200 0 01317          SUB C8                                                     F6A06230
01176   0 62100 0 01164          STA E29                                                    F6A06240
01177   0 50000 0 01351          CLA EA2       INCREMENT COUNT OF WORDS FROM TABLE          F6A06250
01200   0 40000 0 01342          ADD C18       TREATED BY ONE.                              F6A06260
01201   0 60100 0 01351          STO EA2                                                    F6A06270
01202   0 40200 0 01350          SUB EA1       TEST FOR END OF HOLARG TABLE.                F6A06280
01203   0 10000 0 01244          TZE E40       END.                                         F6A06290
01204   0 60000 1 02461          STZ REC-1,1   NO.                                          F6A06300
01205   0 02000 0 01162          TRA E28                                                    F6A06310
01206   0 60100 1 02457   LIB12  STO REC-3,1   END OF ARGUMENT, COMPILE ENDING CIT         F6A06320
01207   0 50000 0 01346          CLA OCT       (SA=STRING OF 1S)                            F6A06330
01210   0 60100 1 02460          STO REC-2,1                                                F6A06340
01211   0 02000 0 01171          TRA LIB11                                                  F6A06350
01212   0 07400 2 01254   E31    TSX SUB1,2    WRITE OFF ON TAPE 4.                         F6A06360
01213   0 02000 0 01174          TRA E32                                                    F6A06370
01214  -3 00001 1 01225   E33    TXL E35,1,1   MAY NEED TO WRITE OFF 4.                     F6A06380
01215   2 00001 1 01216          TIX CH7,1,1                                                F6A06390
01216  -0 63400 1 01223   CH7    SXD E34,1     WRITE OFF ON                                 F6A06400
01217   0 76600 0 00224          WTB 4         TAPE 4.                                      F6A06410
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6.2

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01220 -0 53400 1 01307          LXD C1,1                                                F6A06420
01221  0 70000 1 02461  E36     CPY REC-1,1                                             F6A06430
01222  1 00001 1 01223          TXI E34,1,1                                             F6A06440
01223  3 01223 1 01225  E34     TXH E35,1,*                                             F6A06450
01224  0 02000 0 01221          TRA E36                                                 F6A06460
01225  0 77000 0 00204  E35     WEF 4           WRITE END OF FILE ON TAPE 4.            F6A06470
01226  0 77200 0 00204          REW 4           REWIND TAPES 2,3,4                      F6A06480
01227  0 77200 0 00203          REW 3           AND GO TO LOADER,                       F6A06490
01230  0 77200 0 00202          REW 2                                                   F6A06500
01231  0 76200 0 00221          RTB 1                                                   F6A06510
01232  0 02000 0 00004          TRA 4           RETURN TO LOADER                        F6A06520
01233  0 60000 0 00034  NOSUB   STZ PC5         NOT A SUBROUTINE. SET NAME=0 ON PROGRAM CARD.  F6A06530
01234  0 60000 0 01356          STZ RCT         SET RELATIVE COUNT=0.                   F6A06540
01235  0 50000 0 01317          CLA C8                                                  F6A06550
01236  0 60100 0 01357          STO DELIN       SET DELIN TO NOT ZERO.                  F6A06560
01237  0 60000 0 01363          STZ CONCT       SET CONSTANT COUNT=ZERO.                F6A06570
01240  0 77200 0 00202          REW 2           REWIND TAPE TWO.                        F6A06580
01241  0 60000 0 01360          STZ ARGCT       SET ARGUMENT COUNT=ZERO.                F6A06590
01242  0 02000 0 00761          TRA E1          GO DEAL WITH TAPE 3 CITS.               F6A06600
01243  0 02000 0 01234  F1      TRA NOSUB+1                                             F6A06610
01244  0 60000 1 02461  E40     STZ REC-1,1     COMPILE FINAL HOLARG CIT.               F6A06620
01245 -0 50000 0 01346          CAL OCT                                                 F6A06630
01246  0 60200 1 02460          SLW REC-2,1                                             F6A06640
01247 -0 50000 0 01344          CAL C20                                                 F6A06650
01250  0 60200 1 02457          SLW REC-3,1                                             F6A06660
01251  0 60000 1 02456          STZ REC-4,1                                             F6A06670
01252  1 00004 1 01253          TXI CH10,1,4    UPDATE T-4 BLOCK COUNTER.               F6A06680
01253  0 02000 0 01214  CH10    TRA E33         GO TEST BLOCK FULL.                     F6A06690
01254  0 76600 0 00224  SUB1    WTB 4           WRITE TAPE 4,                           F6A06700
01255 -0 53400 1 01307          LXD C1,1                                                F6A06710
01256  0 70000 1 02461  SUBA    CPY REC-1,1                                             F6A06720
01257  1 00001 1 01260          TXI SUBB,1,1                                            F6A06730
01260  3 00143 1 01262  SUBB    TXH SUBC,1,99                                           F6A06740
01261  0 02000 0 01256          TRA SUBA                                                F6A06750
01262  0 76600 0 00333  SUBC    IOD                                                     F6A06760
01263 -0 53400 1 01307          LXD C1,1                                                F6A06770
01264  0 02000 2 00001          TRA 1,2                                                 F6A06780
01265 -0 50000 0 01315  SUB2    CAL C6          COMPILE CITS                            F6A06790
01266  0 60200 1 02460          SLW REC-2,1     OP=HTR                                  F6A06800
01267  0 60000 1 02457          STZ REC-3,1     SA=0                                    F6A06810
01270  0 60000 1 02456          STZ REC-4,1     RA=0                                    F6A06820
01271  1 00004 1 01272          TXI SUB2A,1,4                                           F6A06830
01272  3 00143 1 01274  SUB2A   TXH SUB2B,1,99  TEST TAPE 4 BLOCK FULL.                 F6A06840
01273  0 02000 2 00001          TRA 1,2         NO.                                     F6A06850
01274  0 02000 2 00002  SUB2B   TRA 2,2         YES.                                    F6A06860
01275  0 60200 1 02456  SUB3    SLW REC-4,1     STORE CIT 4 5 6                         F6A06870
01276 -0 50000 0 01316          CAL C7                                                  F6A06880
01277  0 60200 1 02460          SLW REC-2,1     OP=SXD                                  F6A06890
01300 -0 50000 0 01314          CAL C5                                                  F6A06900
01301  0 60200 1 02457          SLW REC-3,1     SA=$0000                                F6A06910
01302  0 60000 1 02461          STZ REC-1,1     SL=0                                    F6A06920
01303  1 00004 1 01304          TXI SUB3A,1,4                                           F6A06930
01304  3 00143 1 01306  SUB3A   TXH SUB3B,1,99  TEST TAPE 4 BLOCK FULL.                 F6A06940
01305  0 02000 2 00001          TRA 1,2         NO.                                     F6A06950
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01306  0 02000 2 00002  SUB3B  TRA 2,2              YES.                                F6A06960
01307  0 00000 0 00004  C1     HTR 4                                                    F6A06970
01310  0 00000 0 77777  C2     HTR -1                                                   F6A06980
01311  222324000000     BCD    BCD 1BCD000                                              F6A06990
01312  0 00000 0 00003  C3     HTR 3                                                    F6A07000
01313  535360000000     C4     BCD 1$$ 000                                              F6A07010
01314  536000000000     C5     BCD 1$ 0000                                              F6A07020
01315  306351000000     C6     BCD 1HTR000                                              F6A07030
01316  626724000000     C7     BCD 1SXD000                                              F6A07040
01317  0 00000 0 00001  C8     HTR 1                                                    F6A07050
01320 +000001000002     C9     OCT 000001000002                                         F6A07060
01321 +000002000004     C10    OCT 000002000004                                         F6A07070
01322 -0 50000 0 04572  C11    CAL SUB-4                                                F6A07080
01323  0 00000 0 05310  C12    HTR ARIND                                                F6A07090
01324  0 00000 0 00043  C13    HTR 35                                                   F6A07100
01325  2 00000 0 00000  C14    TIX 0,0,0                                                F6A07110
01326  0 00000 0 00005  C15    HTR 5                                                    F6A07120
01327  234321000000     C16    BCD 1CLA000                                              F6A07130
01330  0 50000 0 06546  C17    CLA HTAB                                                 F6A07140
01331  212424000000     ADD    BCD 1ADD000          INITARG                             F6A07150
01332  000000504751     QPR    BCD 1000QPR                                              F6A07160
01333  0 50000 0 00000  AGTST  CLA **                                                   F6A07170
01334  0 00000 0 00000  ZERO   HTR 0                                                    F6A07180
01335  110000000000     TABCT  BCD 1900000                                              F6A07190
01336  0 07400 4 00004  EOF1   TSX 4,4                                                  F6A07200
01337  626321000000     STA    BCD 1STA000                                              F6A07210
01340  635121000000     TRA    BCD 1TRA000                                              F6A07220
01341  0 07400 4 00004  EOF2   TSX 4,4                                                  F6A07230
01342 +000001000000     C18    OCT 000001000000                                         F6A07240
01343 +130000000000     C19    OCT 130000000000                                         F6A07250
01344 -377777777777     C20    OCT 777777777777                                         F6A07260
01345 +003720000000     C21    OCT 003720000000     (2000 IN DICREMENT)                 F6A07270
01346  462363000000     OCT    BCD 1OCT000                                              F6A07280
01347  0 07400 4 00004  EOF3   TSX 4,4                                                  F6A07290
01350  0 00000 0 00000  EA1    HTR 0                                                    F6A07300
01351  0 00000 0 00000  EA2    HTR 0                                                    F6A07310
01352  0 00000 0 00000  IRIST  HTR 0                                                    F6A07320
01353  0 00000 0 00000  SLINT  HTR 0                                                    F6A07330
01354  0 00000 0 00000  ARGNO  HTR 0                                                    F6A07340
01355  0 00000 0 00000  ERAS1  HTR 0                                                    F6A07350
01356  0 00000 0 00000  RCT    HTR 0                                                    F6A07360
01357  0 00000 0 00000  DELIN  HTR 0                                                    F6A07370
01360  0 00000 0 00000  ARGCT  HTR 0                                                    F6A07380
01361  0 00000 0 00000  TP2CT  HTR 0                                                    F6A07390
01362  0 00000 0 00000  DELTA  HTR 0                                                    F6A07400
01363  0 00000 0 00000  CONCT  HTR 0                                                    F6A07410
01364  0 00000 0 00000  DELDD  HTR 0                                                    F6A07420
01365  0 00000 0 00000  GAMMA  HTR 0                                                    F6A07430
01366  0 00000 0 00000  SUM    HTR 0                                                    F6A07440
                01367           BSS 1                                                  F6A07441
01370  0 34000 0 01403  APCH1  CAS SYNOP                                               F6A07442
01371  0 02000 0 01401         TRA GOON                                                 F6A07443
01372  0 02000 0 00514         TRA B26              OP IS SYN.                          F6A07444
01373  0 34000 0 01404         CAS OCTOP                                                F6A07445
```

```
01374   0 02000 0 01401          TRA GOON
01375   0 02000 0 00410          TRA B16          OP IS OCT.
01376   0 34000 0 01405          CAS BCDOP
01377   0 02000 0 01401          TRA GOON
01400   0 02000 0 00410          TRA B16          OP IS BCD.
01401  -0 50000 0 01322  GOON    CAL C11
01402   0 02000 0 00431          TRA EXT20+1
01403  +000000627045     SYNOP   OCT 000000627045
01404  +000000462363     OCTOP   OCT 000000462363
01405  +000000222324     BCDOP   OCT 000000222324
01406   0 76200 0 00202  APCH2   RTD 2              SKIP A BCD FILE.
01407   0 70000 0 01355          CPY ERAS1
01410   0 02000 0 01407          TRA *-1
01411   0 02000 0 01413          TRA *+2          END OF FILE
01412   0 02000 0 01406          TRA APCH2        END OF RECORD
01413   0 53400 2 01312          LXA C3,2
01414   0 02000 4 00001          TRA 1,4          RETURN TO PROGRAM.
01415  -0 50000 0 01311  NAME    CAL BCD          INSERT CIT 3 PRIME.
01416   0 60200 1 02460          SLW REC-2,1
01417  -0 50000 0 00034          CAL PC5          OP=BCD
01420   0 60200 1 02457          SLW REC-3,1      SA=NAME OF ROUTINE.
01421   0 60000 1 02461          STZ REC-1,1
01422   0 60000 1 02456          STZ REC-4,1
01423   1 00004 1 01424          TXI *+1,1,4
01424   3 00143 1 01426          TXH *+2,1,99
01425   0 02000 0 01427          TRA P24
01426   0 07400 2 01254          TSX SUB1,2
01427  -0 50000 0 01317  P24     CAL C8
01430   0 02000 0 00206          TRA COMPX+1
01431   2 00000 0 00000  APCH3   TIX 0,0,0          REINITIALIZE C14
01432   0 50000 0 01431          CLA APCH3
01433   0 60100 0 01325          STO C14
01434   0 02000 0 00326          TRA A16
                02316            ORG 1230
                02462  REC       BES 100
                02626  CIT       BES 100
                06546  OP        BES 2000
                02626            ORG 1430
                04576  TV        BES 1000
                04576  SUB       SYN TV
                06546            ORG 3430
                06546  HTAB      BSS 300
                06546  DIM       SYN OP
                05252            ORG 2730
                05310  ARIND     BES 30
                00000            END
```

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F6A07570

A

```
1          PST
1                                   ************* FORTRAN II SECTION SIX ************************F6B00010
                                    FORTRAN 2   RECORD 94  -  BINARY SEARCH.                        F6B00011
                                                                                                    F6B00012
                                    CONTROL ENTERS THIS RECORD AT LOCATION 210 (OCTAL)               F6B00013
                                                                                                    F6B00014
                                                                                                    F6B00020
                        00037       ORG 31                                                          F6B00030
00037  1 00037 2 00037  SRCH  TXI *,2,*          OR TXL TDEV,2,0 OR TXH TTIV,2,-2                  F6B00040
00040  0 16200 0 00042        TQP IFTXH          OR TXL TTEV DEPENDING ON TABLE AND               F6B00050
00041  1 77776 1 00102        TXI LOWER,1,-2     ON DIRECTION OF TABLE.                           F6B00060
00042  1 77776 1 00101  IFTXH TXI RAISE,1,-2                                                       F6B00070
00043  1 20000 2 00037        TXI SRCH,2,+8192   FOR A TABLE WITH N                               F6B00080
00044  1 60000 2 00037        TXI SRCH,2,-8192   ENTRIES, THE SEARCH IS                           F6B00090
00045  1 10000 2 00037        TXI SRCH,2,+4096   COMMENCED AT THE 2**XTH                         F6B00100
00046  1 70000 2 00037        TXI SRCH,2,-4096   ENTRY, THE LATTER BEING THE                     F6B00110
00047  1 04000 2 00037        TXI SRCH,2,+2048   LARGEST POWER OF 2                              F6B00120
00050  1 74000 2 00037        TXI SRCH,2,-2048   LESS THAN N.                                    F6B00130
00051  1 02000 2 00037        TXI SRCH,2,+1024   THEN. DEPENDING ON THE RESULTS                  F6B00140
00052  1 76000 2 00037        TXI SRCH,2,-1024   OF THE COMPARISON, THE SEARCH                   F6B00150
00053  1 01000 2 00037        TXI SRCH,2,+512    STEPS UP, OR DOWN, BY                          F6B00160
00054  1 77000 2 00037        TXI SRCH,2,-512    2**(X-1), AND MAKES                            F6B00170
00055  1 00400 2 00037        TXI SRCH,2,+256    A NEW COMPARISON WITH THAT                     F6B00180
00056  1 77400 2 00037        TXI SRCH,2,-256    ENTRY                                          F6B00190
00057  1 00200 2 00037        TXI SRCH,2,+128    IF THIS STEP OVERREACHES THE                   F6B00200
00060  1 77600 2 00037        TXI SRCH,2,-128    END OF THE TABLE, IT IS TRAPPED                F6B00210
00061  1 00100 2 00037        TXI SRCH,2,+64     BY THE TXL OR TXH INSTRUCTIONS                 F6B00220
00062  1 77700 2 00037        TXI SRCH,2,-64     IN SRCH                                        F6B00230
00063  1 00040 2 00037        TXI SRCH,2,+32                                                    F6B00240
00064  1 77740 2 00037        TXI SRCH,2,-32                                                    F6B00250
00065  1 00020 2 00037        TXI SRCH,2,+16                                                    F6B00260
00066  1 77760 2 00037        TXI SRCH,2,-16     INDEX REGISTER 1, WHICH                        F6B00270
00067  1 00010 2 00037        TXI SRCH,2,+8      CONTAINS 2(X+3) SELECTS THE                    F6B00280
00070  1 77770 2 00037        TXI SRCH,2,-8      APPROPRIATE TXI IN THIS LIST,                  F6B00290
00071  1 00004 2 00037        TXI SRCH,2,+4      TO MAKE THE NEXT LEAP                          F6B00300
00072  1 77774 2 00037        TXI SRCH,2,-4      FORWARDS OR BACKWARDS IN                       F6B00310
00073  1 00002 2 00037        TXI SRCH,2,+2      THE TABLE.                                     F6B00320
00074  1 77776 2 00037        TXI SRCH,2,-2                                                     F6B00330
00075  1 00001 2 00037        TXI SRCH,2,+1      INDEX REGISTER 2 SELECTS THE                   F6B00340
00076  1 77777 2 00037        TXI SRCH,2,-1      TABLE ENTRY FOR COMPARISON.                    F6B00350
00077  0 02000 4 00001  NOTIN TRA 1,4            END OF SEARCH.                                 F6B00360
00100  1 77777 2 00077        TXI NOTIN,2,-1                                                    F6B00370
00101  0 02000 1 00101  RAISE TRA RAISE,1                                                       F6B00380
00102  0 02000 1 00102  LOWER TRA LOWER,1                                                       F6B00390
00103  0 56000 0 00120  STEV  LDQ TEVL           ENTER HERE TO SEARCH TEV.                      F6B00400
00104 -0 60000 0 00037        STQ SRCH                    TABLE                                F6B00410
00105  0 53400 1 00117        LXA TEVS,1         CONTROLS HOPPING WITHIN TEV.                   F6B00420
00106 -0 53400 2 00117        LXD TEVS,2         SELECTS ITEM FOR COMPARISON.                   F6B00430
U 00107  0 34000 2            TTEV  CAS TEV,2                                                   F6B00440
00110  1 77776 1 00101        TXI RAISE,1,-2     NOT FOUND. CONTINUE SEARCH                     F6B00450
00111  0 02000 0 00113        TRA ATEV           FOUND.                                         F6B00460
00112  1 77776 1 00102        TXI LOWER,1,-2     NOT FOUND. CONTINUE SEARCH                     F6B00470
00113 -0 75400 2 00000  ATEV  PXD 0,2            CONTROLS ENTRY POINT OF SEARCH                 F6B00480
00114  0 77100 0 00022        ARS 18             DEC. CONTAINS TABLE LENGTH.                    F6B00490
00115  0 40000 0 00172        ADD LTEV
```

```
00116   0 02000 4 00002          TRA 2,4                                    F6B00500
00117   0 00000 0 00004  TEVS       4,0,**+0                                F6B00510
00120  -3 00000 2 00107  TEVL   TXL TTEV,2,**+0                            F6B00520
00121   0 76700 0 00017  STIV   ALS 15          ENTER HERE TO SEARCH TIV.  F6B00530
00122   0 60200 0 00160          SLW ENTRY                                  F6B00540
00123   0 60200 0 00157          SLW ARG                                    F6B00550
00124   0 56000 0 00141          LDQ TIVL                                   F6B00560
00125  -0 60000 0 00037          STQ SRCH                                   F6B00570
00126   0 53400 1 00140          LXA TIVS,1                                 F6B00580
00127  -0 53400 2 00140          LXD TIVS,2                                 F6B00590
00130   0 50000 2 02114  TTIV   CLA TIV,2                                  F6B00600
00131   0 62100 0 00157          STA ARG                                    F6B00610
00132   0 34000 0 00157          CAS ARG                                    F6B00620
00133   1 77776 1 00102          TXI LOWER,1,-2                             F6B00630
00134   0 02000 0 00136          TRA ATIV                                   F6B00640
00135   1 77776 1 00101          TXI RAISE,1,-2                             F6B00650
00136   0 50000 2 02114  ATIV   CLA TIV,2          RETURN WITH COMPLETE OLD TIV ENTRY  F6B00660
00137   0 02000 4 00002          TRA 2,4                                    F6B00670
00140   0 77777 0 00004  TIVS       4,0,**-1                                F6B00680
00141   3 77776 2 00130  TIVL   TXH TTIV,2,**-2                            F6B00690
00142   0 56000 0 00155  SDEV   LDQ DEVL          ENTER HERE TO SEARCH DEV   F6B00700
00143  -0 60000 0 00037          STQ SRCH                TABLE              F6B00710
00144   0 53400 1 00154          LXA DEVS,1        CONTROLS HOPPING WITHIN DEV  F6B00720
00145  -0 53400 2 00154          LXD DEVS,2        SELECTS THE ITEM FOR COMPARISON.  F6B00730
00146   0 34000 2 77777  TDEV   CAS DEV,2                                   F6B00740
00147   1 77776 1 00101          TXI RAISE,1,-2    NOT FOUND CONTINUE SEARCH  F6B00750
00150   0 02000 0 00152          TRA ADEV          ENTRY FOUND                F6B00760
00151   1 77776 1 00102          TXI LOWER,1,-2    NOT FOUND. CONTINUE SEARCH.  F6B00770
00152   0 50000 2 74413  ADEV   CLA DEA,2                                   F6B00780
00153   0 02000 4 00003          TRA 3,4                                    F6B00790
00154   0 00000 0 00004  DEVS       4,0,**+0      CONTROLS ENTRY POINT OF SEARCH.  F6B00800
00155  -3 00000 2 00146  DEVL   TXL TDEV,2,**+0   CONTAINS TABLE LENGTH      F6B00810
00156   0 00001 0 00002  DEVA       2,0,**+1      USED BY EDEV FOR MODIFYING DEVS.  F6B00820
00157   0 00000 0 00000  ARG    HTR 0                                       F6B00830
00160   0 00000 0 00000  ENTRY  HTR 0                                       F6B00840
00161  +000000000000     ZERO   DEC 0000000000                             F6B00850
00162  +000000000001     ONE    DEC 0000000001                             F6B00860
00163  +000000000002     TWO    DEC 0000000002                             F6B00870
00164   0 00000 0 77777  ADDR   HTR -1                                      F6B00880
00165   0 00000 0 00000  EIFN   HTR 0                                       F6B00890
00166   0 00000 0 00000  L1     HTR 0                                       F6B00900
00167   0 00000 0 00000  L2     HTR 0                                       F6B00910
00170   0 00000 0 00000  LIFN   HTR 0                                       F6B00920
00171   0 00000 0 77462  LCTR   HTR -206                                    F6B00930
00172   0 00000 0 00000  LTEV   HTR 0                                       F6B00940
00173   0 00000 0 00000  D      HTR 0                                       F6B00950
00174   0 00000 0 00000  EA     HTR 0                                       F6B00960
00175   0 00000 0 00000  L3     HTR 0                                       F6B00970
00176   0 00000 0 00000  PGBK   HTR 0                                       F6B00980
00177   0 00000 0 00000  SW1    HTR 0                                       F6B00990
00200   0 00000 0 00000  SW2    HTR 0                                       F6B01000
00201   0 00000 0 00000  SW3    HTR 0                                       F6B01010
00202   0 00000 0 00000  SW4    HTR 0                                       F6B01020
00203   0 00000 0 00000  SW5    HTR 0                                       F6B01030
```

```
00204 +077777077777     DOLSI OCT 077777077777                                                F6B01040
00205  0 00001 0 00001  ME2       1,0,1          ADDRESS CAN BE CHANGED TO ZERO BY ME1 IN REC.96F6B01050
                00210        ORG 136                                                          F6B01060
00210  0 53400 2 00255  START LXA ADD5,2          SET DRUM ERROR COUNTER TO 15               F6B01070
00211  0 76200 0 00304  ADD6  RDR 4               SELECT DRUM 4.                             F6B01080
T    00212 -0 75400 0 00000  ADD1  PXD             NUMBER OF                                  F6B01090
00213  0 46000 0 00212         LDA ADD1           ENTRIES IN                                 F6B01100
00214  0 70000 0 00165         CPY EIFN           EXTERNAL INTERNAL                          F6B01110
00215  0 76000 0 00006         COM                FORMULA NOS TABLE.                         F6B01120
00216  0 70000 0 00223         CPY ADD2                                                      F6B01130
00217  0 76000 0 00006         COM                                                           F6B01140
00220  0 10000 0 00224         TZE ADD3                                                      F6B01150
00221  2 00001 2 00211         TIX ADD6,2,1                                                  F6B01160
00222  0 07400 4 00004         TSX 4,4                                                       F6B01170
00223  0 00000 0 00000  ADD2  HTR 0                                                         F6B01180
00224 -0 53400 1 00165  ADD3  LXD EIFN,1                                                    F6B01190
00225  1 00001 1 00226         TXI ADD4,1,1                                                  F6B01200
00226 -0 63400 1 00165  ADD4  SXD EIFN,1                                                    F6B01210
00227  0 77200 0 00202         REW 2              TO                                         F6B01220
00230  0 02000 0 00260  B1    TRA BPCH1          GO SKIP BCD FILE                           F6B01230
00231  0 76200 0 00222  B2    RTB 2              POSITION TAPE TWO                          F6B01240
00232  0 70000 0 00253  CH1   CPY ERAS                                                      F6B01250
00233  0 02000 0 00232         TRA CH1            AT THE BEGINNING OF FILE FIVE.             F6B01260
00234  0 02000 0 00236         TRA B3                                                        F6B01270
00235  0 02000 0 00231         TRA B2                                                        F6B01280
00236  2 00001 1 00231  B3    TIX B2,1,1                                                    F6B01290
00237  0 76200 0 00222         RTB 2              SELECT TAPE TWO                            F6B01300
00240  0 70000 0 00177         CPY SW1            COPY SENSE SWITCH SETTINGS                 F6B01310
00241  0 70000 0 00200         CPY SW2            I.E. FIRST RECORD OF FILE 5.               F6B01320
00242  0 70000 0 00201         CPY SW3                                                       F6B01330
00243  0 70000 0 00202         CPY SW4                                                       F6B01340
00244  0 70000 0 00203         CPY SW5                                                       F6B01350
00245  0 77200 0 00203         REW 3                                                         F6B01360
00246  0 77200 0 00204         REW 4                                                         F6B01370
00247 -0 76000 0 00012         RTT                                                           F6B01380
00250  0 76100 0 00000         NOP                                                           F6B01390
00251  0 76200 0 00221         RTB 1                                                         F6B01400
00252  0 02000 0 00004         TRA 4              TO RETURN CONTROL TO LOADER.               F6B01410
00253  0 00000 0 00000  ERAS  HTR 0                                                         F6B01420
00254  0 00000 0 00004  FOUR  HTR 4                                                         F6B01430
00255  0 00000 0 00017  ADD5  HTR 15                                                        F6B01440
                00256        BSS 2                                                         F6B01441
00260  0 76200 0 00202  BPCH1 RTD 2              SKIP A BCD FILE.                           F6B01442
00261  0 70000 0 00253         CPY ERAS                                                      F6B01443
00262  0 02000 0 00261         TRA *-1                                                       F6B01444
00263  0 02000 0 00265         TRA PREPR          END OF FILE                                F6B01445
00264  0 02000 0 00260         TRA BPCH1          END OF RECORD                              F6B01446
00265  0 53400 1 00267  PREPR LXA LOCV3,1                                                   F6B01447
00266  0 02000 0 00231         TRA B2                                                        F6B01448
00267 +000000000003     LOCV3 DEC 3                                                         F6B01449
                01400        ORG 768                                                       F6B01450
                01400  SOPR  BSS 12                                                       F6B01460
                01654  SYMOP BES 160                                                      F6B01470
                02114  ABSOP BES 160                                                      F6B01480
```

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A                                                                  F6B01490
                                                                   F6B01500
                                                                   F6B01501
02114  TIV    BSS                                                  F6B01510
71003         ORG -3581                                           F6B01520
71457  ECS    BES 300                                              F6B01530
72607  UPPER  BES 600                                              F6B01540
74413  DEA    BES 900                                              F6B01550
74413         ORG -1781                                           F6B01560
75055  STS    BES 290                                              F6B01570
75531  I      BES 300                                              F6B01580
76173  L      BES 290
77777  DEV    BES 900
A      00000  END
       00001 0  TEV
```

```
1          AST
1                                   ************ FORTRAN II SECTION SIX ************************F6C00010
                                    FORTRAN 2   RECORD 96  -  ASSIGN COMMON                        F6C00011
                                                                                                   F6C00012
                                    CONTROL ENTERS THIS RECORD AT LOCATION 400 (OCTAL)              F6C00013
                                                                                                   F6C00014
                                                                                                   F6C00020
M                    00205  ME2    SYN 133                                                        F6C00030
                     00210          ORG 136                                                        F6C00031
                                    THIS ROUTINE IS ENTERED AFTER AN UNSUCCESSFUL BINARY SEARCH    F6C00032
                                    OF DEV. INDEX REGISTER 2 CONTAINS THE RELATIVE POSITION IN     F6C00033
                                    DEV THAT THE NEW, ENTRY SHOULD HAVE.                           F6C00040
00210  1 00001 2 00211  EDEV   TXI EDEV0,2,1      SAVE POSITION FOR TEST.                         F6C00050
00211 -0 63400 2 00225  EDEV0  SXD EDEV1,2                                                        F6C00060
00212  0 60100 0 00160          STO ENTRY         SAVE ITEM TO BE ENTERED                         F6C00070
00213 -0 53400 2 00155          LXD DEVL,2                                                        F6C00080
00214  1 00001 2 00215          TXI EDEV2,2,1     UPDATE LENGTH OF DEV TABLE.                     F6C00090
00215 -0 63400 2 00155  EDEV2  SXD DEVL,2        MUST STARTING PT OF NEXT SEARCH BE              F6C00100
00216 -3 00000 2 00225  EDEV3  TXL EDEV1,2,**+0  UPDATED TO NEXT POWER OF 2.                     F6C00110
00217 -0 50000 0 00154          CAL DEVS          YES.                                            F6C00120
00220  0 40000 0 00156          ADD DEVA          UPDATE DEVS                                     F6C00130
00221  0 60200 0 00154          SLW DEVS                                                          F6C00140
00222  0 62200 0 00156          STD DEVA                                                          F6C00150
00223  0 40000 0 00156          ADD DEVA          UPDATE THE EDEV3 TEST TO NEXT                   F6C00160
00224  0 62200 0 00216          STD EDEV3         HIGHER POWER OF 2.                              F6C00170
00225  3 00225 2 00233  EDEV1  TXH EDEV4,2,*     DECREMENT CONTAINS NEW POSITION                 F6C00180
00226 -0 50000 0 00160          CAL ENTRY         OF ENTRY. IF TEST SHOWS THAT ENTRY              F6C00190
00227  0 60200 2 77777          SLW DEV,2         TO BE MADE ON END OF TABLE,                     F6C00200
00230  0 50000 0 00174          CLA EA            DO SO.                                          F6C00210
00231  0 60100 2 74413          STO DEA,2         ENTRY IS MADE INTO MIDDLE OF DEV.               F6C00220
00232  0 02000 4 00001          TRA 1,4           MOVE SUCCEDING ENTRIES DOWN                     F6C00230
00233 -0 50000 2 00000  EDEV4  CAL DEV+1,2       UNTIL SPACE IS MADE FOR NEW ENTRY.              F6C00240
00234  0 60200 2 77777          SLW DEV,2                                                         F6C00250
00235 -0 50000 2 74414          CAL DEA+1,2                                                       F6C00260
00236  0 60200 2 74413          SLW DEA,2                                                         F6C00270
00237  1 77777 2 00225          TXI EDEV1,2,-1                                                    F6C00280
                                    READ EQUIV SENTENCE FROM DRUM 1                               F6C00290
00240 -0 63400 2 00264  NXT    SXD LIB20,2       SAVE XR2                                        F6C00300
00241  0 53400 2 00265          LXA LOC15,2       SET DRUM READ ERROR COUNTER                     F6C00310
00242  0 76200 0 00301  LIB21  RDR 1                                                             F6C00320
00243  0 53400 1 00161          LXA ZERO,1        SET XR1=0                                       F6C00330
00244  0 46000 0 00361          LDA ETL           TO LOCATE FIRST VARIABLE NAME IN EQUIV. SENT.   F6C00340
T      00245 -0 75400 0 00000          PXD                                                       F6C00350
00246 -0 70000 1 71456  ECC    CAD ECS-1,1       COPY VARIABLE NAME INTO ECS-1 ETC               F6C00360
00247  1 00001 1 00250          TXI ECI,1,1                                                       F6C00370
00250 -0 70000 1 75531  ECI    CAD I,1           COPY ELEMENT NUMBER INTO I-1 ETC                F6C00380
00251  0 16200 0 00246          TQP ECC           TRANS. TO ECC IF STILL MORE WORDS IN SENT.      F6C00381
                                                  READ IN.                                        F6C00390
00252  0 70000 0 00362          CPY CS            CHECK SUM TEST. (EACH SENTENCE HAS ITS OWN      F6C00400
00253  0 76000 0 00006          COM               LOGICAL CHECK SUM.                              F6C00410
00254  0 36100 0 00362          ACL CS                                                            F6C00420
00255  0 76000 0 00006          COM                                                               F6C00430
00256  0 10000 0 00261          TZE GFI           IF CHECK SUM OK, PROCEED TO GFI                 F6C00440
00257  2 00001 2 00242          TIX LIB21,2,1     IF INCORRECT CHECK SUM, TRY AGAIN UNLESS        F6C00450
00260  0 07400 4 00004          TSX 4,4           ERROR COUNTER EQUALS ONE.
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00261 -0 63400 1 00363  GFI    SXD N,1          SAVE NO. OF VARIABLE NAMES READ IN SENT.        F6C00460
00262 -0 53400 2 00264         LXD LIB20,2      RESTORE XR2                                     F6C00470
00263  0 02000 4 00001         TRA 1,4          RETURN                                          F6C00480
00264  0 00000 0 00000  LIB20  HTR 0                                                            F6C00490
00265  0 00000 0 00017  LOC15  HTR 15                                                           F6C00500
                               EQUIV SENTENCE ASSIGNMENT                                       F6C00510
00266 -0 53400 1 00363  UP02   LXD N,1          N=NO. OF WORDS IN SENTENCE INTO XR1             F6C00520
00267 -0 63400 4 00372         SXD IR4,4        SAVE XR4                                        F6C00530
00270  0 50200 1 75531         CLS I,1          SELECT MAXIMUM I+/LAST I/INTO AC                F6C00540
00271 -2 00001 1 00276         TNX MAX,1,1      WHERE I IS NUMERIC PART OF EQUIV. COMPARE WITH  F6C00550
00272  0 56000 1 75531  MIT    LDQ I,1          NEXT I                                          F6C00560
00273  0 04000 0 00275         TLQ TIN          GREATER OF THE TWO IS INTO AC.                  F6C00570
00274  0 50000 1 75531         CLA I,1                                                          F6C00580
00275  2 00001 1 00272  TIN    TIX MIT,1,1      IF MORE IS TO BE COMPARED, DECREMENT XR1        F6C00590
                                                AND REPEAT WITH NEXT I.                         F6C00591
00276  0 60200 0 00364  MAX    SLW MAXI         STORE MAXIMUM I OF SENTENCE.                    F6C00600
T 00277 -0 75400 0 00000         PXD              LET D=L-I, WHERE L IS LENGTH OF ARRAY           F6C00610
00300  0 60100 0 00365         STO MAXD         SET MAXD=0 WHICH CORRESPONDS TO ONE             F6C00620
00301 -0 53400 1 00363         LXD N,1          WD CT. OF SENT. INTO XR1. OF THE WORDS IN THE   F6C00630
                                                SENTENCE.                                       F6C00631
00302  0 50000 1 71457  LID    CLA ECS,1        BRING A WORD OF SENTENCE INTO AC.               F6C00640
00303  0 53400 2 00366         LXA VSZ,2        NO. OF ENTRIES IN ARRAY NAME TABLE (FROM SIZE   F6C00650
                                                TABLE).                                         F6C00651
D 00304 -3 00000 2 00311         TXL NSZ,2        IF NO ENTRIES IN SIZE TABLE, GO TO NSZ          F6C00660
00305  0 34000 2 75055  SSZ    CAS STS,2        OTHERWISE, COMPARE A WORD OF EQUIV SENT WITH    F6C00670
                                                AN ARRAY NAME.                                  F6C00671
00306  0 02000 0 00310         TRA TDV                                                          F6C00680
00307  0 02000 0 00313         TRA SSF          IF EQUAL, GO TO SSF TO COMPUTE D.               F6C00690
00310  2 00001 2 00305  TDV    TIX SSZ,2,1      IF NOT EQUAL, DECREMENT ARRAY NAME INDEX AND GOF6C00700
                                                AGAIN TO COMPARE.                               F6C00701
00311  0 50000 0 00162  NSZ    CLA ONE          IF NO WORD IN SENTENCE IS AN ARRAY,             F6C00710
00312  0 02000 0 00314         TRA LIT          SET L=1 AND GO TO LIT TO COMPUTE D.             F6C00720
00313  0 50000 2 76173  SSF    CLA L,2          IF WORD IN SENT.=ARRAY NAME IN SIZE TABLE, CLA  F6C00730
                                                LENGTH OF THAT ARRAY.                           F6C00731
00314 -0 40000 1 75531  LIT    SBM I,1          COMPUTE AND STORE D=L-I FOR I CORRESPONDING TO  F6C00740
                                                WORD                                            F6C00741
00315  0 60100 0 00173         STO D            IN EQUIVALENCE SENTENCE.                        F6C00750
00316  0 56000 0 00173         LDQ D            COMPARE WITH MAXD AND STORE LARGER IN MAXD.     F6C00760
00317  0 50000 0 00365         CLA MAXD                                                         F6C00770
00320  0 04000 0 00322         TLQ DEN                                                          F6C00780
00321 -0 60000 0 00365         STQ MAXD         GO BACK AND COMPUTE D USING NEW I UNTIL ALL     F6C00790
00322  2 00001 1 00302  DEN    TIX LID,1,1      IS CORRESPONDING TO WDS IN EQUIV. SENT. ARE     F6C00800
00323  0 50000 0 00171         CLA LCTR         EXHAUSTED.                                      F6C00810
00324  0 40200 0 00364         SUB MAXI         REDUCE LOCATION COUNTER BY MAXI                 F6C00820
00325  0 60100 0 00171         STO LCTR                                                         F6C00830
00326 -0 53400 1 00363         LXD N,1          RESET COUNTER FOR WORDS IN EQUIV. SENTENCE.     F6C00840
00327 -0 63400 1 00367  STJ    SXD J,1          SAVE CURRENT STATUS OF COUNTER IN DECR. OF J.   F6C00850
00330  0 50000 0 00171         CLA LCTR         COMPUTE ABSOLUTE LOCATION OF WORD IN SENT.,     F6C00860
00331  0 40100 1 75531         ADM I,1          AND SAVE IT IN EA.                              F6C00870
00332  0 60100 0 00174         STO EA                                                           F6C00880
00333  0 50000 1 71457  DES    CLA ECS,1        CURRENT WORD OF EQUIV SENTENCE.                 F6C00890
00334  0 07400 4 00142         TSX SDEV,4       SEARCH DEV TABLE                                F6C00900
00335  0 07400 4 00210         TSX EDEV,4       STORE IN DEV TABLE                              F6C00910
00336  0 02000 0 00342         TRA MJC          RETURN FROM EDEV.                               F6C00920
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00337   0 40200 0 00174          SUB EA          RETURN FROM SDEV IF FOUND IN DEV TABLE. DEA     F6C00930
00340   0 10000 0 00342          TZE MJC         CORRESP. TO DEV ENTRY SHOULD EQUAL EA OR ERROR  F6C00940
00341   0 07400 4 00004          TSX 4,4                                                         F6C00950
00342  -0 53400 1 00367  MJC     LXD J,1         CURRENT STATUS OF EQUIV. WORD COUNTER           F6C00960
00343   2 00001 1 00327          TIX STJ,1,1     IF MORE WDS IN SENTENCE, REPEAT WITH NEXT WORD  F6C00970
00344   0 50000 0 00171          CLA LCTR        AT END OF SENTENCE, REDUCE LCTR BY MAXD.        F6C00980
00345   0 40200 0 00365          SUB MAXD                                                        F6C00990
00346   0 60100 0 00171          STO LCTR                                                        F6C01000
00347  -0 53400 4 00372          LXD IR4,4                                                       F6C01010
00350   0 50000 0 00363  UP03    CLA N           TO MODIFY DRUM ADDRESS ADD NO. OF WORDS READ    F6C01020
                                                 EQUIVALENCE TABLE.                              F6C01021
00351   0 77100 0 00021          ARS 17          PLUS ONE TO ALLOW FOR CHECK SUM                 F6C01030
00352   0 40000 0 00162          ADD ONE         PLUS                                            F6C01040
00353   0 40000 0 00361          ADD ETL         LAST STARTING DRUM ADDRESS.                     F6C01050
00354   0 60100 0 00361          STO ETL         STORE NEW STARTING DRUM ADDRESS IN ETL.         F6C01060
00355   0 53400 1 00361          LXA ETL,1       TEST FOR END OF EQUIVALENCE TABLE.              F6C01070
00356  -3 00000 1 00360  ECN     TXL UP31,1,**   WD COUNT OF EQUIV. TABLE IN DECR.               F6C01080
00357   0 02000 4 00002          TRA 2,4         IS END OF TABLE, GO TO 2,4                      F6C01090
00360   0 02000 4 00001  UP31    TRA 1,4         IF NOT END OF EQUIV TABLE, GO TO EXIT+1         F6C01100
00361   0 00000 0 00000  ETL     HTR 0                                                           F6C01110
00362   0 00000 0 00000  CS      HTR 0                                                           F6C01120
00363   0 00000 0 00000  N       HTR 0                                                           F6C01130
00364   0 00000 0 00000  MAXI    HTR 0                                                           F6C01140
00365   0 00000 0 00000  MAXD    HTR 0                                                           F6C01150
00366   0 00000 0 00000  VSZ     HTR 0           CONTAINS NO. OF 2-WORD ENTRIES IN SIZ TABLE.    F6C01160
00367   0 00000 0 00000  J       HTR 0                                                           F6C01170
00370   0 00000 0 00000  ETN     HTR 0                                                           F6C01180
00371  +000001000000     C1      OCT 000001000000                                              F6C01190
00372   0 00000 0 00000  IR4     HTR 0                                                           F6C01200
                                 BUILD SYMBOL TABLE FROM COMMON                                  F6C01210
                         00400   ORG 256                                                         F6C01220
T  00400 -0 75400 0 00004  UP12  PXD 4                                                           F6C01230
00401   0 76000 0 00006          COM                                                             F6C01240
00402   0 60200 0 77777          SLW DEV         WORD OF 1S INTO DEV.                            F6C01250
00403   0 76200 0 00222          RTB 2           TO SKIP SUBDEF RECORD ON TAPE 2.                F6C01260
00404   0 53400 1 00411          LXA STP,1       SET TAPE ERROR COUNTER                          F6C01270
00405   0 02000 0 00412          TRA UP15        AND GO TO READ IN COMMON.                       F6C01280
00406   0 76400 0 00202  ERRUP   BST 2           TRY TO READ RECORD AGAIN                        F6C01290
00407   2 00001 1 00412          TIX UP15,1,1    UNLESS COUNTER REDUCED TO 1.                    F6C01300
00410   0 07400 4 00004          TSX 4,4                                                         F6C01310
00411   0 42000 0 00005  STP     HPR 5                                                           F6C01320
00412   0 76200 0 00222  UP15    RTB 2           SELECT TAPE TWO                                 F6C01330
00413  -0 53400 4 00164          LXD ADDR,4                                                      F6C01340
00414   0 70000 4 72606  UP16    CPY UPPER-1,4   READ IN COMMON TABLE.                           F6C01350
00415   1 00001 4 00414          TXI UP16,4,1                                                    F6C01360
00416   0 02000 0 00427          TRA EOF         END OF FILE IS ERROR HERE                       F6C01370
00417   0 77100 0 00377          ARS 255                                                         F6C01380
00420   0 77100 0 00377          ARS 255                                                         F6C01390
00421  -0 76000 0 00012          RTT                                                             F6C01400
00422   0 02000 0 00406          TRA ERRUP                                                       F6C01410
00423   0 50000 0 72605          CLA UPPER-2     STORE WORD COUNT OF COMMON                      F6C01420
00424   0 40200 0 00371          SUB C1          TABLE -1 IN DECR OF UP 18                       F6C01430
00425   0 62200 0 00522          STD UP18                                                        F6C01440
00426   0 02000 0 00430          TRA DSR                 ERROR                                   F6C01450
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      00427   0 07400 4 00004  EOF    TSX 4,4          END OF FILE ERROR                                  F6C01460
      00430   0 53400 2 00265  DSR    LXA LOC15,2      SET DRUM ERROR COUNTER                             F6C01470
      00431   0 76200 0 00302  LIB22  RDR 2                                                              F6C01480
      00432   0 46000 0 00433         LDA DSA                  SIZE TABLE TEST                           F6C01490
T     00433  -0 75400 0 00000  DSA    PXD 0                                                              F6C01500
      00434  -0 70000 0 00366         CAD VSZ          READ SIZE TABLE WORD COUNT                        F6C01510
      00435   0 76000 0 00006         COM                                                                F6C01520
      00436  -0 70000 0 00362         CAD CS                                                             F6C01530
      00437   0 76000 0 00006         COM                                                                F6C01540
      00440   0 10000 0 00443         TZE DTR                                                            F6C01550
      00441   2 00001 2 00431         TIX LIB22,2,1    IF DRUM READ ERROR                                F6C01560
      00442   0 07400 4 00004         TSX 4,4                                                            F6C01570
      00443   0 50000 0 00366  DTR    CLA VSZ                                                            F6C01580
      00444   0 77100 0 00001         ARS 1            STORE NO. OF ARRAY NAMES IN SIZE                  F6C01590
      00445   0 60100 0 00366         STO VSZ          TABLE INTO VSZ                                    F6C01600
      00446   0 53400 1 00366  DTE    LXA VSZ,1        SIZE TABLE TEST                                   F6C01610
D     00447  -3 00000 1 00466         TXL ETR,1        IF NO SIZE TABLE, GO ETR                          F6C01620
      00450   0 53400 2 00265         LXA LOC15,2      IF SIZE TABLE ENTRIES, SET                        F6C01630
      00451   0 76200 0 00302  LIB23  RDR 2            DRUM READ ERROR COUNT AND READ IN SIZE            F6C01640
      00452   0 46000 0 00453         LDA DTA          TABLE.                                            F6C01650
T     00453  -0 75400 0 00002  DTA    PXD 2                                                              F6C01660
      00454  -0 70000 1 75055  DTC    CAD STS,1        COPY ARRAY NAME INTO STS,1                        F6C01670
      00455  -0 70000 1 76173         CAD L,1          COPY ARRAY LENGTH INTO L,1                        F6C01680
      00456   2 00001 1 00454         TIX DTC,1,1                                                        F6C01690
      00457   0 70000 0 00362         CPY CS                                                             F6C01700
      00460   0 76000 0 00006         COM                                                                F6C01710
      00461  -0 70000 0 00362         CAD CS                                                             F6C01720
      00462   0 76000 0 00006         COM                                                                F6C01730
      00463   0 10000 0 00466         TZE ETR          TEST CHECK SUM IF OK, GO TO ETR.                  F6C01740
      00464   2 00001 2 00451         TIX LIB23,2,1    CHECK SUM ERROR.                                  F6C01750
      00465   0 07400 4 00004         TSX 4,4                                                            F6C01760
      00466   0 53400 2 00265  ETR    LXA LOC15,2                                                        F6C01770
      00467   0 76200 0 00301  LIB24  RDR 1            SELECT DRUM 1. TO SEE IF ANY EQUIV. TABLE.        F6C01780
      00470   0 46000 0 00471         LDA ETA          EQUIV TABLE TEST                                  F6C01790
T     00471  -0 75400 0 00000  ETA    PXD 0                                                              F6C01800
      00472  -0 70000 0 00370         CAD ETN          READ WORD COUNT OF EQUIV TABLE INTO ETN           F6C01810
      00473   0 76000 0 00006         COM                                                                F6C01820
      00474  -0 70000 0 00362         CAD CS                                                             F6C01830
      00475   0 76000 0 00006         COM                                                                F6C01840
      00476   0 10000 0 00501         TZE ETT          IF NO ERROR, GO TO ETT.                           F6C01850
      00477   2 00001 2 00467         TIX LIB24,2,1                                                      F6C01860
      00500   0 07400 4 00004         TSX 4,4                                                            F6C01870
      00501  -0 53400 1 00370  ETT    LXD ETN,1        SET XR1 EQUAL WD. CT. OF EQUIV TABLE              F6C01880
D     00502  -3 00000 1 00535         TXL UP01,1       IF WORD COUNTER ZERO, TRANSFER                    F6C01890
      00503  -0 63400 1 00356         SXD ECN,1        IF THERE ARE ENTRIES IN EQUIV, SAVE WD. CT. IN    F6C01900
                                                       ECN.                                              F6C01901
      00504   0 50000 0 00163         CLA TWO                                                            F6C01910
      00505   0 60100 0 00361         STO ETL          SET ETL=2                                         F6C01920
      00506   0 50000 0 72605         CLA UPPER-2      IF WORD COUNT OF COMMON TABLE                     F6C01930
      00507   0 10000 0 00574         TZE UP25         EQUALS ZERO, GO TO UP 25. IF NOT 0,               F6C01940
      00510   0 07400 4 00240  UP32   TSX NXT,4        READ EQUIV. SENTENCE.                             F6C01950
      00511   2 00001 1 00512         TIX CH2,1,1      XR1 CONTAINS NO. OF WORDS READ BY NXT             F6C01960
      00512  -0 63400 1 00525  CH2    SXD UP21,1       NO. OF WORDS IN SENTENCE INTO DECR. UP 21         F6C01970
      00513  -0 53400 1 00164         LXD ADDR,1       SET XR1,2=0                                       F6C01980
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00514 -0 53400 2 00164  UP22  LXD ADDR,2                                                F6C01990
00515  0 50000 1 71456  UP20  CLA ECS-1,1      COMPARE VARIABLE NAME FROM EQUIV SENTENCE  F6C02000
00516  0 34000 2 72604        CAS UPPER-3,2     WITH WORD IN COMMON                        F6C02010
00517  0 02000 0 00521        TRA UP17          NOT EQUAL                                  F6C02020
00520  0 02000 0 00532        TRA UP30          EQUAL. I.E, VARIABLE NAME IS IN COMMON.    F6C02030
00521  1 00001 2 00522  UP17  TXI UP18,2,1      NOT EQUAL. INCREMENT INDEX REG 2.          F6C02040
00522  3 00522 2 00524  UP18  TXH UP19,2,*      PROCEED TO UP 19 IF ALL WORDS IN COMMON COMPAREF6C02050
00523  0 02000 0 00515        TRA UP20          OTHERWISE COMPARE AGAIN WITH NEXT COMMON WORD F6C02060
00524  1 00001 1 00525  UP19  TXI UP21,1,1      END OF COMMON. INCREMENT VARIABLE NAME COUNTER F6C02070
00525  3 00525 1 00527  UP21  TXH UP33,1,*      IF ALL VARIABLE NAMES IN SENTENCE COMPARED F6C02080
00526  0 02000 0 00514        TRA UP22          IF MORE NAMES IN SENTENCE, COMPARE NEXT WORD F6C02090
00527  0 07400 4 00350  UP33  TSX UP03,4        MODIFY DRUM ADDRESS AND TEST FOR END OF EQUIV. F6C02100
                                                TAB.                                       F6C02101
00530  0 02000 0 00510        TRA UP32          RETURN HERE IF NOT END OF EQUIV TABLE TO READ F6C02110
                                                NEXT SENTENCE                              F6C02111
00531  0 02000 0 00535        TRA UP01          IF END OF EQUIV TABLE, RETURN HERE         F6C02120
00532  0 07400 4 00266  UP30  TSX UP02,4        TO ASSIGN EQUIV. SENT, WORD OF WHICH       F6C02130
                                                APPEARS IN COMMON, TO UPPER MEMORY         F6C02131
00533  0 02000 0 00510        TRA UP32          RETURN IF NOT END OF EQUIV. TABLE          F6C02140
00534  0 02000 0 00535        TRA UP01          IF END OF EQUIV TABLE, RETURN HERE         F6C02150
                    ASSIGN UPPER MEMORY FOR WORDS IN COMMON BUT NOT IN EQUIV.              F6C02151
                                                ASSIGN UPPER                               F6C02160
00535 -0 53400 1 00164  UP01  LXD ADDR,1        XR1 WILL CONATIN COUNT OF COMMON WDS PROCESSED.F6C02170
00536  0 50000 0 72605        CLA UPPER-2       TRANSFER OUT TO ME1 IF NO COMMON TABLE.    F6C02180
00537  0 10000 0 00576        TZE ME1           IF THERE IS A COMMON TABLE, DECREASE WORD CT. F6C02190
00540  0 40200 0 00371        SUB C1            BY 1 AND STORE IN DECR. OF UP 23           F6C02200
00541  0 62200 0 00572        STD UP23                                                     F6C02210
00542  0 50000 0 00171        CLA LCTR                                                     F6C02220
00543  0 60100 0 00174        STO EA            STORE LOCATION COUNTER IN EA.              F6C02230
00544  0 50000 1 72604  UP24  CLA UPPER-3,1     A COMMON ENTRY INTO AC.                    F6C02240
00545 -0 63400 1 00601        SXD LIB1,1        SAVE COUNT.                                F6C02250
00546  0 07400 4 00142        TSX SDEV,4        SEE IF IN DEV TABLE                        F6C02260
00547  0 07400 4 00210        TSX EDEV,4        TO ENTER COMMON SYMBOL IN DEV TABLE.       F6C02270
00550  0 02000 0 00553        TRA UP05          RETURN FROM EDEV. GO TO UP05 TO RESET LCTR F6C02280
00551 -0 53400 1 00601        LXD LIB1,1        RETURN HERE IF LOCATED COMMON WORD IN DEV TABL,F6C02290
00552  0 02000 0 00571        TRA UP06          RESTORE XR AND GO TO UP06 TO INCREMENT WD COUNTF6C02291
                    TO DETERMINE WHETHER SYMBOL JUST ENTERED IN DEV IS AN ARRAY.          F6C02300
                                                IS UPPER SYM                               F6C02310
00553  0 53400 2 00366  UP05  LXA VSZ,2                                                   F6C02320
00554 -0 53400 1 00601        LXD LIB1,1                                                   F6C02330
D 00555 -3 00000 2 00563      TXL UP07,2        TRANSFER IF NO SIZE TABLE.                 F6C02340
00556  0 50000 1 72604        CLA UPPER-3,1     COMPARE COMMON SYMBOL JUST ENTERED IN DEV TABLEF6C02350
00557  0 34000 2 75055  UP08  CAS STS,2         WITH ARRAY NAME FROM SIZE TABLE            F6C02360
00560  0 02000 0 00562        TRA UP09                                                     F6C02370
00561  0 02000 0 00565        TRA UP10          COMMON SYMBOL LOCATED FN SIZE TABLE        F6C02371
00562  2 00001 2 00557  UP09  TIX UP08,2,1      NOT LOCATED. REPEAT UNTIL COMPARED WITH ALL F6C02380
                                                ARRAY NAMES                                F6C02381
00563  0 50200 0 00162  UP07  CLS ONE           IF NOT IN SIZE TABLE, REDUCE LCTR BY ONE. I.E.F6C02390
                                                NOT AN ARRAY.                              F6C02400
00564  0 02000 0 00566        TRA UP11                                                     F6C02410
00565  0 50200 2 76173  UP10  CLS L,2           REDUCE LCTR BY LENGTH OF ARRAY             F6C02420
00566  0 40000 0 00171  UP11  ADD LCTR                 REDUCE LCTR                        F6C02430
00567  0 60100 0 00171        STO LCTR                                                     F6C02440
00570  0 60100 0 00174        STO EA            STORE CURRENT LCTR IN EA.                  F6C02450
00571  1 00001 1 00572  UP06  TXI UP23,1,1      REPEAT FOR EACH COMMON ENTRY UNTIL
00572  3 00572 1 00574  UP23  TXH UP25,1,*      ALL ENTRIES IN COMMON TABLE ARE IN DEV
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       00573  0 02000 0 00544         TRA UP24      TABLE WITH THEIR ABSOLUTE LOCATIONS IN DEA TABLF6C02460
       00574  0 76200 0 00221  UP25   RTB 1         GO TO LOADER                                    F6C02470
       00575  0 02000 0 00004         TRA 4                                                         F6C02480
M      00576  0 62100 0 00205  ME1    STA ME2       STORE ZERO IN ADDRESS OF ME2 AND GO TO          F6C02490
       00577  0 02000 0 00574         TRA UP25      LOADER.                                         F6C02500
       00600  0 00000 0 00000  IDENT  HTR 0                                                         F6C02510
       00601  0 00000 0 00000  LIB1   HTR 0                                                         F6C02520
A                    00000            END                                                         F6C02530
A                                0  ME2 00205*00205
```

```
1          AST
1
                                    ************* FORTRAN II SECTION SIX ************************F6D00010
                                    FORTRAN 2   RECORD 98  -  EQUIV-DIMENSION.                    F6D00011
                                                                                                  F6D00012
                                    CONTROL ENTERS THIS RECORD AT LOCATION 400 (OCTAL).           F6D00013
                                                                                                  F6D00014
                                    ENTER TRANSFER VECTOR INTO DEV TABLE                          F6D00020
                                                                                                  F6D00030
                        00210  EDEV   SYN 136                                                    F6D00040
                        00240  NXT    SYN 160                                                    F6D00050
                        00265  LOC15  SYN 181                                                    F6D00060
                        00266  UP02   SYN 182                                                    F6D00070
                        00350  UP03   SYN 232                                                    F6D00080
                        00361  ETL    SYN 241                                                    F6D00090
                        00363  N      SYN 243                                                    F6D00100
                        00366  VSZ    SYN 246                                                    F6D00110
                        00367  J      SYN 247                                                    F6D00120
                        00370  ETN    SYN 248                                                    F6D00130
                        00400         ORG 256                                                    F6D00140
  00400   0 50000 0 00171         CLA LCTR          SAVE UPPER BREAK                            F6D00150
  00401   0 60100 0 00175         STO L3            IN L3                                       F6D00160
  00402   0 76200 0 00303         RDR 3             SELECT DRUM 3                               F6D00170
T 00403  -0 75400 0 00000  A27     PXD 0                                                         F6D00180
  00404   0 46000 0 00403         LDA A27           LOCATE TRANSFER VECTOR TABLE (CLOSUB)       F6D00190
  00405   0 70000 0 72605         CPY UPPER-2                                                   F6D00200
  00406   0 70000 0 72605         CPY UPPER-2       LOAD INDEX REG 1 WITH WORD COUNT OF         F6D00210
  00407  -0 53400 1 72605  A23     LXD UPPER-2,1     TRANSFER VECTOR TABLE.                      F6D00220
D 00410  -3 00000 1 00452         TXL A28,1         IF NO TRANS VECTOR, GO TO ASSIGN EQUIV AND  F6D00230
  00411   0 53400 2 00265         LXA LOC15,2       DIMENSION STORAGE.                          F6D00240
  00412   0 76200 0 00303  X1     RDR 3             IF THERE IS A TRANSFER VECTOR,              F6D00250
T 00413  -0 75400 0 00002  A29     PXD 2             READ IT INTO UPPER -3 ETC.                  F6D00260
  00414   0 46000 0 00413         LDA A29                                                       F6D00270
  00415  -0 70000 1 72605  A30     CAD UPPER-2,1                                                 F6D00280
  00416   2 00001 1 00415         TIX A30,1,1                                                   F6D00290
  00417   0 70000 0 00625         CPY SUM                                                       F6D00300
  00420   0 76000 0 00006         COM                                                           F6D00310
  00421  -0 70000 0 00625         CAD SUM           TO TEST CHECK SUM                           F6D00320
  00422   0 76000 0 00006         COM                                                           F6D00330
  00423   0 10000 0 00426         TZE A25           CHECK SUM OKAY. GO TO ENTER TRANS. VECTOR INTO F6D00331
                                                    DEV TABLE,                                  F6D00340
  00424   2 00001 2 00412         TIX X1,2,1        IF CHECK SUM ERROR, TRY AGAIN               F6D00350
  00425   0 07400 4 00004         TSX 4,4                                                       F6D00360
  00426   0 50000 0 72605  A25     CLA UPPER-2       REDUCE WD COUNT OF TRANSFER VECTOR BY ONE   F6D00370
  00427   0 40200 0 00626         SUB C2            AND STORE RESULT IN DECR OF A24.            F6D00380
  00430   0 62200 0 00450         STD A24                                                       F6D00390
  00431  -0 53400 1 00164         LXD ADDR,1        SET COUNTER FOR WORDS PROCESSED TO ZERO.    F6D00400
  00432   0 50000 0 00166         CLA L1                                                        F6D00410
  00433   0 60100 0 00174  A42     STO EA            STORE PROGRAM COUNTER IN EA.                F6D00420
  00434   0 50000 1 72604         CLA UPPER-3,1     SELECT A TRANSFER VECTOR NAME.              F6D00430
  00435  -0 63400 1 00627         SXD LIB1,1                                                    F6D00440
  00436   0 07400 4 00142         TSX SDEV,4        TO SEE IF NAME SELECTED IS IN DEV TABLE. YES, F6D00441
                                                    ERROR.                                      F6D00450
  00437   0 07400 4 00210         TSX EDEV,4        ENTER NAME IN DEV TABLE.                    F6D00460
  00440   0 02000 0 00442         TRA A40           EXIT FROM EDEV.                             F6D00470
  00441   0 07400 4 00004  A41     TSX 4,4           IF NAME LOCATED IN DEV TABLE, ERROR
```

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00442   0 50000 0 00166  A40   CLA L1            STORE PROGRAM COUNTER IN PROG BREAK.                    F6D00480
00443   0 60100 0 00167        STO L2                                                                    F6D00490
00444   0 40000 0 00162        ADD ONE           INCREASE PROGRAM COUNTER BY 1.                          F6D00500
00445   0 60100 0 00166        STO L1                                                                    F6D00510
00446  -0 53400 1 00627        LXD LIB1,1                                                                F6D00520
00447   1 00001 1 00450        TXI A24,1,1                                                               F6D00530
00450   3 00450 1 00452  A24   TXH A28,1,*       TRANSFER TO ASSIGN EQUIV. IF ALL TRANS VECTOR           F6D00540
                               NAMES ENTERED                                                             F6D00541
                                                                                                         F6D00550
00451   0 02000 0 00433        TRA A42                                                                   F6D00560
                               ASSIGN EQUIV AOTHERWISE, SELECT NEST TRANS. VEC. NAME AND                 F6D00561
                               ENTER IN DEV
00452   0 76400 0 00202  A28   BST 2             TO POSITION TAPE 2 AT BEGINNING OF SUBDEF TABL          F6D00570
00453   0 76400 0 00202        BST 2                                                                     F6D00580
00454   0 53400 1 00461        LXA A1,1          SET READ ERROR COUNTER                                  F6D00590
00455   0 02000 0 00462        TRA A2                                                                    F6D00600
00456   0 76400 0 00202  A3    BST 2             READ ERROR PROCEDURE                                    F6D00610
00457   2 00001 1 00462        TIX A2,1,1                                                                F6D00620
00460   0 07400 4 00004        TSX 4,4                                                                   F6D00630
00461   0 42000 0 00005  A1    HPR 5             SELECT TAPE TWO                                         F6D00640
00462   0 76200 0 00222  A2    RTB 2             TO READ SUB DEF, TABLE.                                 F6D00650
00463  -0 53400 4 00164        LXD ADDR,4        SET COUNTER=0,                                          F6D00660
00464   0 70000 4 72606  A4    CPY UPPER-1,4     AND READ SUBDEF TABLE.                                  F6D00670
00465   1 00001 4 00464        TXI A4,4,1        INTO UPPER-1, ETC,                                      F6D00680
00466   0 02000 0 00624        TRA EOF1          END-OF-FILE IS ERROR HERE,                              F6D00690
00467   0 77100 0 00377        ARS 255                                                                   F6D00700
00470   0 77100 0 00377        ARS 255                                                                   F6D00710
00471  -0 76000 0 00012        RTT                                                                       F6D00720
00472   0 02000 0 00456        TRA A3            IF RTT ERROR.                                           F6D00730
00473   0 77200 0 00202        REW 2             WHEN RECORD HAS BEEN READ, REWIND TABLE-TAPE.           F6D00740
00474   0 50000 0 00370        CLA ETN           ETN HAS WORD COUNT OF EQUIV. TABLE                      F6D00750
00475   0 10000 0 00556        TZE DIM           IF NO EQUIV. ENTRIES, GO TO ASSIGN DIMENSION            F6D00760
00476   0 50000 0 00163        CLA TWO                                                                   F6D00770
00477   0 60100 0 00361        STO ETL           STORE WD CT OF EQUIV TABLE+2 IN ETL                     F6D00780
00500   0 07400 4 00240  A5    TSX NXT,4         TO READ AN EQUIV SENTENCE INTO ECS-1,--, I-1,--          F6D00790
00501   0 50000 0 72605  A6    CLA UPPER-2       LEAVES WD CT. OF SENT. IN XR1.                          F6D00800
00502   0 40200 0 00626        SUB C2            TEST WORD COUNT OF SUBDEF TABLE.                        F6D00810
00503   0 10000 0 00530        TZE ME30          IF NO ARGUMENTS, GO TO SEARCH DEV TABLE                 F6D00820
00504  -0 12000 0 00530        TMI ME30                                                                  F6D00830
00505   2 00001 1 00506        TIX CH4,1,1                                                               F6D00840
00506  -0 63400 1 00535  CH4   SXD A14,1         SAVE XR1 IN DECR. OF A14                                F6D00850
00507   0 40200 0 00626        SUB C2                                                                    F6D00860
00510   0 62200 0 00520        STD A12                                                                   F6D00870
00511  -0 53400 1 00164        LXD ADDR,1                                                                F6D00880
00512  -0 53400 2 00164  A8    LXD ADDR,2        SET XRS 1+2=0                                           F6D00890
00513   0 50000 1 71456  A9    CLA ECS-1,1       COMPARE A WORD OF EQUIV SENTENCE                        F6D00900
00514   0 34000 2 72603        CAS UPPER-4,2     WITH LIST OF ARGUMENTS IN SUBDEF TABLE.                 F6D00910
00515   0 02000 0 00517        TRA A10                                                                   F6D00920
00516   0 02000 0 00542        TRA A11           IN SUB DEF TABLE, I.E. EQUIV. VARIABLE IS A SUB         F6D00930
                               ROUTINE ARGUMENT                                                          F6D00931
00517   1 00001 2 00520  A10   TXI A12,2,1        INCREASE ARGUMENT COUNTER AND REPEAT COMPARISON         F6D00940
00520   3 00000 2 00644  A12   TXH DPCH3,2,**                                                            F6D00950
00521   0 02000 0 00513        TRA A9                                                                    F6D00960
00522   0 07400 4 00142  A13   TSX SDEV,4                                                                F6D00970
00523  -0 53400 1 00646        LXD SVIT,1                                                                F6D00980
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00524  1 00001 1 00535        TXI A14,1,1                                                    F6D00990
00525  0 07400 4 00350        TSX UP03,4      IF WORD FOUND IN DEV SEARCH, GO TO MODIFY DRUM F6D01000
                                              ADDRESS                                        F6D01001
00526  0 02000 0 00500        TRA A5          OF EQUIV TABLE. READ IN NEXT EQUIV. SENTENCE   F6D01010
00527  0 02000 0 00556        TRA DIM         EXIT HERE FROM UP03 IF END OF EQUIV TABLE REACHF6D01020
00530  0 50000 0 71456 ME30   CLA ECS-1       SEARCH DEV TABLE FOR AN EQUIV. NAME.           F6D01030
                                                                                             F6D01040
00531  0 07400 4 00142        TSX SDEV,4
00532  0 02000 0 00537        TRA A7          NOT IN DEV TABLE. GO TO ASSIGN EQUIV STORAGE   F6D01050
                                                                                             F6D01060
00533  0 76100 0 00000        NOP                                                            F6D01070
00534  0 02000 0 00525        TRA A13+3       RETURNS HERE IF SEARCH SUCCESSFUL              F6D01080
00535  3 00535 1 00537 A14    TXH A7,1,*      (WD COUNT OF SENT. IN DECREMENT). TRANSF. TO A7F6D01090
00536  0 02000 0 00512        TRA A8          IF END OF EQUIV SENTENCE.                      F6D01100
00537  0 07400 4 00266 A7     TSX UP02,4      NOT SUB DEF SO NORMAL EQUIV ASSIGNMENT.        F6D01110
00540  0 02000 0 00500        TRA A5          IF NOT END OF EQUIV TABLE, GO TO READ IN NEXT  F6D01111
                                              SENTENCE                                       F6D01120
00541  0 02000 0 00556        TRA DIM         END OF EQUIV. GO TO ASSIGN DIMENSION STORAGE   F6D01130
00542  0 60000 0 00174 A11    STZ EA          EQUIV. VARIABLE IS A SUBROUTINE ARGUMENT       F6D01140
00543 -0 53400 1 00363        LXD N,1         SET COUNTER FOR NO. OF WORDS IN SENT.          F6D01150
00544 -0 63400 1 00367 A21    SXD J,1         SAVE NO. OF WORDS IN EQUIV SENT.               F6D01160
00545  0 50000 1 71457        CLA ECS,1       STORE EQUIV VARIABLE IN DEV AND                F6D01170
00546  0 07400 4 00142        TSX SDEV,4      STORE LOCATION AS ZERO.                        F6D01180
00547  0 07400 4 00210        TSX EDEV,4              EQUIV ENTRIES                          F6D01190
00550  0 02000 0 00551        TRA A22                                                        F6D01200
00551 -0 53400 1 00367 A22    LXD J,1         RESTORE COUNTER FOR NO. OF WDS LEFT IN EQUIV   F6D01201
                                              SENTENCE.                                      F6D01210
00552  2 00001 1 00544        TIX A21,1,1     IF MORE WORDS IN SENT, GO TO STORE LOCATION AS F6D01211
                                              ZERO,                                          F6D01220
00553  0 07400 4 00350        TSX UP03,4      SENTENCE FINISHED. GO COMPUTE NEW DRUM ADD. +  F6D01221
                                              TEST FOR END.                                  F6D01230
00554  0 02000 0 00500        TRA A5          IF NOT END OF EQUIV TABLE, REPEAT WITH NEXT    F6D01231
                                              SENTENCE.                                      F6D01240
00555  0 02000 0 00556        TRA DIM         END OF EQUIV TABLE.                            F6D01250
                              ADD SYMBOLS FROM DIMENSION SENTENCES                           F6D01260
00556  0 53400 1 00366 DIM    LXA VSZ,1       SET COUNTER WITH WD CT OF ARRAY NAME TABLE     F6D01270
D 00557 -3 00000 1 00622      TXL ENDA,1      IF NO SIZE TABLE, GO TO READ LOADER            F6D01280
00560  0 02000 0 00631 SZYES  TRA DPCH1                                                      F6D01290
00561  0 62200 0 00604        STD A18                                                        F6D01300
00562  0 50000 0 00171        CLA LCTR        STORE LCTR IN EA.                              F6D01310
00563  0 60100 0 00174 SEA    STO EA                                                         F6D01320
00564  0 50000 1 75055 DDS    CLA STS,1                                                      F6D01330
00565 -0 63400 1 00363        SXD N,1         SAVE COUNTER FOR ARRAY NAME TABLE              F6D01340
00566  0 07400 4 00142        TSX SDEV,4      GO TO SEARCH DEV TABLE FOR ARRAY NAME          F6D01350
00567  0 02000 0 00574        TRA A15         IF NOT IN TABLE, GO SEE IF THAT ARRAY NAME IS AF6D01351
                                              SUBROUTINE ARGUMENT                            F6D01360
00570  0 76100 0 00000        NOP 0                                                          F6D01370
00571 -0 53400 1 00363        LXD N,1         IF IN TABLE, GO TO NEXT ARRAY NAME SEARCH.     F6D01380
00572  2 00001 1 00564        TIX DDS,1,1                                                    F6D01390
00573  0 02000 0 00622        TRA ENDA                                                       F6D01400
00574 -0 63400 2 00630 A15    SXD IR2,2       SAVE XR2                                       F6D01410
00575 -0 53400 2 00164        LXD ADDR,2      SET COUNTER=0                                  F6D01420
00576  0 02000 0 00637        TRA DPCH2                                                      F6D01430
00577  0 50000 1 75055 A20    CLA STS,1       TO SEE IF ARRAY NAME IS A SUBROUTINE ARG.      F6D01440
00600  0 34000 2 72603        CAS UPPER-4,2                                                  F6D01450
00601  0 02000 0 00603        TRA A16         NOT A SUBROUTINE ARGUMENT
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00602   0 02000 0 00616          TRA A17                  IF IT IS A SUB ARG, GO TO A17                          F6D01460
                                                                                                                  F6D01470
00603   1 00001 2 00604  A16     TXI A18,2,1              IF NO MORE ARGUMENT NAMES TO COMPARE GO TO A19.         F6D01480
00604   3 00604 2 00606  A18     TXH A19,2,*                                                                     F6D01490
00605   0 02000 0 00577          TRA A20                  ARRAY NAME NOT A SUBROUTINE ARGUMENT                   F6D01500
00606  -0 53400 2 00630  A19     LXD IR2,2                ENTER ARRAY NAME IN DEV TABLE. STORE LOCATION          F6D01510
00607   0 07400 4 00210          TSX EDEV,4               IN DEA                                                 F6D01511
                                                          RESTORE ARRAY NAME COUNTER.                            F6D01520
00610  -0 53400 1 00363  SLC     LXD N,1                  SUBTRACT LENGTH OF ARRAY FROM LCTR AND STORE IN        F6D01530
00611   0 50000 0 00171          CLA LCTR                 LCTR.                                                  F6D01531
                                                                                                                  F6D01540
00612   0 40200 1 76173          SUB L,1                                                                         F6D01550
00613   0 60100 0 00171          STO LCTR                 UPDATE ARRAY NAME TABLE COUNTER AND GO SEE IF          F6D01560
00614   2 00001 1 00563          TIX SEA,1,1              IN DEV.                                                F6D01561
                                                                                                                  F6D01570
00615   0 02000 0 00622          TRA ENDA                 RESTORE ARRAY NAME COUNTER                             F6D01580
00616  -0 53400 1 00363  A17     LXD N,1                                                                         F6D01590
00617   0 50000 0 00171          CLA LCTR                 DECREMENT ARRAY NAME COUNTER                           F6D01600
00620   2 00001 1 00563          TIX SEA,1,1              WHEN ALL ARRAY NAMES TREATED, GO TO LOADER.            F6D01610
00621   0 02000 0 00622          TRA ENDA                                                                        F6D01620
A                       00622    ENDA  BSS                                                                       F6D01630
00622   0 76200 0 00221          RTB 1                                                                           F6D01640
00623   0 02000 0 00004          TRA 4                                                                           F6D01650
00624   0 07400 4 00004  EOF1    TSX 4,4                                                                         F6D01660
00625   0 00000 0 00000  SUM     HTR 0                                                                           F6D01670
00626 +000001000000      C2      OCT 000001000000                                                                F6D01680
00627   0 00000 0 00000  LIB1    HTR 0                                                                           F6D01690
00630   0 00000 0 00000  IR2     HTR 0                                                                           F6D01691
00631   0 50000 0 72605  DPCH1   CLA UPPER-2                                                                     F6D01692
00632   0 40200 0 00626          SUB C2                                                                          F6D01693
00633   0 60100 0 00636          STO HERE                                                                        F6D01694
00634   0 40200 0 00626          SUB C2                                                                          F6D01695
00635   0 02000 0 00561          TRA SZYES+1                                                                     F6D01696
00636   0 00000 0 00000  HERE    HTR 0                                                                           F6D01700
00637  -0 53400 1 00363  DPCH2   LXD N,1                                                                         F6D01701
00640   0 50000 0 00636          CLA HERE                                                                        F6D01702
00641   0 12000 0 00577          TPL A20                                                                         F6D01703
00642   0 50000 1 75055          CLA STS,1                                                                       F6D01704
00643   0 02000 0 00606          TRA A19                                                                         F6D01705
00644  -0 63400 1 00646  DPCH3   SXD SVIT,1                                                                     F6D01706
00645   0 02000 0 00522          TRA A13                                                                         F6D01707
00646   0 00000 0 00000  SVIT    HTR 0                                                                           F6D01708
A                       00000    END
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1          REM ************ FORTRAN II SECTION SIX ************************F6E00010
1                                ************ FORTRAN II SECTION SIX ************************F6E00010
                                 FORTRAN 2   RECORD 100  -  COMMON MAPPING.                    F6E00011
                                                                                               F6E00012
                                 CONTROL ENTERS THIS RECORD AT LOCATION 210 (OCTAL).           F6E00013
                                                                                               F6E00014
                                 LIST STORAGE FOR VARIABLES                                    F6E00020
                                 APPEARING IN COMMON SENTENCES,                                F6E00030
                                 LOCATIONS IN BOTH DECIMAL AND OCTAL                           F6E00040
                                                                                               F6E00050
M                      00205  ME2  SYN 133                                                    F6E00060
                       00210       ORG 136                                                    F6E00070
       00210  0 77200 0 00202       REW 2          REWIND TAPE 2                              F6E00080
       00211  0 76200 0 00202  FIL  RTD 2          SPACE OVER SOURCE PROGRAM.                 F6E00090
       00212  0 70000 0 00504       CPY LIN                                                    F6E00100
       00213  0 02000 0 00211       TRA FIL                                                    F6E00110
M      00214  0 53400 1 00205       LXA ME2,1      =1 IF COMMON TABLE, =0 IF NO COMMON TABLE. F6E00120
D      00215 -3 00000 1 00331       TXL ENDS,1     IF NO COMMON TABLE, GO TO ENDS.            F6E00130
       00216 -0 53400 1 00155       LXD DEVL,1     TABLE LENGTH OF DEV.                       F6E00140
D      00217 -3 00000 1 00331       TXL ENDS,1     IF NO DEV TABLE, GO TO ENDS                F6E00150
       00220  0 07400 4 00305       TSX SPACE,4    GO TO WRITE TITLE AND HEADINGS.            F6E00160
       00221  0 00024 0 00435           TITLE,,20                                             F6E00170
       00222  0 07400 4 00305       TSX SPACE,4                                               F6E00180
       00223  0 00024 0 00461           CHEAD,,20                                             F6E00190
       00224 -0 53400 2 00301  CNL  LXD LNC,2      SET TAPE 2 BLOCK LENGTH TO 20              F6E00200
       00225  0 50000 1 74413  CNW  CLA DEA,1      TEST FOR COMMON,                           F6E00210
       00226  0 40200 0 00175       SUB L3         I.E. SEE IF LOCATION OF SYMBOL IS IN RANGE OF F6E00211
                                                   COMMON                                     F6E00220
       00227  0 10000 0 00303       TZE B4         NOT IN COMMON.                             F6E00230
       00230 -0 12000 0 00303       TMI B4         NOT IN COMMON.                             F6E00240
       00231 -0 50000 0 00404       CAL BLANKS     YES, IN COMMON.                            F6E00250
       00232  0 60200 2 00505       SLW LIN+1,2    STORE BLANKS IN TWO WORDS OF TAPE 2 ENTRY. F6E00260
       00233  0 60200 2 00506       SLW LIN+2,2                                               F6E00270
       00234  0 56000 1 77777       LDQ DEV,1      SELECT SYMBOL AND                          F6E00280
       00235  0 53400 4 00236       LXA SIX,4      CONVERT.                                   F6E00290
       00236 -0 76300 0 00006  SIX  LGL 6          BRING ONE CHARACTER OF SYMBOL INTO AC.     F6E00300
       00237  0 60200 0 00513       SLW SYM                                                   F6E00310
       00240 -0 32000 0 00406       ANA 6BITS      TEST IF CHARACTER IN AC IS A BLANK.        F6E00320
       00241  0 40200 0 00405       SUB BLANK                                                 F6E00330
       00242  0 10000 0 00246       TZE CNA        YES, THEN FINISHED. I.E. SYMBOLIC NAME IN 2ND F6E00331
                                                   WORD OF ENTRY.                             F6E00340
       00243 -0 50000 0 00513       CAL SYM                                                   F6E00350
       00244  0 60200 2 00506       SLW LIN+2,2                                               F6E00360
       00245  2 00001 4 00236       TIX SIX,4,1                                               F6E00370
       00246  0 50000 1 74413  CNA  CLA DEA,1      TO GET BCD IMAGE OF DECIMAL LOCATION.      F6E00380
       00247  0 62100 0 00410       STA LOC                                                   F6E00390
       00250  0 53400 4 00162       LXA ONE,4                                                 F6E00400
       00251  0 56000 0 00410       LDQ LOC                                                   F6E00410
       00252  0 50000 0 00407  CNV  CLA TEN                                                   F6E00420
       00253  0 04000 0 00260       TLQ FIN                                                   F6E00430
T      00254 -0 75400 0 00000       PXD            REMAINDERS STORED IN DIG-1,... THAT IS, IF 205 F6E00431
                                                   (OCTAL)                                    F6E00440
       00255  0 22100 0 00407       DVP TEN        WERE THE NUMBER IN LOC, WE GET A BINARY 3 IN F6E00441
                                                   DIG-1, ...                                 F6E00450
       00256  0 60200 4 00513       SLW DIG,4      3 IN DIG-2, IN DIG-3
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00257  1 00001 4 00252          TXI CNV,4,1
00260 -0 60000 4 00513  FIN      STQ DIG,4
00261 -0 50000 0 00404           CAL BLANKS
00262  0 76700 0 00006  DEC      ALS 6
00263 -0 50100 4 00513           ORA DIG,4
00264  2 00001 4 00262           TIX DEC,4,1
00265  0 60200 2 00507           SLW LIN+3,2
00266  0 50000 0 00410           CLA LOC
00267  0 76500 0 00017           LRS 15
00270 -0 50000 0 00405           CAL BLANK
00271 -0 14000 0 00272           TNO OCT
00272  0 76700 0 00003  OCT      ALS 3
00273  0 76300 0 00003           LLS 3
00274 -0 14000 0 00272           TNO OCT

00275  0 60200 2 00510           SLW LIN+4,2
00276 -2 00001 1 00320           TNX NT2,1,1
00277  2 00004 2 00225           TIX CNW,2,4

00300  0 07400 4 00307           TSX WRITE,4
00301  0 00024 0 00505  LNC           LIN+1,,20
00302  0 02000 0 00224           TRA CNL
00303 -2 00001 1 00317  B4       TNX WLL,1,1
00304  0 02000 0 00225           TRA CNW
00305  0 76600 0 00202  SPACE    WTD 2
00306  0 70000 0 00404           CPY BLANKS
00307  0 76600 0 00202  WRITE    WTD 2
00310  0 50000 4 00001           CLA 1,4

00311  0 62100 0 00313           STA POOP
00312 -0 73400 2 00000           PDX 0,2
00313  0 70000 2 00313  POOP     CPY *,2
00314  2 00001 2 00313           TIX POOP,2,1
00315  0 76600 0 00333           IOD
00316  0 02000 4 00002           TRA 2,4
00317  1 00004 2 00320  WLL      TXI NT2,2,4
00320 -0 75400 2 00000  NT2      PXD 0,2
00321  0 60100 0 00330           STO LND

00322  0 77100 0 00022           ARS 18
00323  0 62100 0 00330           STA LND
00324  0 50000 0 00333           CLA LNE
00325  0 40200 0 00330           SUB LND
00326  0 60100 0 00330           STO LND
00327  0 07400 4 00307           TSX WRITE,4
00330  0 00000 0 00000  LND
A                       00331  ENDS  BSS
00331  0 60000 0 00174           STZ EA
00332  0 02000 0 00004           TRA 4
00333  0 00030 0 00511  LNE           LIN+5,,24
                        00334         BSS 40
00404   606060606060     BLANKS BCD 1
00405   000000000060      BLANK BCD 100000
00406  +000000000077      6BITS OCT 77
```

```
                                                                    F6E00460
                                                                    F6E00470
                                                                    F6E00480
                                                                    F6E00490
SET UP BCD IMAGE OF DEC. NO. AS 3 BLANKS,1,3,3.                     F6E00500
                                                                    F6E00510
STORE DECIMAL LOCATION IN 3RD WORD OF ENTRY.                        F6E00520
                                                                    F6E00530
                                                                    F6E00540
                                                                    F6E00550
                                                                    F6E00560
TO SET UP BCD IMAGE OF OCTAL LOCATION                               F6E00570
THE TRANSFER IS ON NO OVERFLOW SINCE WHEN ALL                       F6E00580
15 BITS OF LOC HAVE BEEN CONVERTED, A BIT FROM                      F6E00590
REMAINING BLANK WILL ENTER P POSITION OF ACC.                       F6E00591
STORE OCTAL LOCATION IN 4TH WORD OF ENTRY                           F6E00600
GO TO NT2 IF NO MORE ENTRIES IN DEV TABLE                           F6E00610
IF ROOM FOR MORE 4-WORD ENTRIES IN 20-WD RECORD                     F6E00620
                                                                    F6E00621
REPEAT                                                              F6E00630
                                                                    F6E00640
                                                                    F6E00650
IF NO MORE WORDS IN DEV TABLE, GO TO WLL.                           F6E00660
                                                                    F6E00670
                                                                    F6E00680
WRITE A BLANK RECORD TO PROVIDE A SPACE.                            F6E00690
                                                                    F6E00700
TO SET INITIAL LOCATION AND NO. OF WORDS TO BE                      F6E00710
                                                                    F6E00711
WRITTEN.                                                            F6E00720
                                                                    F6E00730
                                                                    F6E00740
                                                                    F6E00750
                                                                    F6E00760
ALL WORDS IN RECORD WRITTEN. RETURN TO PROGRAM                      F6E00770
                                                                    F6E00780
                                                                    F6E00790
STORE IN LND ADDRESS                                                F6E00800
AND DECREMENT 20-NO. OF WORDS IN FINAL RECORD                       F6E00801
OF TAPE 2.                                                          F6E00810
SUBTRACT THIS FROM LNE                                              F6E00820
TO GET ADDRESS AND                                                  F6E00830
DECREMENT FOR WRITING                                               F6E00840
FINAL RECORD                                                        F6E00850
                                                                    F6E00860
                                                                    F6E00870
                                                                    F6E00880
SET EA=0                                                            F6E00890
AND GO TO LOADER                                                    F6E00900
                                                                    F6E00910
                                                                    F6E00920
                                                                    F6E00930
                                                                    F6E00940
                                                                    F6E00950
```

```
00407 +000000000012     TEN   DEC 10                                          F6E00960
00410 +000000000000     LOC   DEC 0                                           F6E00970
00411  606060606060           BCD 4                                           F6E00980
00412  606060606060
00413  606060606060
00414  606060606060
00415  606263465121           BCD 6 STORAGE FOR VARIABLES APPEARING IN         F6E00990
00416  272560264651
00417  606521513121
00420  224325626021
00421  474725215131
00422  452760314560
00423  234644444645           BCD  COMMON SENTENCES                           F6E01000
00424  606225456325
00425  452325626060
00426  606060606060
00427  606060606060
00430  606060606060
00431  606060606060
00432  606060606060
00433  606060606060
00434  606060606060
A                    00435  TITLE BSS                                        F6E01010
00435  606060606060           BCD              DEC   OCT            DEC   OCT F6E01020
00436  606060606060
00437  606024252360
00440  606046236360
00441  606060606060
00442  606060606060
00443  606024252360
00444  606046236360
00445  606060606060
00446  606060606060
00447  606024252360           BCD    DEC   OCT            DEC   OCT          DEC   OCT F6E01030
00450  606046236360
00451  606060606060
00452  606060606060
00453  606024252360
00454  606046236360
00455  606060606060
00456  606060606060
00457  606024252360
00460  606046236360
A                    00461  CHEAD BSS                                        F6E01040
                     00461        BSS 19                                     F6E01050
                     00504  LIN   BSS 1                                      F6E01060
                     00513  DIG   BES 6                                      F6E01070
                     00513  SYM   BSS 1                                      F6E01080
                     00210        END START                                  F6E01090
                           0  ME2 00205,00205
```

```
1          AST
1
                                    ********** FORTRAN II SECTION SIX **********************F6F00010
                                    FORTRAN 2   RECORD 101  -  FORTRAN FUNCTION ASSN          F6F00011
                                                                                              F6F00012
                                    CONTROL ENTERS THIS RECORD AT LOCATION 210.                F6F00013
                                                                                              F6F00014
                                    ENTER FORTRAN FUNCTION NAMES IN TDEV                      F6F00020
                                                                                              F6F00030
                        00210       ORG 136                                                   F6F00040
     00210 -0 53400 1 00154 LXD DEVS,1                                                        F6F00050
D    00211 -3 00000 1 00215 GO  TXL IFMT,1                                                    F6F00060
     00212  0 50000 0 00156     CLA DEVA      IF PREVIOUS ENTRIES, UPDATE DECREMENT OF EDEV3 F6F00070
     00213  0 40000 0 00156     ADD DEVA      WHICH WILL CONTAIN THE MAX. POWER OF 2 EX-     F6F00080
     00214  0 62200 0 00277     STD EDEV3     PRESSIBLE IN THE NO. OF DEV TABLE ENTRIES      F6F00090
A                   00215 IFMT  BSS                                                          F6F00100
     00215  0 02000 0 00325     TRA FPCH1                                                    F6F00110
     00216  0 76200 0 00303 LIB24 RDR 3       SELECT DRUM 3.                                F6F00120
T    00217 -0 75400 0 02000 NFA  PXD 1024          TABLE FROM                               F6F00130
     00220  0 60100 0 00373     STO LIBD      SET LIBD EQUAL TO ZERO.                        F6F00140
     00221  0 46000 0 00217     LDA NFA       LOCATE FORSUB (FORTRAN FUNCTION) TABLE.        F6F00150
     00222 -0 70000 0 00704     CAD FORT      TO READ WORD COUNT OF FORSUB TABLE, SAVE IT IN F6F00160
     00223  0 76000 0 00006     COM           FORT AND                                       F6F00170
     00224 -0 70000 0 00372     CAD SUM       CHECK.                                         F6F00180
     00225  0 76000 0 00006     COM                                                          F6F00190
     00226  0 10000 0 00231     TZE RFS                                                      F6F00200
     00227  2 00001 4 00216     TIX LIB24,4,1 IF DRUM READ ERROR,                            F6F00210
     00230  0 07400 4 00004     TSX 4,4                                                      F6F00220
     00231 -0 53400 3 00704 RFS  LXD FORT,3    TEST IF ANY FORTRAN FUNCTIONS.                 F6F00230
D    00232 -3 00000 2 00267     TXL RDRM,2    IF NOT, GO TO RETURN TO LOADER.                F6F00240
     00233  0 53400 4 00321     LXA LOC15,4   IF YES, SET DRUM READ ERROR COUNTER            F6F00250
     00234  0 76200 0 00303 LIB25 RDR 3       AND READ FORSUB TABLE                          F6F00260
T    00235 -0 75400 0 02002 TFA  PXD 1026      INTO FORT-WDCT THRU FORT-1.                    F6F00270
     00236  0 46000 0 00235     LDA TFA                                                      F6F00280
     00237 -0 70000 2 00704 CFS  CAD FORT,2                                                   F6F00290
     00240  2 00001 2 00237     TIX CFS,2,1                                                  F6F00300
     00241  0 70000 0 00372     CPY SUM                                                      F6F00310
     00242  0 76000 0 00006     COM                                                          F6F00320
     00243 -0 70000 0 00372     CAD SUM                                                      F6F00330
     00244  0 76000 0 00006     COM                                                          F6F00340
     00245  0 10000 0 00250     TZE FORS      CHECK SUM OKAY.                                F6F00350
     00246  2 00001 4 00234     TIX LIB25,4,1 IF CHECK SUM ERROR, REPEAT                     F6F00360
     00247  0 07400 4 00004     TSX 4,4                                                      F6F00370
     00250 -0 63400 1 00264 FORS SXD FORM,1    SAVE WD COUNTER IN DECREMENT OF FORM.          F6F00380
     00251  0 50000 1 00704     CLA FORT,1    SELECT FUNCTION SYMBOL, AND GO TO              F6F00390
     00252  0 07400 4 00142     TSX SDEV,4        DEV TABLE                                  F6F00400
     00253  0 07400 4 00271     TSX EDEV,4    IF NOT IN TABLE, GO TO ENTER IT WITH LOCATION  F6F00410
TD   00254  1 00000 0 00265     TXI FORE      ZERO, AND TRANSFER TO FORE.                    F6F00420
     00255 -0 53400 1 00264     LXD FORM,1    RETURN HERE IF SYMBOL WAS FOUND IN DEV.        F6F00430
     00256  0 50000 1 00704     CLA FORT,1    ENTER SYMBOL                                   F6F00440
     00257 -0 53400 2 00373     LXD LIBD,2    IN LIBP TABLE.                                 F6F00450
     00260  1 00001 2 00261     TXI FORD,2,1                                                 F6F00460
     00261  0 60100 2 00540 FORD STO LIBP,2                                                   F6F00470
     00262 -0 63400 2 00373     SXD LIBD,2                                                   F6F00480
     00263  2 00002 1 00250     TIX FORS,1,2  END OF FORSUB TABLE. NO, GO TO SELECT NEXT     F6F00481
                                              FUNCTION SYMBOL
```

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TD     00264  1 00000 0 00267  FORM   TXI RDRM          YES, GO TO LOADER.                                          F6F00490
       00265 -0 53400 1 00264  FORE   LXD FORM,1        RESTORE TABLE WORD-COUNTER. END OF FORSUB TABLE             F6F00500
       00266  2 00002 1 00250         TIX FORS,1,2      NO, DECREMENT COUNTER AND GO TO READ NEXT                   F6F00510
                                                        FUNCTION SYMBOL                                             F6F00511
       00267  0 76200 0 00221  RDRM   RTB 1            YES, GO TO LOADER                                           F6F00520
       00270  0 02000 0 00004         TRA 4                                                                       F6F00530
       00271  1 00001 2 00272  EDEV   TXI EDEV0,2,1     FOR COMMENTS, SEE RECORD 96.                                F6F00540
       00272 -0 63400 2 00306  EDEV0  SXD EDEV1,2                                                                 F6F00550
       00273  0 60100 0 00160         STO ENTRY                                                                   F6F00560
       00274 -0 53400 2 00155         LXD DEVL,2                                                                  F6F00570
       00275  1 00001 2 00276         TXI EDEV2,2,1                                                               F6F00580
       00276 -0 63400 2 00155  EDEV2  SXD DEVL,2                                                                  F6F00590
       00277 -3 00000 2 00306  EDEV3  TXL EDEV1,2,**+0                                                            F6F00600
       00300 -0 50000 0 00154         CAL DEVS                                                                    F6F00610
       00301  0 40000 0 00156         ADD DEVA                                                                    F6F00620
       00302  0 60200 0 00154         SLW DEVS                                                                    F6F00630
       00303  0 62200 0 00156         STD DEVA                                                                    F6F00640
       00304  0 40000 0 00156         ADD DEVA                                                                    F6F00650
       00305  0 62200 0 00277         STD EDEV3                                                                   F6F00660
       00306  3 00000 2 00314  EDEV1  TXH EDEV4,2,**                                                             F6F00670
       00307 -0 50000 0 00160         CAL ENTRY                                                                   F6F00680
       00310  0 60200 2 77777         SLW DEV,2                                                                   F6F00690
       00311  0 50000 0 00174         CLA EA                                                                      F6F00700
       00312  0 60200 2 74413         SLW DEA,2                                                                   F6F00710
       00313  0 02000 4 00001         TRA 1,4                                                                     F6F00720
       00314 -0 50000 2 00000  EDEV4  CAL DEV+1,2       MOVE TABLE                                                  F6F00730
       00315  0 60200 2 77777         SLW DEV,2         ENTRIES.                                                    F6F00740
       00316 -0 50000 2 74414         CAL DEA+1,2                                                                 F6F00750
       00317  0 60200 2 74413         SLW DEA,2                                                                   F6F00760
       00320  1 77777 2 00306         TXI EDEV1,2,-1                                                              F6F00770
       00321  0 42000 0 00017  LOC15  HPR 15                                                                     F6F00780
       00322  0 00000 0 77777  MI1    PZE -1                                                                      F6F00781
       00323 +000001000000      DCR1   OCT 1000000                                                               F6F00782
       00324  0 00000 0 00000  SAV    HTR 0                                                                       F6F00783
       00325  0 50000 0 72605  FPCH1  CLA UPPER-2        WORD COUNT OF SUBDEF TABLE.                                 F6F00784
       00326  0 40200 0 00323         SUB DCR1                                                                    F6F00785
       00327  0 10000 0 00351         TZE GOHD+1        NO ARGUMENTS.                                             F6F00786
       00330 -0 12000 0 00351         TMI GOHD+1        NO ARGUMENTS.                                             F6F00787
       00331  0 62200 0 00346         STD ETST          ARGUMENTS TO ENTER IN DEV.                                F6F00788
       00332 -0 53400 1 00323         LXD DCR1,1                                                                  F6F00789
       00333  0 50000 0 00322         CLA MI1                                                                     F6F00790
       00334  0 60100 0 00174         STO EA            SET EA TO ALL 7 S.                                        F6F00791
       00335 -0 63400 1 00324  GOFIX  SXD SAV,1                                                                   F6F00792
       00336  0 50000 1 72604         CLA UPPER-3,1     SELECT ARGUMENT.                                          F6F00793
       00337  0 07400 4 00142         TSX SDEV,4        GO SEARCH DEV FOR IT.                                     F6F00794
       00340  0 07400 4 00271         TSX EDEV,4        NOT IN SO ENTER IN DEV                                    F6F00795
       00341  0 02000 0 00344         TRA *+3           AND TRANSFER.                                             F6F00796
       00342  0 50000 0 00174         CLA EA            ALREADY IN DEV. ENTER                                     F6F00797
       00343  0 60100 2 74413         STO DEA,2         LOCATION AS ALL 7S.                                       F6F00798
       00344 -0 53400 1 00324         LXD SAV,1                                                                   F6F00799
       00345  1 00001 1 00346         TXI *+1,1,1                                                                 F6F00800
       00346  3 00000 1 00350  ETST   TXH GOHD,1,**      TEST FOR ANY MORE ARGS.                                   F6F00801
       00347  0 02000 0 00335         TRA GOFIX                                                                   F6F00802
       00350  0 60000 0 00174  GOHD   STZ EA            RESET EA TO ZERO.                                         F6F00803
```

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00351  0 53400 4 00321  RNF    LXA LOC15,4       SET DRUM READ ERROR COUNTER      F6F00804
00352  0 02000 0 00216         TRA LIB24                                          F6F00805
                  00353         BSS 15                                           F6F00806
00372  0 00000 0 00000  SUM                                                      F6F00807
00373  0 00000 0 00000  LIBD                                                     F6F00810
                  00540  LIBP   BES 100                                          F6F00820
                  00704  FORT   BES 100                                          F6F00830
                  00210         END START                                        F6F00840
```

```
1          AST
1                                   ************* FORTRAN II SECTION SIX ************************F6G00010
                                    FORTRAN 2   RECORD 103  -  FIRST PASS OF CIT TAPE.            F6G00011
                                                                                                  F6G00012
                                    CONTROL ENTERS THIS RECORD AT LOCATION 210.                   F6G00013
                                                                                                  F6G00014
                                    INITIALIZE FIRST TAPE PASS                                    F6G00020
                                                                                                  F6G00030
                    00210           ORG 136                                                       F6G00040
00210 -0 53400 1 00155  MDEA  LXD DEVL,1      COMPUTE NUMBER OF                                   F6G00050
00211 -0 75400 1 74413  LDEA  PXD DEA,1       ENTRIES IN DEV                                      F6G00060
00212  0 77100 0 00022        ARS 18          TABLE.                                              F6G00070
00213  0 60100 0 00173        STO D           COMPUTE ADDRESS OF                                  F6G00080
00214 -0 40000 0 00146        SBM TDEV        DEA TABLE TO MOVE                                   F6G00090
00215  0 62100 0 00152        STA ADEV        IT TO END OF                                        F6G00100
00216  0 62100 0 00170        STA LIFN        DEV TABLE.                                          F6G00110
00217  0 02000 0 00672        TRA GPCH1                                                           F6G00120
D 00220 -3 00000 1 00225  RETN  TXL PREP,1        TEST FOR NO ENTRIES IN DEV.                   F6G00130
00221  0 62100 0 00223        STA MDAS        YES.                                                F6G00140
00222  0 50000 1 74413  MDAL  CLA DEA,1       MOVE LOCATIONS TO                                   F6G00150
00223  0 60100 1 00223  MDAS  STO *,1         END OF DEV TABLE.                                   F6G00160
00224  2 00001 1 00222        TIX MDAL,1,1                                                        F6G00170
00225  0 50000 0 00165  PREP  CLA EIFN        COMPUTE ADDRESS FOR                                 F6G00180
00226  0 77100 0 00022        ARS 18          TEV TABLE                                           F6G00190
00227  0 56000 0 00173        LDQ D           WILL FOLLOW THE MOVED                               F6G00200
00230  0 04000 0 00233        TLQ MVIF        DEA TABLE                                           F6G00210
00231  0 50000 0 00173        CLA D           ALLOWS FOR IFN                                      F6G00220
00232  0 40000 0 00162        ADD ONE         TABLE TO BE STORED                                  F6G00230
00233 -0 40000 0 00152  MVIF  SBM ADEV        IN DECREMENT OF DEA                                 F6G00240
00234  0 62100 0 00624        STA ETEV5       TABLE HENCE IF IFN IS                               F6G00250
00235  0 62100 0 00627        STA ETEV6       LONGER THAN DEA IFN                                 F6G00260
00236  0 62100 0 00246        STA ETEV7       LENGTH IS USED IN                                   F6G00270
00237  0 62100 0 00107        STA TTEV        COMPUTING ADDRESS OF                                F6G00280
00240 -0 40000 0 00162        SBM ONE         TEV TABLE                                           F6G00290
00241  0 62100 0 00626        STA ETEV4                                                           F6G00300
T 00242 -0 75400 0 00000        PXD                 STORE ONES IN                                 F6G00310
00243  0 60000 0 00166        STZ L1          SET PROGRAM BREAK=0                                 F6G00320
00244  0 60000 0 00167        STZ L2          SET PROGRAM COUNTER=0                               F6G00330
00245  0 76000 0 00006        COM             SOTRE ONES IN TEV AND TIV                           F6G00340
U 00246  0 60200 0        . ETEV7 SLW TEV       TABLES INITIAL                                    F6G00350
00247  0 60100 0 02114        STO TIV         ENTRIES.                                            F6G00360
00250  0 60200 0 02115        SLW TIV+1                                                           F6G00370
00251  0 53400 2 00256        LXA RDC,2       SET READ ERROR COUNTER AND                          F6G00380
00252  0 02000 0 00257        TRA RD          GO TO READ CITS FROM TAPE 4                         F6G00390
00253  0 76400 0 00204  ERR   BST 4                                                              F6G00400
00254  2 00001 2 00257        TIX RD,2,1                                                          F6G00410
00255  0 07400 4 00004        TSX 4,4                                                             F6G00420
00256  0 42000 0 00005  RDC   HPR 5                                                              F6G00430
00257  0 76200 0 00224  RD    RTB 4           READ CIT RECORD FROM TAPE 4.                        F6G00440
00260  0 53400 4 00164        LXA ADDR,4      COUNTER SET=-1                                      F6G00450
00261  0 70000 4 01104  RD1   CPY REC-2,4     COPY CIT RECORD INTO REC-1,-2,                      F6G00460
00262  1 00001 4 00261        TXI RD1,4,1                                                         F6G00470
00263  0 02000 0 00525        TRA EOF         IF END-OF-FILE REACHED ON TAPE 4.                   F6G00480
00264  0 77100 0 00377        ARS 255                                                             F6G00490
00265  0 77100 0 00377        ARS 255
```

```
00266 -0 76000 0 00012          RTT
00267  0 02000 0 00253          TRA ERR
00270 -0 63400 4 00522          SXD RD2,4       STORE COUNT OF CIT IN RD2 DECR.
00271 -0 53400 4 00164          LXD ADDR,4      SET WORD COUNTER=0
00272 -0 63400 4 00524  RD4     SXD RD3,4       SAVE IT IN DECREMENT OF RD3
00273  0 50000 4 01105          CLA REC-1,4     SELECT FROM REC
00274  0 60100 0 00664          STO SL          SYMBOLIC LOCATION
00275  0 50000 4 01104          CLA REC-2,4
00276  0 60100 0 00665          STO OP          SYMBOLIC OP, BINARY DEC
00277  0 50000 4 01103          CLA REC-3,4
00300  0 60100 0 00666          STO SA          SYMBOLIC ADDRESS
00301  0 50000 4 01102          CLA REC-4,4     RELATIVE ADDRESS, TAG
00302  0 60100 0 00667          STO RA          SET EA TO ZERO.
T    00303 -0 75400 0 00000          PXD                     SET EA TO ZERO
00304  0 60100 0 00174          STO EA
00305 -0 50000 0 00665          CAL OP          SELECT SYMBOLIC OP.
00306  0 76500 0 00022          LRS 18          IS OP=OCT.
00307  0 34000 0 00660          CAS OCT
00310  0 02000 0 00315          TRA SA1         GO TO SA1 SINCE OP IS NEITHER OCT NOR BCD.
00311  0 02000 0 00424          TRA ORDOP       YES, OP IS OCTAL. GO TO ORDOP
00312  0 34000 0 00662          CAS BCD         IS OP BCD.
00313  0 02000 0 00315          TRA SA1         OP IS NEITHER OCT NOR BCD.
00314  0 02000 0 00424          TRA ORDOP       YES, OP IS BCD. GO TO ORDOP
00315 -0 50000 0 00666  SA1     CAL SA          IF OP NOT BCD OR OCT SELECT SYMBOLIC ADDRESS
00316  0 10000 0 00413          TZE SA2         SA EQUAL ZERO. GO TO SA2 TO SET EA=0
00317  0 76500 0 00036          LRS 30          TEST SA(1), I.E., FIRST 6-BIT CHARACTER OF SA
00320  0 73400 4 00000          PAX 0,4         TO DETERMINE THE TYPE OF SYMBOL IT IS.
00321  3 00017 4 00364          TXH SA4,4,15    TRANSFER IF FIRST CHAR. IS GREATER THAN 15.
00322  0 02000 4 00342          TRA SAT,4
00323  0 02000 0 00412          TRA SA8         SA(1) EQUAL FIFTEEN
00324  0 02000 0 00357          TRA SA6         SA(1) EQUAL FOURTEEN
00325  0 02000 0 00357          TRA SA6         SA(1) EQUAL THIRTEEN
00326  0 02000 0 00343          TRA SA9         SA(1) EQUAL TWELVE
00327  0 02000 0 00414          TRA SA5         SA(1) EQUAL ELEVEN
00330  0 02000 0 00357          TRA SA6         SA(1) EQUAL TEN
00331  0 02000 0 00414          TRA SA5         SA(1) EQUAL NINE
00332  0 02000 0 00357          TRA SA6         SA(1) EQUAL EIGHT
00333  0 02000 0 00343          TRA SA9         SA(1) EQUAL SEVEN
00334  0 02000 0 00414          TRA SA5         SA(1) EQUAL SIX
00335  0 02000 0 00343          TRA SA9         SA(1) EQUAL FIVE
00336  0 02000 0 00343          TRA SA9         SA(1) EQUAL FOUR
00337  0 02000 0 00414          TRA SA5         SA(1) EQUAL THREE
00340  0 02000 0 00414          TRA SA5         SA(1) EQUAL TWO
00341  0 02000 0 00343          TRA SA9         SA(1) EQUAL ONE
00342  0 02000 0 00404  SAT     TRA SA3         SA(1) EQUAL ZERO
00343 -0 77300 0 00016  SA9     RQL 14          TAG CELL(12), ARITH ERASE(1),
00344 -0 76300 0 00021          LGL 17          FUNCT ERASE(7), LIB(4),
00345  0 07400 4 00121          TSX STIV,4      ASSIGN CONSTANTS(5). ASSEMBLE SYMBOL AND
00346  0 07400 4 00632          TSX ETIV,4      PUT IN TIV TABLE WHERE A TIV TABLE ENTRY
00347  0 62100 0 00663          STA TRV         HAS SYMBOL IN S-21 AND HAS LOCATION IN 22-35.
00350  0 56000 0 00663          LDQ TRV
00351  0 50000 0 00667          CLA RA          SELECT RA AS LENGTH
00352 -0 76000 0 00003          SSM             TO STORE AS ADDRESS
00353  0 77100 0 00022          ARS 18
```

F6G00500
F6G00510
F6G00520
F6G00530
F6G00540
F6G00550
F6G00560
F6G00570
F6G00580
F6G00590
F6G00600
F6G00610
F6G00620
F6G00630
F6G00640
F6G00650
F6G00660
F6G00670
F6G00680
F6G00690
F6G00700
F6G00710
F6G00720
F6G00730
F6G00740
F6G00750
F6G00760
F6G00770
F6G00780
F6G00790
F6G00800
F6G00810
F6G00820
F6G00830
F6G00840
F6G00850
F6G00860
F6G00870
F6G00880
F6G00890
F6G00900
F6G00910
F6G00920
F6G00930
F6G00940
F6G00950
F6G00960
F6G00970
F6G00980
F6G00990
F6G01000
F6G01010
F6G01020
F6G01030

```
00354   0 04000 0 00414          TLQ SA5                  OF TIV ENTRY IF RA                                F6G01040
00355   0 62100 2 02114          STA TIV,2                IS LONGER                                         F6G01050
00356   0 02000 0 00414          TRA SA5                                                                    F6G01060
00357  -0 77300 0 00016  SA6     RQL 14                   FORMAT(8)                                         F6G01070
00360  -0 76300 0 00021          LGL 17                                                                     F6G01080
00361   0 07400 4 00121  SA7     TSX STIV,4               PUT IN TIV TABLE                                  F6G01090
00362   0 07400 4 00632          TSX ETIV,4               IF NOT IN ALREADY.                                F6G01100
00363   0 02000 0 00413          TRA SA2                  TRANSFER WITH SA IN AC TO STORE ADDRESS OF SA     F6G01110
                                                          IN EA.                                            F6G01111
00364   0 50000 0 00666  SA4     CLA SA                   SA(1) GREATER THAN 15.                            F6G01120
00365   0 40200 0 00670          SUB DOL1                 TRANSFER IF ONE DOLLAR SIGN                       F6G01130
00366   0 10000 0 00377          TZE LIB3                                                                   F6G01140
00367   0 40000 0 00670          ADD DOL1                                                                   F6G01150
00370   0 40200 0 00671          SUB DOL2                 TRANSFER IF TWO DOLLAR SIGNS                      F6G01160
00371   0 10000 0 00401          TZE LIB4                                                                   F6G01170
00372   0 50000 0 00666          CLA SA                   ORDINARY SYMBOL.                                  F6G01180
00373   0 07400 4 00142          TSX SDEV,4               SEARCH DEV TABLE.                                 F6G01190
00374   0 07400 4 00103          TSX STEV,4               NOT IN. GO TO SEARCH TEV TABLE.                   F6G01200
00375   0 07400 4 00605          TSX ETEV,4               NOT IN. ENTER IN TEV.                             F6G01210
00376   0 02000 0 00413          TRA SA2                  IF FOUND IN DEV OR TEV, LOCATION LEFT IN AC +     F6G01220
                                                          GO TO STA                                         F6G01221
00377   0 50000 0 00204  LIB3    CLA DOLSI                SET LOCATION EQUAL TO ADDR. PART OF DOLSI         F6G01230
00400   0 02000 0 00413          TRA SA2                                                                    F6G01240
00401   0 50000 0 00204  LIB4    CLA DOLSI                                                                  F6G01250
00402   0 77100 0 00022          ARS 18                                                                     F6G01260
00403   0 02000 0 00413          TRA SA2                                                                    F6G01270
00404   0 53400 4 00666  SA3     LXA SA,4                 NORMAL INST(0)                                    F6G01280
00405  -3 00000 4 00414          TXL SA5,4,0              TRANSFER IF IFN TYPE.                             F6G01290
00406  -0 76300 0 00015          LGL 13                   ADDRESS PART NOT EQUAL ZERO, PUT ADDRESS PART     F6G01300
00407  -0 77300 0 00012          RQL 10                   OF SA IN SYMBOL AND STORE IN TIV.                 F6G01310
00410  -0 76300 0 00006          LGL 6                                                                      F6G01320
00411   0 02000 0 00361          TRA SA7                                                                    F6G01330
00412   0 50000 0 00166  SA8     CLA L1                   PROG COUNTER(15)                                  F6G01340
00413   0 62100 0 00174  SA2     STA EA                   STORE IN EA ADDRESS LEFT IN AC FROM 1 OF ABOVE,   F6G01350
                         00414  SA5   BSS                CONSTANTS2,3,6,9,11                               F6G01360
A                                                                                                          F6G01370
00414  -0 50000 0 00665  OPCAS   CAL OP                   IS OP BSS OR SYN.                                 F6G01380
00415   0 76500 0 00022          LRS 18                           SYN OP                                    F6G01390
00416   0 34000 0 00657          CAS SYN                  NEITHER                                           F6G01400
00417   0 02000 0 00424          TRA ORDOP                OP IS SYN. GO TO SYNOP                            F6G01410
00420   0 02000 0 00440          TRA SYNOP                                                                  F6G01420
00421   0 34000 0 00661          CAS BSS                  OP IS NEITHER BSS OR SYN                          F6G01430
00422   0 02000 0 00424          TRA ORDOP                OP IS BSS. GO TO BSSOP.                           F6G01440
00423   0 02000 0 00431          TRA BSSOP                OP NOT SYN OR BSS.                                F6G01450
00424   0 50000 0 00166  ORDOP   CLA L1                                                                     F6G01460
00425   0 60100 0 00167          STO L2                   UPDATE L1 BY 1.                                   F6G01470
00426   0 40000 0 00162          ADD ONE                                                                    F6G01480
00427   0 60100 0 00166          STO L1                                                                     F6G01490
00430   0 02000 0 00444          TRA SLS                  FOR BSS OP,                                       F6G01500
00431   0 50000 0 00166  BSSOP   CLA L1                                                                     F6G01510
00432   0 60100 0 00167          STO L2                   UPDATE L1 BY                                      F6G01520
00433   0 50000 0 00667          CLA RA                   RELATIVE ADDRESS.                                 F6G01530
00434   0 77100 0 00022          ARS 18                                                                     F6G01540
00435   0 40000 0 00166          ADD L1                                                                     F6G01550
00436   0 60100 0 00166          STO L1
```

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00437   0 02000 0 00444          TRA SLS                                          F6G01560
00440   0 50000 0 00174  SYNOP  CLA EA          FOR SYN OP,                      F6G01570
00441   0 60100 0 00167          STO L2          SET L2 EQUAL                     F6G01580
00442  -0 10000 0 00444          TNZ SLS         TO SYN ADDRESS.                  F6G01590
00443   0 07400 4 00004          TSX 4,4                                          F6G01600
00444  -0 50000 0 00664  SLS    CAL SL          FOR ALL OPS TEST SYMBOLIC LOCATION. F6G01610
00445   0 10000 0 00520          TZE SL6         SL ZERO.                         F6G01620
00446   0 76500 0 00036          LRS 30                                           F6G01630
00447   0 10000 0 00466          TZE SL1         SL(1) ZERO. TRANFER.             F6G01640
00450   0 73400 4 00000          PAX 0,4                                          F6G01650
00451   3 00017 4 00476          TXH SL2,4,15    SL(1) OVER 15                    F6G01660
00452   3 00016 4 00520          TXH SL3,4,14    SL(1) EQUAL 15                   F6G01670
00453  -0 77300 0 00016          RQL 14          SL(1) LESS 15                    F6G01680
00454  -0 76300 0 00021          LGL 17                                           F6G01690
00455   0 07400 4 00121          TSX STIV,4      IS SYMBOL IN TIV.                F6G01700
00456   0 02000 0 00462          TRA SL5         NO.                              F6G01710
00457   0 50000 0 00167  SL8    CLA L2          YES, PUT L2 AS LOCATION          F6G01720
00460   0 62100 2 02114          STA TIV,2       IN TIV TABLE.                    F6G01730
00461   0 02000 0 00520          TRA SL6                                          F6G01740
00462   0 50000 0 00167  SL5    CLA L2          PUT L2 IN AS                     F6G01750
00463   0 62100 0 00160          STA ENTRY       LOCATION AND STORE               F6G01760
00464   0 07400 4 00632          TSX ETIV,4      SYMBOL AND LOCATION              F6G01770
00465   0 02000 0 00520          TRA SL6         IN TIV TABLE.                    F6G01780
00466   0 53400 4 00664  SL1    LXA SL,4        SL(1) EQUAL ZERO.                F6G01790
D 00467  -3 00000 4 00514          TXL SL7,4       TRANSFER IF IFN TYPE.            F6G01800
00470  -0 76300 0 00015          LGL 13          OTHERWISE, ASSEMBLE SYMBOL.      F6G01810
00471  -0 77300 0 00012          RQL 10                                           F6G01820
00472  -0 76300 0 00006          LGL 6           IS SYM IN TIV TABLE.             F6G01830
00473   0 07400 4 00121          TSX STIV,4      NO                               F6G01840
00474   0 02000 0 00520          TRA SL6                 YES                      F6G01850
00475   0 02000 0 00457          TRA SL8         YES. GO TO STORE L2 AS LOCATION IN TIV TABLE F6G01860
00476   0 50000 0 00664  SL2    CLA SL                                           F6G01870
00477   0 40200 0 00670          SUB DOL1                                         F6G01880
00500   0 10000 0 00505          TZE LIB1        EXIT TO LIB1 IF SL EQUAL DOL1 ($ 0000) F6G01890
00501   0 40000 0 00670          ADD DOL1                                         F6G01900
00502   0 40200 0 00671          SUB DOL2                                         F6G01910
00503   0 10000 0 00510          TZE LIB2        EXIT TO LIB2 IF SL EQUAL DOL2 ($$ 000) F6G01920
00504   0 02000 0 00520          TRA SL6                                          F6G01930
00505   0 50000 0 00167  LIB1   CLA L2          STORE L2 IN ADDRESS OF DOLSI.    F6G01940
00506   0 62100 0 00204          STA DOLSI                                        F6G01950
00507   0 02000 0 00520          TRA SL6                                          F6G01960
00510   0 50000 0 00167  LIB2   CLA L2          STORE L2 IN DECREMENT OF DOLSI   F6G01970
00511   0 76700 0 00022          ALS 18                                           F6G01980
00512   0 62200 0 00204          STD DOLSI                                        F6G01990
00513   0 02000 0 00520          TRA SL6                                          F6G02000
00514  -0 53400 4 00664  SL7    LXD SL,4        STORE LOCATION                   F6G02010
00515   0 50000 0 00167          CLA L2          OF INTERNAL FORMULA              F6G02020
00516   0 76700 0 00022          ALS 18          NUMBER AS L2,                    F6G02030
U 00517   0 62200 4          SL9    STD IFN,4                                    F6G02040
A                    00520  SL3    BSS             SL(1) EQUAL 15               F6G02050
A                    00520  SL6    BSS                                          F6G02060
00520  -0 53400 4 00524          LXD RD3,4                                        F6G02070
00521   1 00004 4 00522          TXI RD2,4,4                                      F6G02080
00522  -3 00000 4 00272  RD2    TXL RD4,4,**                                     F6G02090
```

```
      00523   0 53400 2 00256         LXA RDC,2
      00524   1 00000 0 00257  RD3    TXI RD,0,**
      00525  -0 53400 1 00120  EOF    LXD TEVL,1
D     00526  -3 00000 1 00534         TXL DIVL,1
      00527  -0 75400 1 00000         PXD 0,1
      00530   0 77100 0 00022         ARS 18
      00531   0 40200 0 00171         SUB LCTR
      00532   0 60200 0 00171         SLW LCTR
      00533   0 60200 0 00172         SLW LTEV
      00534  -0 53400 2 00141  DIVL   LXD TIVL,2
      00535   1 00001 2 00536         TXI SIVL,2,1
D     00536  -3 00000 2 00577  SIVL   TXL DONE,2
      00537  -0 50000 2 02114         CAL TIV,2
      00540   0 62100 0 00173         STA D
      00541   0 77100 0 00016         ARS 14
      00542  -0 73400 1 00000         PDX 0,1
      00543   0 02000 1 00563         TRA TYPE,1
      00544   0 02000 0 00574         TRA SIVT
      00545   0 02000 0 00574         TRA SIVT
      00546   0 02000 0 00574         TRA SIVT
      00547   0 02000 0 00567         TRA CIVL
      00550   0 02000 0 00574         TRA SIVT
      00551   0 02000 0 00574         TRA SIVT
      00552   0 02000 0 00574         TRA SIVT
      00553   0 02000 0 00574         TRA SIVT
      00554   0 02000 0 00567         TRA CIVL
      00555   0 02000 0 00574         TRA SIVT
      00556   0 02000 0 00574         TRA SIVT
TD    00557   1 00000 0 00564  GIVL   TXI EIVL
      00560   0 02000 0 00574         TRA SIVT
      00561   0 02000 0 00574         TRA SIVT
      00562   0 02000 0 00567         TRA CIVL
      00563   0 02000 0 00574  TYPE   TRA SIVT
      00564   0 77100 0 00001  EIVL   ARS 1
      00565   0 76700 0 00025         ALS 21
      00566   0 10000 0 00575         TZE FIVL
      00567   0 50000 0 00171  CIVL   CLA LCTR
      00570   0 40200 0 00173         SUB D
      00571   0 62100 2 02114         STA TIV,2
      00572   0 40200 0 00162         SUB ONE
      00573   0 60100 0 00171         STO LCTR
      00574   1 00001 2 00536  SIVT   TXI SIVL,2,1
      00575  -0 63400 2 00557  FIVL   SXD GIVL,2
      00576   1 00001 2 00536         TXI SIVL,2,1
      00577  -0 53400 2 00557  DONE   LXD GIVL,2
      00600   0 76000 0 00000         CLM
      00601   0 76000 0 00006         COM
      00602   0 62100 2 02114         STA TIV,2
      00603   0 76200 0 00221         RTB 1
      00604   0 02000 0 00004         TRA 4
      00605   1 00001 2 00606  ETEV   TXI ETEV0,2,1
      00606  -0 63400 2 00622  ETEV0  SXD ETEV1,2
      00607   0 60100 0 00160         STO ENTRY
      00610  -0 53400 2 00120         LXD TEVL,2
```

```
AT END OF CIT TAPE.
ANY ENTRIES IN TEV TABLE. IF NOT GO TO DIVL.
YES.
REDUCE LCTR BY NUMBER
OF ENTRIES IN TEV AND
STORE IN LTEV.

ANY ENTRIES IN TIV TABLE.

NO ENTRIES IN TIV, GO TO DONE.
YES, OBTAIN LENGTH
FROM TIV TABLE.



15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
          TYPE4
IF DECR. EQUAL ZERO, GO TO SAVE INDEX.
TYPE1,7,12
          TYPE1,7,12
REDUCE LCTR BY LENGTH
STORE AS LOCATION IN TIV.
MODIFY LOCATION COUNTER.

MODIFY TO SELECT NEXT SYMBOL


LOCATION OF 410
STORE ALL 7 S IN ADDRESS PART
OF 41 TIV ENTRY AND
RETURN
TO
LOADER.
```

```
F6G02100
F6G02110
F6G02120
F6G02130
F6G02140
F6G02150
F6G02160
F6G02170
F6G02180
F6G02190
F6G02200
F6G02210
F6G02220
F6G02230
F6G02240
F6G02250
F6G02260
F6G02270
F6G02280
F6G02290
F6G02300
F6G02310
F6G02320
F6G02330
F6G02340
F6G02350
F6G02360
F6G02370
F6G02380
F6G02390
F6G02400
F6G02410
F6G02420
F6G02430
F6G02440
F6G02450
F6G02460
F6G02470
F6G02480
F6G02490
F6G02500
F6G02510
F6G02520
F6G02530
F6G02540
F6G02550
F6G02560
F6G02570
F6G02580
F6G02590
F6G02600
F6G02610
F6G02620
F6G02630
```

```
00611   1 00001 2 00612          TXI ETEV2,2,1                    F6G02640
00612  -0 63400 2 00120  ETEV2  SXD TEVL,2                       F6G02650
00613  -3 00000 2 00622  ETEV3  TXL ETEV1,2,**+0                  F6G02660
00614  -0 50000 0 00117          CAL TEVS                         F6G02670
00615   0 40000 0 00631          ADD TEVA                         F6G02680
00616   0 60200 0 00117          SLW TEVS                         F6G02690
00617   0 62200 0 00631          STD TEVA                         F6G02700
00620   0 40000 0 00631          ADD TEVA                         F6G02710
00621   0 62200 0 00613          STD ETEV3                        F6G02720
00622   3 00622 2 00626  ETEV1  TXH ETEV4,2,*                    F6G02730
00623  -0 50000 0 00160          CAL ENTRY                        F6G02740
U 00624   0 60200 2        ETEV5  SLW TEV,2                      F6G02750
00625   0 02000 4 00001          TRA 1,4                          F6G02760
U 00626  -0 50000 2        ETEV4  CAL TEV+1,2                    F6G02770
U 00627   0 60200 2        ETEV6  SLW TEV,2                      F6G02780
00630   1 77777 2 00622          TXI ETEV1,2,-1                   F6G02790
00631   0 00001 0 00002  TEVA       2,0,**+1                     F6G02800
00632   1 77777 2 00633  ETIV   TXI ETIV5,2,-1                   F6G02810
00633  -0 63400 2 00647  ETIV5  SXD ETIV1,2                      F6G02820
00634  -0 53400 2 00141          LXD TIVL,2                       F6G02830
00635   1 77777 2 00636          TXI ETIV2,2,-1                   F6G02840
00636  -0 63400 2 00141  ETIV2  SXD TIVL,2                       F6G02850
00637   1 00001 2 00640          TXI ETIV3,2,1                    F6G02860
00640   3 77776 2 00647  ETIV3  TXH ETIV1,2,**-2                  F6G02870
00641  -0 50000 0 00140          CAL TIVS                         F6G02880
00642   0 40000 0 00656          ADD TIVA                         F6G02890
00643   0 60200 0 00140          SLW TIVS                         F6G02900
00644   0 62200 0 00656          STD TIVA                         F6G02910
00645   0 40000 0 00656          ADD TIVA                         F6G02920
00646   0 62200 0 00640          STD ETIV3                        F6G02930
00647  -3 00647 2 00653  ETIV1  TXL ETIV4,2,*                    F6G02940
00650  -0 50000 0 00160          CAL ENTRY                        F6G02950
00651   0 60200 2 02114          SLW TIV,2                        F6G02960
00652   0 02000 4 00001          TRA 1,4                          F6G02970
00653  -0 50000 2 02113  ETIV4  CAL TIV-1,2                      F6G02980
00654   0 60200 2 02114          SLW TIV,2                        F6G02990
00655   1 00001 2 00647          TXI ETIV1,2,1                    F6G03000
00656   0 77777 0 00002  TIVA       2,0,**-1                     F6G03010
00657  000000627045      SYN    BCD 1000SYN                      F6G03020
00660  000000462363      OCT    BCD 1000OCT                      F6G03030
00661  000000226262      BSS    BCD 1000BSS                      F6G03040
00662  000000222324      BCD    BCD 1000BCD                      F6G03050
00663  -0 00000 0 00000  TRV    MZE                              F6G03060
00664   0 00000 0 00000  SL     HTR 0                            F6G03070
00665   0 00000 0 00000  OP     HTR 0                            F6G03080
00666   0 00000 0 00000  SA     HTR 0                            F6G03090
00667   0 00000 0 00000  RA     HTR 0                            F6G03100
00670  536000000000      DOL1   BCD 1$ 0000                     F6G03110
00671  535360000000      DOL2   BCD 1$$ 000                    F6G03120
00672   0 62100 0 00517  GPCH1  STA SL9                          F6G03121
00673   0 62100 0 00675          STA *+2                          F6G03122
00674  -0 53400 2 00165          LXD EIFN,2                       F6G03123
U 00675   0 60000 2              STZ IFN,2                        F6G03124
00676   2 00001 2 00675          TIX *-1,2,1                      F6G03125
```

```
00677  0 02000 0 00220          TRA RETN                    F6G03126
                 00700          BSS 34                      F6G03130
                 01106  REC     BES 100                     F6G03140
                 00210          END START                   F6G03150
                 00001 0  TEV
                 00002 0  IFN
```

```
1         AST
1                                                          ************* FORTRAN II SECTION SIX ***********************F6H00010
                                                           FORTRAN 2   RECORD 105  -  MAP FORTRAN FUNCTIONS.           F6H00011
                                                                                                                       F6H00012
                                                           IN TDEV                                                     F6H00020
                              00206  ME8    SYN 134                                                                    F6H00030
                              00210         ORG 136                                                                    F6H00040
      00210  0 53400 4 00402  RNF    LXA LOC15,4      SET DRUM READ ERROR COUNTER.                                     F6H00050
      00211  0 76200 0 00303  LIB27  RDR 3            SELECT DRUM 3 AND                                                F6H00060
 T    00212 -0 75400 0 02000  NFA    PXD 1024         LOCATE FORSUB (FORTRAN FUNCTION) TABLE                           F6H00070
      00213  0 46000 0 00212         LDA NFA                                                                           F6H00080
      00214 -0 70000 0 00730         CAD FORT         READ WORD COUNT OF TABLE.                                        F6H00090
      00215  0 76000 0 00006         COM                                                                               F6H00100
      00216 -0 70000 0 00563         CAD SUM                                                                           F6H00110
      00217  0 76000 0 00006         COM                                                                               F6H00120
      00220  0 10000 0 00223         TZE RFS          TRANSFER IF NO READ ERROR.                                       F6H00130
      00221  2 00001 4 00211         TIX LIB27,4,1    READ-ERROR PROCEDURE                                             F6H00140
      00222  0 07400 4 00004         TSX 4,4                                                                           F6H00150
      00223 -0 53400 3 00730  RFS    LXD FORT,3       SET INDEX REGISTERS 1 AND 2 EQUAL                                F6H00160
                                                      FORSUB WORD COUNT                                                F6H00161
 D    00224 -3 00000 1 00375         TXL LIB36,1      TRANSFER IF NO FORTRAN FUNCTIONS.                                F6H00170
      00225  0 50000 0 00152         CLA ADEV         INITIALIZE ADDRESSES WITH INITIAL                                F6H00180
      00226  0 62100 0 00260         STA AFOR         LOCATION OF DEA TABLE (ALSO IFN TABLE)                           F6H00190
      00227  0 50000 0 00170         CLA LIFN                                                                          F6H00200
      00230  0 62100 0 00256         STA GIFN                                                                          F6H00210
      00231  0 53400 4 00402         LXA LOC15,4      DRUM READ ERROR COUNTER.                                         F6H00220
      00232  0 76200 0 00303  LIB28  RDR 3                                                                             F6H00230
 T    00233 -0 75400 0 02002  TFA    PXD 1026         READ FORTRAN FUNCTION (FORSUB)                                   F6H00240
      00234  0 46000 0 00233         LDA TFA          TABLE FROM DRUM (2-WORD ENTRIES) INTO                            F6H00250
      00235 -0 70000 2 00730  CFS    CAD FORT,2       FORT-WD. CT,...., FORT-1.                                        F6H00260
      00236  2 00001 2 00235         TIX CFS,2,1                                                                       F6H00270
      00237  0 70000 0 00563         CPY SUM                                                                           F6H00280
      00240  0 76000 0 00006         COM                                                                               F6H00290
      00241 -0 70000 0 00563         CAD SUM                                                                           F6H00300
      00242  0 76000 0 00006         COM                                                                               F6H00310
      00243  0 10000 0 00246         TZE FORS         TRANSFER IF CHECK SUM OKAY.                                      F6H00320
      00244  2 00001 4 00232         TIX LIB28,4,1                                                                     F6H00330
      00245  0 07400 4 00004         TSX 4,4                                                                           F6H00340
      00246 -0 63400 1 00400  FORS   SXD FORM,1       SAVE COUNT OF FUNCT.                                             F6H00350
      00247  0 50000 1 00730         CLA FORT,1       IS FUNCTION IN                                                   F6H00360
      00250  0 07400 4 00142         TSX SDEV,4       DEV TABLE.                                                       F6H00370
      00251 -0 53400 1 00400         LXD FORM,1       NO, ERROR.                                                       F6H00380
      00252  0 07400 4 00004         TSX 4,4                                                                           F6H00390
      00253 -0 53400 1 00400         LXD FORM,1       YES. EXIT HERE FROM SDEV WITH APPROPRIATE                        F6H00400
                                                      COUNTER IN XR2.                                                  F6H00401
      00254  0 50000 1 00731         CLA FORT+1,1     OBTAIN FORMULA                                                   F6H00410
      00255 -0 73400 4 00000         PDX 0,4          NUMBER.                                                          F6H00420
 U    00256  0 50000 4        GIFN   CLA IFN,4        GET LOCATION FROM                                                F6H00430
      00257  0 77100 0 00022         ARS 18           IFN TABLE.                                                       F6H00440
 U    00260  0 62100 2        AFOR   STA FORF,2       STORE LOCATION IN DEA TABLE.                                     F6H00450
      00261  0 62100 1 00731         STA FORT+1,1     STORE LOCATION IN FORT (INTERNAL TABLE).                         F6H00460
      00262  2 00002 1 00246         TIX FORS,1,2                                                                      F6H00470
                                                 LIST NAMES OF FORTRAN FUNCTIONS WITH CORRESPONDING                    F6H00480
                                                 INTERNAL FORMULA NUMBERS AND OCTAL LOCATIONS                          F6H00490
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```
00263 -0 53400 1 00730         LXD FORT,1                                                    F6H00500
00264  0 07400 4 00345         TSX SPACE,4                                                   F6H00510
00265  0 00024 0 00434             TITLE,,20                                                 F6H00520
00266  0 07400 4 00345         TSX SPACE,4                                                   F6H00530
00267  0 00024 0 00460             CHEAD,,20                                                 F6H00540
00270 -0 53400 2 00343  CNL     LXD LNC,2       SET TAPE TWO BLOCK LENGTH TO 20.          F6H00550
00271 -0 50000 0 00403  CNW     CAL BLANKS                                                    F6H00560
00272  0 60200 2 00554          SLW LIN+1,2     STORE BLANKS IN FIRST WORD OF ENTRY.       F6H00570
00273  0 56000 1 00730          LDQ FORT,1      SELECT SYMBOL                              F6H00580
00274  0 53400 4 00275          LXA SIX,4       AND CONVERT.                               F6H00590
00275 -0 76300 0 00006  SIX     LGL 6           BRING ONE CHARACTER OF SYMBOL INTO ACC.    F6H00600
00276  0 60200 0 00562          SLW SYM                                                       F6H00610
00277 -0 32000 0 00405          ANA 6BITS       TEST IF CHARACTER IN ACC. IS A BLANK.      F6H00620
00300  0 40200 0 00404          SUB BLANK                                                     F6H00630
00301  0 10000 0 00305          TZE CNA         BLANK, THEN FINISHED. SECOND WORD OF ENTRY HAS F6H00640
                                                 COMPLETE SYMBOL.                           F6H00641
00302 -0 50000 0 00562          CAL SYM         NOT BLANK, STORE IN SECOND WORD AND        F6H00650
00303  0 60200 2 00555          SLW LIN+2,2     GO TO TEST NEXT CHARACTER                  F6H00660
00304  2 00001 4 00275          TIX SIX,4,1     UNLESS SIX HAVE BEEN TREATED.              F6H00670
00305  0 50000 1 00731  CNA     CLA FORT+1,1    TO GET BCD IMAGE OF DECIMAL INTERNAL FORMULA NOF6H00680
00306  0 77100 0 00022          ARS 18          (DECREMENT OF SECOND WORD OF TWO WORD ENTRIES F6H00690
00307  0 62100 0 00407          STA LOC         FORT TABLE CONTAINS INTERNAL FORMULA NUMBER.) F6H00700
00310  0 53400 4 00162          LXA ONE,4                                                     F6H00710
00311  0 56000 0 00407          LDQ LOC                                                       F6H00720
00312  0 50000 0 00406  CNV     CLA TEN                                                       F6H00730
00313  0 04000 0 00320          TLQ FIN                                                       F6H00740
T 00314 -0 75400 0 00000         PXD                                                       F6H00750
00315  0 22100 0 00406          DVP TEN                                                       F6H00760
00316  0 60200 4 00562          SLW DIG,4       (SAVING REMAINDERS).                      F6H00770
00317  1 00001 4 00312          TXI CNV,4,1                                                   F6H00780
00320 -0 60000 4 00562  FIN     STQ DIG,4                                                     F6H00790
00321 -0 50000 0 00403          CAL BLANKS                                                    F6H00800
00322  0 76700 0 00006  DEC     ALS 6                                                         F6H00810
00323 -0 50100 4 00562          ORA DIG,4                                                     F6H00820
00324  2 00001 4 00322          TIX DEC,4,1                                                   F6H00830
00325  0 60200 2 00556          SLW LIN+3,2     STORE BCD IMAGE OF DECIMAL INTERNAL FORMULA NO.F6H00840
                                                 IN THIRD WORD OF ENTRY.                    F6H00841
00326  0 50000 1 00731          CLA FORT+1,1    TO GET BCD IMAGE OF OCTAL LOCATION.        F6H00850
00327  0 62100 0 00407          STA LOC                                                       F6H00860
00330  0 50000 0 00407          CLA LOC                                                       F6H00870
00331  0 76500 0 00017          LRS 15                                                        F6H00880
00332 -0 50000 0 00404          CAL BLANK                                                     F6H00890
00333 -0 14000 0 00334          TNO OCT                                                       F6H00900
00334  0 76700 0 00003  OCT     ALS 3                                                         F6H00910
00335  0 76300 0 00003          LLS 3                                                         F6H00920
00336 -0 14000 0 00334          TNO OCT         OVERFLOW OCCURS WHEN ALL 15 BITS OF LOCATION F6H00930
00337  0 60200 2 00557          SLW LIN+4,2     HAVE BEEN TREATED. STORE BCD IMAGE OF OCTAL F6H00940
                                                 LOCATION IN 4TH WORD OF ENTRY.             F6H00941
00340 -2 00002 1 00357          TNX WLL,1,2     TRANSFER IF ALL FUNCTIONS IN FORSUB TREATED.F6H00950
00341  2 00004 2 00271          TIX CNW,2,4     TRANSFER IF TAPE BLOCK NOT FULL.           F6H00960
00342  0 07400 4 00347          TSX WRITE,4     WRITE A RECORD ON TAPE TWO                 F6H00970
00343  0 00024 0 00554  LNC         LIN+1,,20   AND GO TO CNL TO CONTINUE.                 F6H00980
00344  0 02000 0 00270          TRA CNL                                                       F6H00990
00345  0 76600 0 00202  SPACE   WTD 2                                                       F6H01000
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00346   0 70000 0 00403         CPY BLANKS                                                    F6H01010
00347   0 76600 0 00202  WRITE  WTD 2                                                        F6H01020
00350   0 50000 4 00001         CLA 1,4                                                       F6H01030
00351   0 62100 0 00353         STA POOP                                                      F6H01040
00352  -0 73400 2 00000         PDX 0,2                                                       F6H01050
00353   0 70000 2 00000  POOP   CPY **,2                                                      F6H01060
00354   2 00001 2 00353         TIX POOP,2,1                                                  F6H01070
00355   0 76600 0 00333         IOD                                                           F6H01080
00356   0 02000 4 00002         TRA 2,4                                                       F6H01090
00357  -0 75400 2 00000  WLL    PXD 0,2          GET ADDRESS AND DECREMENT TO STORE IN LND     F6H01100
00360   0 60100 0 00367         STO LND          FOR WRITING FINAL RECORD.                    F6H01110
00361   0 77100 0 00022         ARS 18                                                        F6H01120
00362   0 62100 0 00367         STA LND                                                       F6H01130
00363   0 50000 0 00401         CLA LNE                                                       F6H01140
00364   0 40200 0 00367         SUB LND                                                       F6H01150
00365   0 60100 0 00367         STO LND                                                       F6H01160
00366   0 07400 4 00347         TSX WRITE,4      WRITE IT.                                    F6H01170
00367   0 00000 0 00000  LND                                                                  F6H01180
00370   0 50000 0 00407         CLA LOC          SET ME8 EQUAL TO LOCATION OF LAST FORSUB ENTRY F6H01190
00371   0 40000 0 00162         ADD ONE          LISTED PLUS ONE.(TO BE USED BY RECORD 110).   F6H01200
00372   0 60100 0 00206         STO ME8                                                       F6H01210
00373   0 76200 0 00221  LIB26  RTB 1                                                        F6H01220
00374   0 02000 0 00004         TRA 4                                                         F6H01230
00375   0 60000 0 00206  LIB36  STZ ME8          NO FORTRAN FUNCTIONS. SET ME8 EQUAL ZERO AND F6H01240
00376   0 02000 0 00373         TRA LIB26        GO TO RETURN TO LOADER.                      F6H01250
T 00377  -0 75400 0 00000  CFOR   PXD                                                        F6H01260
TD 00400   1 00000 0 00261  FORM   TXI AFOR+1                                                F6H01270
00401   0 00030 0 00560  LNE      LIN+5,,24                                                    F6H01280
00402   0 00000 0 00017  LOC15  HTR 15                                                       F6H01290
00403   606060606060    BLANKS BCD 1                                                        F6H01300
00404   000000000060     BLANK BCD 100000                                                   F6H01310
00405  +000000000077     6BITS OCT 77                                                       F6H01320
00406  +000000000012     TEN   DEC 10                                                       F6H01330
00407  +000000000000     LOC   DEC 0                                                        F6H01340
00410   606060606060           BCD              NAMES OF FORTRAN FUNCTIONS WITH CORRESPONDING F6H01350
00411   606060606060
00412   606045214425
00413   626046266026
00414   465163512145
00415   602664452363
00416   314645626066
00417   316330602346
00420   515125624746
00421   452431452760
00422   314563255145           BCD  INTERNAL FORMULA NUMBERS AND OCTAL LOCATIONS              F6H01360
00423   214360264651
00424   446443216045
00425   644422255162
00426   602145246046
00427   236321436043
00430   462321633146
00431   456260606060
00432   606060606060
00433   606060606060
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A                       00434  TITLE BSS                                                F6H01370
                                      BCD              IFN    LOC              IFN    LOC F6H01380
00434  606060606060
00435  606060606060
00436  606031264560
00437  606043462360
00440  606060606060
00441  606060606060
00442  606031264560
00443  606043462360
00444  606060606060
00445  606060606060
00446  606031264560          BCD     IFN    LOC              IFN    LOC              IFN    LOC F6H01390
00447  606043462360
00450  606060606060
00451  606060606060
00452  606031264560
00453  606043462360
00454  606060606060
00455  606060606060
00456  606031264560
00457  606043462360
A                       00460  CHEAD BSS                                                F6H01400
                        00460        BSS 40                                             F6H01410
                        00530        BSS 19                                             F6H01420
                        00553  LIN   BSS 1                                              F6H01430
                        00562  DIG   BES 6                                              F6H01440
                        00562  SYM   BSS 1                                              F6H01450
                        00563  SUM   BSS 1                                              F6H01460
                        00730  FORT  BES 100                                            F6H01470
                        00210        END START                                          F6H01480
                        00001 0  IFN
                        00002 0 FORF
```

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1          REM ************ FORTRAN II SECTION SIX ************************F6I00010
1                                ************ FORTRAN II SECTION SIX ************************F6I00010
                                 FORTRAN 2   RECORD 107  -  MAP EXT. AND INT. FORMULA NOS.     F6I00011
                                                                                              F6I00012
                                 LIST EXTERNAL FORMULA NUMBERS WITH CORRESPONDING             F6I00020
                                 INTERNAL FORMULA NUMBERS AND RELATIVE LOCATIONS              F6I00030
                                                                                              F6I00040
                      00210      ORG 136                                                     F6I00050
     00210  0 53400 4 00427      LXA LOC15,4       SET DRUM READ ERROR COUNTER.              F6I00060
     00211  0 76200 0 00304 REIFN RDR 4            SELECT DRUM 4 TO READ EIFN TABLE.         F6I00070
T    00212 -0 75400 0 00002 EIFNA PXD 2                                                      F6I00080
     00213  0 46000 0 00212      LDA EIFNA                                                   F6I00090
     00214 -0 70000 0 02112      CAD TEIFN                                                   F6I00100
     00215  0 76000 0 00006      COM                                                         F6I00110
     00216 -0 70000 0 00533      CAD SUM                                                     F6I00120
     00217  0 76000 0 00006      COM                                                         F6I00130
     00220  0 10000 0 00223      TZE LEIFN         WORD COUNT OKAY.                          F6I00140
     00221  2 00001 4 00211      TIX REIFN,4,1                                               F6I00150
     00222  0 07400 4 00004      TSX 4,4                                                     F6I00160
     00223 -0 53400 3 02112 LEIFN LXD TEIFN,3       SET XR1+XR2=WD CT OF EIFN TABLE.          F6I00170
D    00224 -3 00000 1 00347      TXL ENDS,1        ANY FORMULA NOS. NO, GO TO ENDS.          F6I00180
     00225  0 53400 4 00427      LXA LOC15,4       YES, SET READ ERROR COUNTER               F6I00190
     00226  0 76200 0 00304 LIB30 RDR 4                                                      F6I00200
T    00227 -0 75400 0 00004 EIFTA PXD 4            READ INTERNAL-                            F6I00210
     00230  0 46000 0 00227      LDA EIFTA         EXTERNAL FORMULA                          F6I00220
     00231 -0 70000 2 02112 CEIFN CAD TEIFN,2       NUMBERS INTO TEIFN-WD CT,...., TEIFN-1    F6I00230
     00232  2 00001 2 00231      TIX CEIFN,2,1                                               F6I00240
     00233  0 70000 0 00533      CPY SUM                                                     F6I00250
     00234  0 76000 0 00006      COM                                                         F6I00260
     00235 -0 70000 0 00533      CAD SUM                                                     F6I00270
     00236  0 76000 0 00006      COM                                                         F6I00280
     00237  0 10000 0 00242      TZE PEIFN         TRANSFER IF OKAY.                         F6I00290
     00240  2 00001 4 00226      TIX LIB30,4,1                                               F6I00300
     00241  0 07400 4 00004      TSX 4,4                                                     F6I00310
     00242  0 07400 4 00324 PEIFN TSX SPACE,4      COPY TITLE AND HEADING ON TAPE 2,         F6I00320
     00243  0 00024 0 00454          TITLE,,20                                              F6I00330
     00244  0 07400 4 00324      TSX SPACE,4                                                 F6I00340
     00245  0 00024 0 00500          CHEAD,,20                                              F6I00350
     00246  0 50000 0 00170      CLA LIFN          SET AT INITIALIZATION OF FIRST PASS. EQUALS F6I00360
     00247  0 62100 0 00263      STA FIFL          LOCATION OF DEA TABLE WHICH HAS IFN TABLE IN F6I00361
                                                   DECREMENT.                                 F6I00370
     00250 -0 53400 2 00301 CNL  LXD LNC,2         SET COUNTER FOR 20-WORD RECORD             F6I00380
     00251 -0 50000 0 00422 CNW  CAL BLANKS        STORE BLANKS IN FIRST WORD OF 4-WORD ENTRY F6I00390
     00252  0 60200 2 00524      SLW LIN+1,2                                                 F6I00400
     00253 -0 50000 1 02112      CAL TEIFN,1       SELECT EIFN TABLE ENTRY.                  F6I00410
     00254  0 07400 4 00303      TSX DCR,4         GO TO CONVERT EXTERNAL FORMULA NO. TO BCD IMAGEF6I00420
     00255  0 60200 2 00525      SLW LIN+2,2       OF ITS DECIMAL REPRESENTATION AND STORE IT IN F6I00421
                                                   IN 2ND WORD OF ITS ENTRY.                  F6I00430
     00256 -0 50000 1 02112      CAL TEIFN,1                                                 F6I00440
     00257  0 77100 0 00022      ARS 18            GO TO CONVERT INTERNAL FORMULA NO. TO THE BCD F6I00450
     00260  0 07400 4 00303      TSX DCR,4         IMAGE OF ITS DEC. REPRESENTATION AND STORE IT F6I00460
     00261  0 60200 2 00526      SLW LIN+3,2       IN 3RD WORD OF ENTRY.                      F6I00470
     00262  0 53400 4 00426      LXA LOC,4         SET XR4 TO CURRENT INTERNAL FORMULA NUMBER. F6I00480
U    00263  0 50000 4      FIFL  CLA IFN,4                                                   F6I00490
     00264  0 77100 0 00022      ARS 18
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00265   0 62100 0 00426          STA LOC        LOC NOW CONTAINS LOCATION OF CURRENT INTERNAL  F6I00500
00266   0 50000 0 00426          CLA LOC        FORMULA NUMBER.                                F6I00510
00267   0 76500 0 00017          LRS 15         TO CONVERT THE LOCATION                        F6I00520
00270  -0 50000 0 00423          CAL BLANK      TO THE BCD IMAGE OF ITS OCTAL                  F6I00530
00271  -0 14000 0 00272          TNO OCT        REPRESENTATION, AND                            F6I00540
00272   0 76700 0 00003  OCT     ALS 3          STORE IT IN THE                                F6I00550
00273   0 76300 0 00003          LLS 3          FOURTH WORD OF THE 4-WORD ENTRY.               F6I00560
00274  -0 14000 0 00272          TNO OCT                                                       F6I00570
00275   0 60200 2 00527          SLW LIN+4,2                                                   F6I00580
00276  -2 00001 1 00336          TNX WLL,1,1    TRANSFER WHEN ALL EIFN ENTRIES HAVE BEEN       F6I00590
                                                TREATED.                                      F6I00591
00277   2 00004 2 00251          TIX CNW,2,4    MORE ENTRIES + STILL ROOM IN 20-WORD BLOCK, GO F6I00600
                                                TO CNW.                                       F6I00601
00300   0 07400 4 00326          TSX WRITE,4    WRITE TAPE 2 BLOCK.                            F6I00610
00301   0 00024 0 00524  LNC         LIN+1,,20                                                F6I00620
TD 00302   1 00000 0 00250  DCX     TXI CNL                                                   F6I00630
00303  -0 63400 4 00302  DCR     SXD DCX,4                                                     F6I00640
00304   0 62100 0 00426          STA LOC        TO CONVERT ADDRESS                             F6I00650
00305   0 53400 4 00162          LXA ONE,4      IN LOC TO BCD                                  F6I00660
00306   0 56000 0 00426          LDQ LOC        IMAGE OF DECIMAL                               F6I00670
00307   0 50000 0 00425  CNV     CLA TEN        LOCATION.                                      F6I00680
00310   0 04000 0 00315          TLQ FIN                                                       F6I00690
T 00311  -0 75400 0 00000          PXD                                                        F6I00700
00312   0 22100 0 00425          DVP TEN        DIVIDE BY TEN AND                              F6I00710
00313   0 60200 4 00532          SLW DIG,4      STORE REMAINDERS.                              F6I00720
00314   1 00001 4 00307          TXI CNV,4,1                                                   F6I00730
00315  -0 60000 4 00532  FIN     STQ DIG,4                                                     F6I00740
00316  -0 50000 0 00422          CAL BLANKS                                                    F6I00750
00317   0 76700 0 00006  DEC     ALS 6                                                         F6I00760
00320  -0 50100 4 00532          ORA DIG,4                                                     F6I00770
00321   2 00001 4 00317          TIX DEC,4,1                                                   F6I00780
00322  -0 53400 4 00302          LXD DCX,4                                                     F6I00790
00323   0 02000 4 00001          TRA 1,4        RETURN TO PROGRAM.                             F6I00800
00324   0 76600 0 00202  SPACE   WTD 2                                                        F6I00810
00325   0 70000 0 00422          CPY BLANKS                                                    F6I00820
00326   0 76600 0 00202  WRITE   WTD 2                                                        F6I00830
00327   0 50000 4 00001          CLA 1,4                                                       F6I00840
00330   0 62100 0 00332          STA POOP                                                      F6I00850
00331  -0 73400 2 00000          PDX 0,2                                                       F6I00860
00332   0 70000 2 00332  POOP    CPY *,2                                                       F6I00870
00333   2 00001 2 00332          TIX POOP,2,1                                                  F6I00880
00334   0 76600 0 00333          IOD                                                           F6I00890
00335   0 02000 4 00002          TRA 2,4                                                       F6I00900
00336  -0 75400 2 00000  WLL     PXD 0,2        TO GET WORD COUNTERS FOR WRITING               F6I00910
00337   0 60100 0 00346          STO LND        FINAL RECORD.                                  F6I00920
00340   0 77100 0 00022          ARS 18                                                        F6I00930
00341   0 62100 0 00346          STA LND                                                       F6I00940
00342   0 50000 0 00351          CLA LNE                                                       F6I00950
00343   0 40200 0 00346          SUB LND                                                       F6I00960
00344   0 60100 0 00346          STO LND                                                       F6I00970
00345   0 07400 4 00326          TSX WRITE,4    WRITE FINAL RECORD                             F6I00980
00346   0 00000 0 00000  LND                    AND                                           F6I00990
00347   0 76200 0 00221  ENDS    RTB 1          GO TO LOADER.                                  F6I01000
00350   0 02000 0 00004          TRA 4                                                         F6I01010
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00351  0 00030 0 00530  LNE       LIN+5,,24                                                F6I01020
                 00352        BSS 40                                                       F6I01030
00422  606060606060    BLANKS BCD 1                                                        F6I01040
00423  000000000060     BLANK BCD 100000                                                   F6I01050
00424 +000000000077     6BITS OCT 77                                                       F6I01060
00425 +000000000012     TEN   DEC 10                                                       F6I01070
00426 +000000000000     LOC   DEC 0                                                        F6I01080
00427  0 00000 0 00017  LOC15 HTR 15                                                       F6I01090
00430  606060606060           BCD                  EXTERNAL FORMULA NUMBERS WITH CORRESPONDINGF6I01100
00431  606060606060
00432  606060606025
00433  676325514521
00434  436026465144
00435  644321604564
00436  442225516260
00437  663163306023
00440  465151256247
00441  464524314527
00442  603145632551           BCD   INTERNAL FORMULA NUMBERS AND OCTAL LOCATIONS          F6I01110
00443  452143602646
00444  514464432160
00445  456444222551
00446  626021452460
00447  462363214360
00450  434623216331
00451  464562606060
00452  606060606060
00453  606060606060
A                00454  TITLE BSS                                                        F6I01120
00454  606060606060           BCD          EFN   IFN   LOC        EFN   IFN   LOC        EFN F6I01130
00455  606025264560
00456  606031264560
00457  606043462360
00460  606060606060
00461  606025264560
00462  606031264560
00463  606043462360
00464  606060606060
00465  606025264560
00466  606031264560           BCD    IFN   LOC        EFN   IFN   LOC        EFN   IFN   LOC F6I01140
00467  606043462360
00470  606060606060
00471  606025264560
00472  606031264560
00473  606043462360
00474  606060606060
00475  606025264560
00476  606031264560
00477  606043462360
A                00500  CHEAD BSS                                                        F6I01150
                 00500        BSS 19                                                      F6I01160
                 00523  LIN   BSS 1                                                       F6I01170
                 00532  DIG   BES 6                                                       F6I01180
                 00532  SYM   BSS 1                                                       F6I01190
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00533  SUM    BSS 1
02112  TEIFN  BES 750
00210         END START
00001 0  IFN
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F6I01200
F6I01210
F6I01220

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1          REM ************ FORTRAN II SECTION SIX ************************F6J00010
1                                ************ FORTRAN II SECTION SIX ************************F6J00010
                                 FORTRAN 2   RECORD 109  -  MAP PROGRAM.                        F6J00011
                                                                                                F6J00012
                                 RELOCATE DATA DOWN TO LOWER STORAGE                            F6J00020
                                 COMPUTE DELTA EQUAL LCTR MINUS L1 PLUS 1                       F6J00030
                                 SUBTRACT DELTA FROM ALL LOCATIONS BETWEEN L3                   F6J00040
                                 AND L1 IN DEV, TEV, AND TIV TABLES                             F6J00050
                                 L1 IS PROGRAM BREAK, L3 IS COMMON BREAK                        F6J00060
                                                                                                F6J00070
                      00210      ORG 136                                                        F6J00080
  00210  0 50000 0 00171         CLA LCTR                                                       F6J00090
  00211  0 40200 0 00166         SUB L1                                                         F6J00100
  00212  0 40000 0 00162         ADD ONE                                                        F6J00110
  00213  0 60100 0 00546         STO DELTA                                                      F6J00120
  00214  0 50000 0 00166         CLA L1          COMPUTE NEW PROGRAM                            F6J00130
  00215  0 40000 0 00175         ADD L3          BREAK AND STORE.                               F6J00140
  00216  0 40200 0 00171         SUB LCTR                                                       F6J00150
  00217  0 60100 0 00176         STO PGBK                                                       F6J00160
  00220 -0 53400 1 00155         LXD DEVL,1      ANY SYMBOLS IN DEV.                            F6J00170
D 00221 -3 00000 1 00243         TXL A5,1        NO, GO TO A5.                                  F6J00180
  00222  0 50000 0 00152         CLA ADEV        YES. COMPUTE ADDRESS OF                        F6J00190
  00223  0 62100 0 00225         STA A1          DEA TABLE.                                     F6J00200
  00224  0 62100 0 00241         STA A4                                                         F6J00210
  00225  0 50000 1 00225  A1     CLA *,1         SELECT LOCATION                                F6J00220
  00226  0 62100 0 00301         STA ERAS1       FROM ADDRESS BITS.                             F6J00230
  00227  0 50000 0 00301         CLA ERAS1                                                      F6J00240
  00230  0 34000 0 00175         CAS L3                                                         F6J00250
  00231  0 02000 0 00236         TRA A3          LOC GREATER THAN L3, DO NOT RELOCATE.          F6J00260
  00232  0 02000 0 00240         TRA A2          LOC EQUAL L3. GO TO RELOCATE (HAS TO BE GREATERF6J00261
                                                 THAN L1)                                       F6J00270
  00233  0 34000 0 00166         CAS L1          LOC LESS THAN L3. IS IT GREATER THAN L1.       F6J00280
  00234  0 02000 0 00240         TRA A2          LOC GREATER THAN L1. GO TO RELOCATE            F6J00290
  00235  0 02000 0 00240         TRA A2          LOC EQUAL L1. GO TO RELOCATE                   F6J00300
  00236  2 00001 1 00225  A3     TIX A1,1,1      LOC LESS THAN L1. DO NOT RELOCATE.             F6J00310
  00237  0 02000 0 00243         TRA A5          WHEN ALL DATA EXAMINED AND TREATED.            F6J00320
  00240  0 40200 0 00546  A2     SUB DELTA       RELOCATE LOCATION.                             F6J00330
  00241  0 62100 1 00241  A4     STA *,1                                                        F6J00340
  00242  0 02000 0 00236         TRA A3                                                         F6J00350
  00243  0 50000 0 00172  A5     CLA LTEV        TEST LTEV ( LOCATION OF FIRST SYMBOL IN TEV)   F6J00360
  00244 -0 53400 1 00120         LXD TEVL,1      SET XR1 WITH WD. COUNT OF TEV ENTRIES.         F6J00370
D 00245 -3 00000 1 00257         TXL A6,1        IF NO TEV ENTRIES, GO TO EXAMINE TIV.          F6J00380
  00246  0 34000 0 00175         CAS L3          YES, TEV ENTRIES. IS LOCATION BETWEEN L3 AND L1F6J00390
  00247  0 02000 0 00257         TRA A6          LOCATION GREATER THAN L3. DONT RELOCATE        F6J00400
  00250  0 02000 0 00255         TRA A7          LOC EQUAL L3. RELOCATE                         F6J00410
  00251  0 34000 0 00166         CAS L1          LOC LESS THAN L3. IS IT GREATER THAN OR EQUAL  F6J00411
                                                 L1.                                            F6J00420
  00252  0 02000 0 00255         TRA A7          YES, RELOCATE                                  F6J00430
  00253  0 02000 0 00255         TRA A7          YES, RELOCATE                                  F6J00440
  00254  0 02000 0 00257         TRA A6          LOC LESS THAN L3. DONT RELOCATE.               F6J00450
  00255  0 40200 0 00546  A7     SUB DELTA       RELOCATE LOCATION,                             F6J00460
  00256  0 60100 0 00172         STO LTEV        AND STORE NEW LOCATION IN LTEV.                F6J00470
  00257 -0 53400 1 00141  A6     LXD TIVL,1      ANY SYMBOLS IN TIV.                            F6J00480
  00260  1 00001 1 00261         TXI NT1,1,1                                                    F6J00490
D 00261 -3 00000 1 00302  NT1    TXL B4,1        NO, GO TO WRITE OFF STORAGE NOT USED

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      00262   0 50000 1 02114  A10    CLA TIV,1          YES. TEST TIV.                                          F6J00500
      00263   0 62100 0 00301         STA ERAS1          SELECT LOCATION FROM ADDRESS BITS.                      F6J00510
      00264   0 50000 0 00301         CLA ERAS1                                                                  F6J00520
      00265   0 34000 0 00175         CAS L3                                                                     F6J00530
      00266   0 02000 0 00273         TRA A8             NO RELOCATION.                                          F6J00540
      00267   0 02000 0 00276         TRA A9             RELOCATE.                                               F6J00550
      00270   0 34000 0 00166         CAS L1                                                                     F6J00560
      00271   0 02000 0 00276         TRA A9             RELOCATE.                                               F6J00570
      00272   0 02000 0 00276         TRA A9             RELOCATE.                                               F6J00580
      00273   1 00001 1 00274  A8     TXI NT2,1,1        IF MORE ENTRIES IN TIV TO BE TESTED FOR RELOC-          F6J00590
D     00274  -3 00000 1 00302  NT2    TXL B4,1           ATION, GO TO TEST TIV. IF DONE, GO WRITE                F6J00600
                                                         STORAGE NOT USED.                                       F6J00601
      00275   0 02000 0 00262         TRA A10            RELOCATE BY SUBTRACTING DELTA                           F6J00610
      00276   0 40200 0 00546  A9     SUB DELTA                                                                  F6J00620
      00277   0 62100 1 02114         STA TIV,1                                                                  F6J00630
      00300   0 02000 0 00273         TRA A8                                                                     F6J00640
A     00301   0 00000 0 00000  ERAS1  HTR                                                                       F6J00650
      00302   0 07400 4 00352  B4     TSX SPACE,4        TO WRITE STORAGE NOT USED BY PROGRAM                    F6J00660
      00303   0 00024 0 00470         TITLE,,20          RECORD ON TAPE TWO.                                     F6J00670
      00304   0 07400 4 00352         TSX SPACE,4        GO TO WRITE TITLE AND HEADINGS.                         F6J00680
      00305   0 00024 0 00514         CHEAD,,20                                                                  F6J00690
      00306   0 50000 0 00176         CLA PGBK                                                                   F6J00700
      00307   0 60100 0 00443         STO LOC            TO LIST PROGRAM BREAK.                                  F6J00710
      00310   0 07400 4 00364         TSX SUB,4          GO TO CONVERT PROGRAM BREAK TO BCD IMAGES                F6J00720
      00311  -0 50000 0 00437         CAL BLANKS         OF ITS DECIMAL AND ITS OCTAL                            F6J00730
      00312   0 60200 0 00514         SLW LIN-19         REPRESENTATIONS.                                        F6J00740
      00313   0 60200 0 00515         SLW LIN-18         SET FIRST 2 WORDS OF RECORD TO BLANK.                   F6J00750
      00314   0 50000 0 00547         CLA DECWD                                                                  F6J00760
      00315   0 60100 0 00516         STO LIN-17         SET 3RD WORD TO IMAGE OF DECIMAL REPR.                  F6J00770
      00316   0 50000 0 00550         CLA OCTWD          SET 4TH WORD TO IMAGE OF OCTAL REPRESENTATION           F6J00780
      00317   0 60100 0 00517         STO LIN-16         OF PROGRAM BREAK.                                       F6J00790
      00320   0 50000 0 00175         CLA L3                                                                     F6J00800
      00321   0 60100 0 00443         STO LOC            TO LIST COMMON BREAK.                                   F6J00810
      00322   0 07400 4 00364         TSX SUB,4          GO TO CONVERT IT.                                       F6J00820
      00323  -0 50000 0 00437         CAL BLANKS                                                                 F6J00830
      00324   0 60200 0 00520         SLW LIN-15                                                                 F6J00840
      00325   0 60200 0 00521         SLW LIN-14         SET WORDS FIVE AND SIX TO BLANK.                        F6J00850
      00326   0 50000 0 00547         CLA DECWD          SET WORD SEVEN TO BCD IMAGE OF DECIMAL                  F6J00860
      00327   0 60100 0 00522         STO LIN-13         REPRESENTATION OF COMMON BREAK.                         F6J00870
      00330   0 50000 0 00550         CLA OCTWD                                                                  F6J00880
      00331   0 60100 0 00523         STO LIN-12         SET WORD EIGHT TO IMAGE OF OCTAL REPR.                  F6J00890
      00332  -0 50000 0 00437         CAL BLANKS                                                                 F6J00900
      00333   0 60200 0 00524         SLW LIN-11         SET REMAINDER OF RECORD TO BLANK.                       F6J00910
      00334   0 60200 0 00525         SLW LIN-10                                                                 F6J00920
      00335   0 60200 0 00526         SLW LIN-9                                                                  F6J00930
      00336   0 60200 0 00527         SLW LIN-8                                                                  F6J00940
      00337   0 60200 0 00530         SLW LIN-7                                                                  F6J00950
      00340   0 60200 0 00531         SLW LIN-6                                                                  F6J00960
      00341   0 60200 0 00532         SLW LIN-5                                                                  F6J00970
      00342   0 60200 0 00533         SLW LIN-4                                                                  F6J00980
      00343   0 60200 0 00534         SLW LIN-3                                                                  F6J00990
      00344   0 60200 0 00535         SLW LIN-2                                                                  F6J01000
      00345   0 60200 0 00536         SLW LIN-1                                                                  F6J01010
      00346   0 60200 0 00537         SLW LIN                                                                    F6J01020
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00347   0 07400 4 00354          TSX WRITE,4        GO TO WRITE RECORD ON TAPE TWO.        F6J01030
00350   0 00024 0 00540  LNC        LIN+1,,20                                              F6J01040
00351   0 02000 0 00004          TRA 4              GO TO LOADER.                          F6J01050
00352   0 76600 0 00202  SPACE   WTD 2                                                    F6J01060
00353   0 70000 0 00437          CPY BLANKS                                               F6J01070
00354   0 76600 0 00202  WRITE   WTD 2                                                    F6J01080
00355   0 50000 4 00001          CLA 1,4                                                  F6J01090
00356   0 62100 0 00360          STA POOP                                                 F6J01100
00357  -0 73400 2 00000          PDX 0,2                                                  F6J01110
00360   0 70000 2 00360  POOP    CPY *,2                                                  F6J01120
00361   2 00001 2 00360          TIX POOP,2,1                                             F6J01130
00362   0 76600 0 00333          IOD                                                      F6J01140
00363   0 02000 4 00002          TRA 2,4                                                  F6J01150
00364   0 53400 1 00162  SUB     LXA ONE,1                                                F6J01160
00365   0 56000 0 00443          LDQ LOC                                                  F6J01170
00366   0 50000 0 00442  CNV     CLA TEN            CONVERTING TO DECIMAL.                F6J01180
00367   0 04000 0 00374          TLQ FIN                                                  F6J01190
T 00370  -0 75400 0 00000        PXD                                                      F6J01200
00371   0 22100 0 00442          DVP TEN                                                  F6J01210
00372   0 60200 1 00546          SLW DIG,1                                                F6J01220
00373   1 00001 1 00366          TXI CNV,1,1                                              F6J01230
00374  -0 60000 1 00546  FIN     STQ DIG,1                                                F6J01240
00375  -0 50000 0 00437          CAL BLANKS                                               F6J01250
00376   0 76700 0 00006  DEC     ALS 6              DECIMAL TO BCD IMAGE.                 F6J01260
00377  -0 50100 1 00546          ORA DIG,1                                                F6J01270
00400   2 00001 1 00376          TIX DEC,1,1                                              F6J01280
00401   0 60200 0 00547          SLW DECWD                                                F6J01290
00402   0 50000 0 00443          CLA LOC                                                  F6J01300
00403   0 76500 0 00017          LRS 15                                                   F6J01310
00404  -0 50000 0 00440          CAL BLANK                                                F6J01320
00405  -0 14000 0 00406          TNO OCT                                                  F6J01330
00406   0 76700 0 00003  OCT     ALS 3              OCTAL TO BCD IMAGE.                   F6J01340
00407   0 76300 0 00003          LLS 3                                                    F6J01350
00410  -0 14000 0 00406          TNO OCT                                                  F6J01360
00411   0 60200 0 00550          SLW OCTWD                                                F6J01370
00412   0 02000 4 00001          TRA 1,4                                                  F6J01380
                00413            BSS 20                                                 F6J01390
00437   606060606060     BLANKS  BCD 1                                                    F6J01400
00440   000000000060      BLANK  BCD 100000                                             F6J01410
00441  +000000000077      6BITS  OCT 77                                                 F6J01420
00442  +000000000012      TEN    DEC 10                                                 F6J01430
00443  +000000000000      LOC    DEC 0                                                  F6J01440
00444   606060606060             BCD 7                                                  F6J01450
00445   606060606060
00446   606060606060
00447   606060606060
00450   606060606060
00451   606060606060
00452   606060606060
00453   626346512127             BCD 5STORAGE NOT USED BY PROGRAM                       F6J01460
00454   256045466360
00455   646225246022
00456   706047514627
00457   512144606060
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                                                                                F6J01470
00460  606060606060          BCD 8
00461  606060606060
00462  606060606060
00463  606060606060
00464  606060606060
00465  606060606060
00466  606060606060
00467  606060606060                                                            F6J01480
A                    00470  TITLE BSS                                         F6J01490
00470  606060606060          BCD 2
00471  606060606060                                                            F6J01500
00472  606024252360          BCD 4  DEC    OCT
00473  606046236360
00474  606060606060
00475  606060606060                                                            F6J01510
00476  606024252360          BCD 4  DEC    OCT
00477  606046236360
00500  606060606060
00501  606060606060                                                            F6J01520
00502  606060606060          BCD
00503  606060606060
00504  606060606060
00505  606060606060
00506  606060606060
00507  606060606060
00510  606060606060
00511  606060606060
00512  606060606060
00513  606060606060                                                            F6J01530
A                    00514  CHEAD BSS                                         F6J01540
                     00514        BSS 19                                       F6J01550
                     00537  LIN   BSS 1                                        F6J01560
                     00546  DIG   BES 6                                        F6J01570
00546  0 00000 0 00000  DELTA HTR 0                                            F6J01580
00547  0 00000 0 00000  DECWD HTR 0                                            F6J01590
00550  0 00000 0 00000  OCTWD HTR 0                                            F6J01600
A                    00000        END
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1          REM ************ FORTRAN II SECTION SIX ************************F6K00010
1                           ************ FORTRAN II SECTION SIX ************************F6K00010
                            FORTRAN 2   RECORD 110  -  MAP OTHER CARIABLES.                F6K00011
                                                                                           F6K00012
                            LIST DATA LOCATIONS NOT APPEARING IN COMMON                    F6K00020
                                                                                           F6K00030
                  00206  ME8    SYN 134                                                   F6K00040
                  00032  PC3    SYN 26                                                    F6K00050
                  00210          ORG 136                                                   F6K00060
00210 -0 53400 1 00032          LXD PC3,1       ANY TRANSFER VECTOR.                      F6K00070
D     00211 -3 00000 1 00247    TXL J4,1        NO, TRANSFER.                             F6K00080
      00212  0 07400 4 00436    TSX SPACE,4     YES, GO TO WRITE COLUMN HEADINGS AND      F6K00090
      00213  0 00024 0 00503       TRAN,,20     LOCATIONS OF NAMES IN TRANSFER VECTOR.    F6K00100
      00214  0 07400 4 00436    TSX SPACE,4                                               F6K00110
      00215  0 00024 0 00527       TRHAD,,20                                              F6K00120
      00216  0 50000 0 00152    CLA ADEV            PRINT TRANSFER VECTOR                 F6K00130
      00217  0 62100 0 00225    STA TV1         INITIAL DEA LOCATION.                     F6K00140
      00220 -0 75400 1 00000    PXD 0,1                                                   F6K00150
      00221  0 77100 0 00022    ARS 18                                                    F6K00160
      00222  0 60100 0 00456    STO LENG        NO. OF WORDS IN TRANSFER VECTOR.          F6K00170
      00223 -0 53400 1 00155    LXD DEVL,1      SET DEA TABLE COUNTER.                    F6K00180
      00224 -0 53400 2 00241 TV2 LXD LNC,2      SET TAPE TWO RECORD LENGTH EQUAL TO TWENTY.F6K00190
      00225  0 50000 1 00000 TV1 CLA **,1       LOCATION FROM DEA TABLE.                  F6K00200
      00226  0 62100 0 00455    STA LOC                                                   F6K00210
      00227  0 50000 0 00455    CLA LOC         IF DEV ENTRY IS IN TRANS. VECTOR, ITS CORRES-F6K00220
      00230  0 34000 0 00456    CAS LENG        PONDING DEA ENTRY(ADDR. PART)WILL BE LESS F6K00221
                                                 THAN TRANS. VECTOR WORD COUNT.            F6K00230
      00231  0 02000 0 00243    TRA TV3         DEV ENTRY NOT IN TRANSFER VECTOR.         F6K00240
      00232  0 02000 0 00243    TRA TV3                                                   F6K00250
      00233  0 56000 1 77777 TV4 LDQ DEV,1      DEV ENTRY IS IN TRANSFER VECTOR SO LIST IT.F6K00260
      00234  0 07400 4 00366    TSX D3,4        TO PREPARE FIRST TWO WORDS OF TAPE TWO ENTRY.F6K00270
      00235  0 07400 4 00405    TSX D4,4        TO PREPARE 3RD AND 4TH WORDS OF ENTRY.    F6K00280
      00236 -2 00001 1 00246    TNX TV5,1,1     IF NO MORE WORDS IN DEV TABLE, GO TO WRITE LASTF6K00281
                                                 RECORD.                                   F6K00290
      00237  2 00004 2 00225    TIX TV1,2,4     IF TAPE TWO RECORD FULL, GO TO WRITE RECORD F6K00300
      00240  0 07400 4 00440    TSX WRITE,4     AND THEN TO TV2 TO SET UP FOR NEXT RECORD.F6K00310
      00241  0 00024 0 00634 LNC    LIN+1,,20                                            F6K00320
      00242  0 02000 0 00224    TRA TV2                                                   F6K00330
      00243 -2 00001 1 00245 TV3 TNX TV6,1,1     DO NOT LIST (NOT IN TRANSFER VECTOR). UPDATE F6K00331
                                                 INDEX.                                    F6K00340
      00244  0 02000 0 00225    TRA TV1         AND GO TO SELECT NEXT DEA. IF END OF DEV, F6K00350
      00245  1 00004 2 00246 TV6 TXI TV5,2,4     ADJUST WRITE-COPY INDEX AND GO            F6K00360
      00246  0 07400 1 00353 TV5 TSX WLL,1       WRITE LAST RECORD.                        F6K00370
      00247 -0 53400 1 00155 J4  LXD DEVL,1      ANY DEV ENTRIES.                          F6K00380
D     00250 -3 00000 1 00324    TXL J1,1        NO, TRANSFER                              F6K00390
      00251  0 50000 0 00456    CLA LENG        YES, COMPARE WD. CT. OF TRANSFER VECTOR WITH F6K00400
      00252  0 34000 0 00206    CAS ME8         LAST LOCATION OF FORTRAN FUNCTIONS+1 (ME8 SET F6K00401
                                                 BY RECORD 105.                            F6K00410
      00253  0 02000 0 00257    TRA LIB38       LESS THAN TRANSFER VECTOR LENGTH.         F6K00420
      00254  0 02000 0 00255    TRA LIB37       EQUAL OR GREATER THAN TR. VECTOR LENGTH. SET F6K00430
      00255  0 50000 0 00206 LIB37 CLA ME8       LENG EQUAL TO ME8 TO AVOID DUPLICATE LISTING F6K00440
      00256  0 60100 0 00456    STO LENG        OF FORTRAN FUNCTIONS (LISTED BY RECORD 105).F6K00450
      00257  0 50000 0 00152 LIB38 CLA ADEV      STORE INITIAL LOCATION OF DEA TABLE IN ADDRESS F6K00460
      00260  0 62100 0 00262    STA BDV         OF BDV.                                   F6K00470
      00261 -0 53400 2 00241 CNL LXD LNC,2      SET TAPE TWO RECORD LENGTH TO 20.
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00262   0 50000 1 00000  BDV   CLA **,1        SELECT LOCATION FROM ADDRESS PART OF DEA          F6K00480
00263   0 62100 0 00455        STA LOC          ENTRY. COMPARE IT WITH MAX (TRANSFER VECTOR       F6K00490
00264   0 50000 0 00455        CLA LOC          WORD COUNT, LAST LOCATION OF FORTRAN FUNCTIONS     F6K00500
00265   0 34000 0 00456        CAS LENG         PLUS 1).                                          F6K00510
00266   0 02000 0 00271        TRA J6           NOT PREVIOUSLY LISTED AS FORTRAN FUNCTION         F6K00520
00267   0 02000 0 00271        TRA J6           OR IN TRANSFER VECTOR. GO SEE IF COMMON.          F6K00530
00270   0 02000 0 00306        TRA B11          PREVIOUSLY LISTED. GO SEE IF ANY MORE DEV         F6K00540
                                                ENTRIES.                                          F6K00541
00271   0 34000 0 00175  J6    CAS L3           IS DEV ENTRY IN COMMON.                           F6K00550
00272   0 02000 0 00306        TRA B11          YES, GO SEE IF ANY MORE DEV ENTRIES.              F6K00560
00273   0 02000 0 00274        TRA B10          DEV ENTRY NOT A FORTRAN FUNCTION, NOT IN          F6K00570
00274   0 50000 0 00310  B10   CLA ME5          TRANSFER VECTOR OR COMMON. ME5 IS TAPE TWO        F6K00580
00275   0 10000 0 00311        TZE ME6          BUFFER COUNTER (0 TO START). GO WRITE HEADING,    F6K00590
00276   0 56000 1 77777  ME7   LDQ DEV,1        TAPE 2 BUFFER INDEX NOT 0. LOAD APPROPRIATE       F6K00600
00277   0 07400 4 00366        TSX D3,4         DEV ENTRY AND GO TO PREPARE THE 4-WORD ENTRY.     F6K00610
00300   0 07400 4 00405        TSX D4,4                                                           F6K00620
00301  -2 00001 1 00323        TNX B25,1,1      GO WRITE FINAL RECORD IF DEV TABLE FINISHED.      F6K00630
00302   2 00004 2 00262        TIX BDV,2,4      TRANSFER IF STILL ROOM IN TAPE TWO BUFFER.        F6K00640
00303   0 07400 4 00440        TSX WRITE,4      BUFFER FULL. GO WRITE RECORD.                     F6K00650
00304   0 00024 0 00634              LIN+1,,20                                                    F6K00660
00305   0 02000 0 00261        TRA CNL          GO SET BUFFER LENGTH AND CONTINUE.                F6K00670
00306  -2 00001 1 00320  B11   TNX D7,1,1       TRANSFER IF NO MORE ENTRIES IN DEV.               F6K00680
00307   0 02000 0 00262        TRA BDV          GO SELECT NEXT DEV ENTRY.                         F6K00690
00310   0 00000 0 00000  ME5   HTR 0                                                             F6K00700
00311   0 07400 4 00436  ME6   TSX SPACE,4      TO WRITE STORAGE LOCATIONS FOR VARIABLES          F6K00710
00312   0 00024 0 00553              TITLE,,20   APPEARING IN DIMENSION AND EQUIVALENCE          F6K00720
00313   0 07400 4 00436        TSX SPACE,4      STATEMENTS AND HEADINGS                           F6K00730
00314   0 00024 0 00527              TRHAD,,20                                                    F6K00740
00315  -0 53400 2 00241        LXD LNC,2        RESET COUNTER FOR TAPE TWO BUFFER AND STORE       F6K00750
00316  -0 63400 2 00310        SXD ME5,2        IT IN ME5                                         F6K00760
00317   0 02000 0 00276        TRA ME7                                                            F6K00770
00320   0 50000 0 00310  D7    CLA ME5          IS ANYTHING IN TAPE TWO BUFFER                    F6K00780
00321   0 10000 0 00324        TZE J1           TRANSFER IF NOT.                                  F6K00790
00322   1 00004 2 00323        TXI B25,2,4      ADJUST BUFFER INDEX                               F6K00800
00323   0 07400 1 00353  B25   TSX WLL,1        AND GO WRITE LAST RECORD.                         F6K00810
00324  -0 53400 1 00120  J1    LXD TEVL,1       ANY TEV ENTRIES.                                  F6K00820
D       00325  -3 00000 1 00450        TXL J3,1         NO, GO TO LOADER                          F6K00830
        00326   0 07400 4 00436        TSX SPACE,4      YES, WRITE LOCATIONS FOR VARIABLES NOT APPEAR- F6K00840
        00327   0 00024 0 00577              OTHER,,20  ING IN DIMENSION, EQUIVALENCE, OR COMMON,  F6K00850
        00330   0 07400 4 00436        TSX SPACE,4      AND WRITE HEADINGS.                       F6K00860
        00331   0 00024 0 00527              TRHAD,,20                                           F6K00870
        00332   0 50000 0 00107  D1    CLA TTEV         SET ADDRESS OF D5 EQUAL TO LOCATION OF    F6K00880
        00333   0 62100 0 00335        STA D5           BEGINNING OF TEV TABLE.                   F6K00890
        00334  -0 53400 2 00241        LXD LNC,2        SET TAPE TWO RECORD LENGTH TO 20.         F6K00900
U       00335   0 56000 1              D5  LDQ TEV,1    SELECT TEV ENTRY, AND GO SET WORD 1 TO BLANK, F6K00910
        00336   0 07400 4 00366        TSX D3,4         WORD2 TO VARIABLE NAME.                   F6K00920
        00337  -0 75400 1 00000        PXD 0,1          COMPUTE LOCATION OF TEV ENTRY.            F6K00930
        00340   0 77100 0 00022        ARS 18                                                     F6K00940
        00341   0 40000 0 00172        ADD LTEV                                                   F6K00950
        00342   0 62100 0 00455        STA LOC          AND GO COMPUTE AND STORE BCD IMAGES OF DECIMAL F6K00960
        00343   0 07400 4 00405        TSX D4,4         AND OCTAL REPRESENTATIONS IN WORDS 3 AND 4. F6K00970
        00344  -2 00001 1 00351        TNX D6,1,1       IF END OF TEV ENTRIES, GO WRITE LAST RECORD. F6K00980
        00345   2 00004 2 00335        TIX D5,2,4       TRANSFER IF STILL ROOM IN BUFFER.          F6K00990
        00346   0 07400 4 00440        TSX WRITE,4      BUFFER FULL. WRITE BUFFER CONTENTS AND GO SET F6K01000
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00347  0 00024 0 00634          LIN+1,,20      BUFFER COUNTER.                                  F6K01010
00350  0 02000 0 00334          TRA D5-1                                                        F6K01020
00351  0 07400 1 00353  D6      TSX WLL,1      WRITE FINAL RECORD AND GO TO LOADER.             F6K01030
00352  0 02000 0 00004          TRA 4                                                           F6K01040
00353 -0 75400 2 00000  WLL     PXD 0,2        COMPUTE COUNT TO WRITE FINAL RECORD.             F6K01050
00354  0 60100 0 00363          STO LND                                                         F6K01060
00355  0 77100 0 00022          ARS 18                                                          F6K01070
00356  0 62100 0 00363          STA LND                                                         F6K01080
00357  0 50000 0 00365          CLA LNE                                                         F6K01090
00360  0 40200 0 00363          SUB LND                                                         F6K01100
00361  0 60100 0 00363          STO LND                                                         F6K01110
00362  0 07400 4 00440          TSX WRITE,4    WRITE FINAL RECORD.                              F6K01120
00363  0 00000 0 00000  LND                                                                    F6K01130
00364  0 02000 1 00001          TRA 1,1                                                         F6K01140
00365  0 00030 0 00640  LNE         LIN+5,,24                                                  F6K01150
00366 -0 63400 4 00601  D3      SXD IR4,4                                                       F6K01160
00367 -0 50000 0 00451  CNW     CAL BLANKS                                                      F6K01170
00370  0 60200 2 00634          SLW LIN+1,2    STORE BLANKS IN WORDS 1 AND 2 OF ENTRY.          F6K01180
00371  0 60200 2 00635          SLW LIN+2,2                                                     F6K01190
00372  0 53400 4 00373          LXA SIX,4                                                       F6K01200
00373 -0 76300 0 00006  SIX     LGL 6                                                           F6K01210
00374  0 60200 0 00634          SLW SYM                                                         F6K01220
00375 -0 32000 0 00453          ANA 6BITS                                                       F6K01230
00376  0 40200 0 00452          SUB BLANK      STORE VARIABLE NAME FILLED WITH BLANKS AT        F6K01240
00377  0 10000 0 00403          TZE CNA        LEFT IN WORD 2 OF ENTRY.                         F6K01250
00400 -0 50000 0 00634          CAL SYM                                                         F6K01260
00401  0 60200 2 00635          SLW LIN+2,2                                                     F6K01270
00402  2 00001 4 00373          TIX SIX,4,1                                                     F6K01280
00403 -0 53400 4 00601  CNA     LXD IR4,4                                                       F6K01290
00404  0 02000 4 00001          TRA 1,4        RETURN TO PROGRAM.                               F6K01300
00405 -0 63400 4 00601  D4      SXD IR4,4                                                       F6K01310
00406  0 53400 4 00162          LXA ONE,4      CONVERT LOCATION TO BCD IMAGE OF ITS             F6K01320
00407  0 56000 0 00455          LDQ LOC        DECIMAL REPRESENTATION, AND                      F6K01330
00410  0 50000 0 00454  CNV     CLA TEN        STORE IT IN WORD 3 OF ENTRY.                     F6K01340
00411  0 04000 0 00416          TLQ FIN                                                         F6K01350
00412 -0 75400 0 00000          PXD                                                             F6K01360
00413  0 22100 0 00454          DVP TEN                                                         F6K01370
00414  0 60200 4 00610          SLW DIG,4                                                       F6K01380
00415  1 00001 4 00410          TXI CNV,4,1                                                     F6K01390
00416 -0 60000 4 00610  FIN     STQ DIG,4                                                       F6K01400
00417 -0 50000 0 00451          CAL BLANKS                                                      F6K01410
00420  0 76700 0 00006  DEC     ALS 6                                                           F6K01420
00421 -0 50100 4 00610          ORA DIG,4                                                       F6K01430
00422  2 00001 4 00420          TIX DEC,4,1                                                     F6K01440
00423  0 60200 2 00636          SLW LIN+3,2                                                     F6K01450
00424  0 50000 0 00455          CLA LOC                                                         F6K01460
00425  0 76500 0 00017          LRS 15                                                          F6K01470
00426  0 50000 0 00452          CLA BLANK      CONVERT LOCATION TO BCD IMAGE OF ITS OCTAL       F6K01480
00427 -0 14000 0 00430          TNO OCT        REPRESENTATION, AND STORE IT IN WORD 4 OF ENTRY  F6K01490
00430  0 76700 0 00003  OCT     ALS 3                                                           F6K01500
00431  0 76300 0 00003          LLS 3                                                           F6K01510
00432 -0 14000 0 00430          TNO OCT                                                         F6K01520
00433  0 60200 2 00637          SLW LIN+4,2                                                     F6K01530
00434 -0 53400 4 00601          LXD IR4,4                                                       F6K01540
```

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00435   0 02000 4 00001          TRA 1,4                                                    F6K01550
00436   0 76600 0 00202  SPACE   WTD 2                                                      F6K01560
00437   0 70000 0 00451          CPY BLANKS                                                 F6K01570
00440   0 76600 0 00202  WRITE   WTD 2          TO WRITE TAPE-TWO BUFFER (20 WORDS) ONTO TAPE, F6K01580
00441   0 50000 4 00001          CLA 1,4                                                    F6K01590
00442   0 62100 0 00444          STA POOP                                                   F6K01600
00443  -0 73400 2 00000          PDX 0,2                                                    F6K01610
00444   0 70000 2 00000  POOP    CPY **,2                                                   F6K01620
00445   2 00001 2 00444          TIX POOP,2,1                                               F6K01630
00446   0 76600 0 00333          IOD                                                        F6K01640
00447   0 02000 4 00002          TRA 2,4                                                    F6K01650
00450   0 02000 0 00004  J3      TRA 4                                                      F6K01660
00451   606060606060     BLANKS  BCD 1                                                      F6K01670
00452   000000000060     BLANK   BCD 100000                                                 F6K01680
00453  +000000000077     6BITS   OCT 77                                                     F6K01690
00454  +000000000012     TEN     DEC 10                                                     F6K01700
00455  +000000000000     LOC     DEC 0                                                      F6K01710
00456   0 00000 0 00000  LENG    HTR 0                                                      F6K01720
00457   606060606060             BCD 6                                                      F6K01730
00460   606060606060
00461   606060606060
00462   606060606060
00463   606060606060
00464   606060606060
00465   434623216331             BCD 6LOCATIONS OF NAMES IN TRANSFER VECTO                   F6K01740
00466   464562604626
00467   604521442562
00470   603145606351
00471   214562262551
00472   606525236346
00473   516060606060             BCD 8R                                                     F6K01750
00474   606060606060
00475   606060606060
00476   606060606060
00477   606060606060
00500   606060606060
00501   606060606060
00502   606060606060                                                                       F6K01760
A                    00503 TRAN  BSS                                                      F6K01770
00503   606060606060             BCD 2
00504   606060606060                                                                       F6K01780
00505   606024252360             BCD 4  DEC   OCT
00506   606046236360
00507   606060606060
00510   606060606060                                                                       F6K01790
00511   606024252360             BCD 4  DEC   OCT
00512   606046236360
00513   606060606060
00514   606060606060                                                                       F6K01800
00515   606024252360             BCD 4  DEC   OCT
00516   606046236360
00517   606060606060
00520   606060606060                                                                       F6K01810
00521   606024252360             BCD 4  DEC   OCT
```

```
00522  606046236360
00523  606060606060
00524  606060606060
00525  606024252360          BCD 2  DEC   OCT                                  F6K01820
00526  606046236360
A                    00527  TRHAD BSS                                          F6K01830
00527  606060606060          BCD 3                                              F6K01840
00530  606060606060
00531  606060606060
00532  626346512127          BCD 7STORAGE LOCATIONS FOR VARIABLES APPEARING      F6K01850
00533  256043462321
00534  633146456260
00535  264651606521
00536  513121224325
00537  626021474725
00540  215131452760
00541  314560243144          BCD 7IN DIMENSION AND EQUIVALENCE SENTENCES         F6K01860
00542  254562314645
00543  602145246025
00544  506431652143
00545  254523256062
00546  254563254523
00547  256260606060
00550  606060606060          BCD 3                                              F6K01870
00551  606060606060
00552  606060606060
A                    00553  TITLE BSS                                          F6K01880
00553  606060606060          BCD 2                                              F6K01890
00554  606060606060
00555  606060626346          BCD 7   STORAGE LOCATIONS FOR VARIABLES NOT APP    F6K01900
00556  512127256043
00557  462321633146
00560  456260264651
00561  606521513121
00562  224325626045
00563  466360214747
00564  252151314527          BCD 6EARING IN DIMENSION,EQUIVALENCE OR C          F6K01910
00565  603145602431
00566  442545623146
00567  457325506431
00570  652143254523
00571  256046516023
00572  464444464560          BCD 5OMMON SENTENCES                               F6K01920
00573  622545632545
00574  232562606060
00575  606060606060
00576  606060606060
A                    00577  OTHER BSS                                          F6K01930
00577  0 00000 0 00000  ERAS2                                                   F6K01940
00600  0 00000 0 00000  ERAS1                                                   F6K01950
00601  0 00000 0 00000  IR4                                                     F6K01960
                    00610  DIG   BES 6                                        F6K01970
                    00610        BSS 19                                       F6K01980
                    00633  LIN   BSS 1                                        F6K01990
```

```
A
                    00634  SYM   BSS 1
                    00000        END
                    00001 0  TEV
```

F6K02000
F6K02010

```
1          REM ************ FORTRAN II SECTION SIX ************************F6L00010
1                                ************ FORTRAN II SECTION SIX ************************F6L00010
                                 FORTRAN 2   RECORD 111  -  WRITE PROGRAM CARD.                  F6L00011
                                                                                                F6L00012
                                 WRITE PROGRAM CARD ON TAPE 3                                   F6L00020
                                                                                                F6L00030
                    00030  PC1   SYN 24                                                         F6L00040
                    00031  PC2   SYN 25                                                         F6L00050
                    00032  PC3   SYN 26                                                         F6L00060
                    00033  PC4   SYN 27                                                         F6L00070
                    00034  PC5   SYN 28                                                         F6L00080
                    00035  PC6   SYN 29                                                         F6L00090
                    00210        ORG 136                                                       F6L00100
00210   0 77200 0 00203           REW 3          REWIND TAPE 3                                  F6L00110
00211   0 50200 0 00244           CLS FR4                                                       F6L00120
00212   0 60100 0 00030           STO PC1        STORE PUNCH IN COL 1,4 IN DECREMENT OF PC1     F6L00130
00213   0 50000 0 00032           CLA PC3        DECREMENT CONTAINS LENGTH OF TRANSFER VECTOR.  F6L00140
00214   0 40000 0 00176           ADD PGBK       ADD LENGTH OF LOWER STORAGE IN ADDRESS.        F6L00150
00215   0 60100 0 00032           STO PC3                                                       F6L00160
00216   0 50000 0 00175           CLA L3         TWOS COMPLEMENT OF LENGTH OF UPPER             F6L00170
00217   0 60100 0 00033           STO PC4        STORAGE IN ADDRESS.                            F6L00180
T 00220 -0 75400 0 00000          PXD                                                           F6L00190
00221   0 36100 0 00030           ACL PC1        COMPUTE CHECK SUM,                             F6L00200
00222   0 36100 0 00032           ACL PC3                                                       F6L00210
00223   0 36100 0 00033           ACL PC4                                                       F6L00220
00224   0 36100 0 00034           ACL PC5                                                       F6L00230
00225   0 36100 0 00035           ACL PC6                                                       F6L00240
00226   0 60200 0 00031           SLW PC2        AND STORE IT IN PC 2.                          F6L00250
00227   0 76600 0 00223           WTB 3          WRITE PROGRAM CARD ONTO TAPE 3.                F6L00260
00230   0 70000 0 00030           CPY PC1        PUNCH IN COL. ONE, WD. COUNT IN DECR. 9L.      F6L00270
00231   0 70000 0 00031           CPY PC2        CHECK SUM. 9R.                                 F6L00280
00232   0 70000 0 00032           CPY PC3        LENGTH OF TRANS. VECS LENGTH. OF LOWER STORAGE,F6L00290
00233   0 70000 0 00033           CPY PC4        2S COMP. OF UPPER STORAGE. 8R.                 F6L00300
00234   0 70000 0 00034           CPY PC5        NAME OF SUBROUTINE (ZEROS IF MAIN PROGRAM). 7L.F6L00310
00235   0 70000 0 00035           CPY PC6        ENTRY POINT. 7R                                F6L00320
00236   0 53400 1 00243           LXA L18,1      FILL REST OF CARD WITH ZEROS.                  F6L00330
00237   0 70000 0 00161   B4      CPY ZERO                                                      F6L00340
00240   2 00001 1 00237           TIX B4,1,1                                                    F6L00350
00241   0 76600 0 00333           IOD                                                           F6L00360
00242   0 02000 0 00004           TRA 4          GO TO LOADER,                                  F6L00370
00243   0 00000 0 00022   L18     HTR 18                                                        F6L00380
00244 +000004000000       FR4     OCT 000004000000                                              F6L00390
A                   00000         END
```

```
1           RST 2,1
1
                                    ************ FORTRAN II SECTION SIX ************************F6M00010
                                    FORTRAN 2   RECORD 112  -  OP TABLES.                        F6M00011
                                                                                                 F6M00012
                                    CONTROL ENTERS THIS RECORD DURING SECOND PASS OF CIT TAPE.    F6M00013
                                                                                                 F6M00014
                                    TABLE OF SHARE OPERATION CODES                               F6M00020
                                                                                                 F6M00030
                        00174  N    EQU 124                                                      F6M00040
                        01400       ORG SOPR                                                     F6M00050
01400   0 56000 0 01412             LDQ OPRL        STORE NEW INSTRUCTION IN SRCH.               F6M00060
01401  -0 60000 0 00037             STQ SRCH                                                     F6M00070
01402   0 53400 1 01413             LXA OPRS,1      SET XR1 EQUAL 16.                            F6M00080
01403  -0 53400 2 01413             LXD OPRS,2      SET XR2 EQUAL 64.                            F6M00081
                                                    DOES OP COMPARE.                             F6M00090
01404   0 34000 2 01654  OPRT       CAS SYMOP,2                                                  F6M00100
01405   1 77776 1 00102             TXI LOWER,1,-2  NO, SELECT NEW OP FROM OP TABLE.             F6M00110
01406   0 02000 0 01410             TRA OPRF        YES, GO TO OPRF TO SELECT ABSOLUTE OP.       F6M00120
01407   1 77776 1 00101             TXI RAISE,1,-2                                               F6M00130
01410  -0 50000 2 02114  OPRF       CAL ABSOP,2     SELECT ABSOLUTE OP AND RETURN                F6M00140
01411   0 02000 4 00002             TRA 2,4                                                      F6M00150
01412  -3 00174 2 01404  OPRL       TXL OPRT,2,N    TO PROGRAM.                                  F6M00160
01413   0 00100 0 00020  OPRS           16,0,64                                                  F6M00170
                        01460       ORG SYMOP-N                                                  F6M00180
01460   000000212343     OPTBL      BCD 1000ACL                                                  F6M00190
01461   000000212424                BCD 1000ADD                                                  F6M00200
01462   000000212444                BCD 1000ADM                                                  F6M00210
01463   000000214362                BCD 1000ALS                                                  F6M00220
01464   000000214521                BCD 1000ANA                                                  F6M00230
01465   000000214562                BCD 1000ANS                                                  F6M00240
01466   000000215162                BCD 1000ARS                                                  F6M00250
01467   000000226263                BCD 1000BST                                                  F6M00260
01470   000000232124                BCD 1000CAD                                                  F6M00270
01471   000000232143                BCD 1000CAL                                                  F6M00280
01472   000000232162                BCD 1000CAS                                                  F6M00290
01473   000000232626                BCD 1000CFF                                                  F6M00300
01474   000000233062                BCD 1000CHS                                                  F6M00310
01475   000000234321                BCD 1000CLA                                                  F6M00320
01476   000000234344                BCD 1000CLM                                                  F6M00330
01477   000000234362                BCD 1000CLS                                                  F6M00340
01500   000000234644                BCD 1000COM                                                  F6M00350
01501   000000234770                BCD 1000CPY                                                  F6M00360
01502   000000242363                BCD 1000DCT                                                  F6M00370
01503   000000246530                BCD 1000DVH                                                  F6M00380
01504   000000246547                BCD 1000DVP                                                  F6M00390
01505   000000256344                BCD 1000ETM                                                  F6M00400
01506   000000262124                BCD 1000FAD                                                  F6M00410
01507   000000262430                BCD 1000FDH                                                  F6M00420
01510   000000262447                BCD 1000FDP                                                  F6M00430
01511   000000264447                BCD 1000FMP                                                  F6M00440
01512   000000264651                BCD 1000FOR                                                  F6M00450
01513   000000266222                BCD 1000FSB                                                  F6M00460
01514   000000266525                BCD 1000FVE                                                  F6M00470
01515   000000304751                BCD 1000HPR                                                  F6M00480
01516   000000306351                BCD 1000HTR
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01517  000000314624    BCD 1000IOD                                F6M00490
01520  000000432263    BCD 1000LBT                                F6M00500
01521  000000432421    BCD 1000LDA                                F6M00510
01522  000000432450    BCD 1000LDQ                                F6M00520
01523  000000432743    BCD 1000LGL                                F6M00530
01524  000000434362    BCD 1000LLS                                F6M00540
01525  000000435162    BCD 1000LRS                                F6M00550
01526  000000436344    BCD 1000LTM                                F6M00560
01527  000000436721    BCD 1000LXA                                F6M00570
01530  000000436724    BCD 1000LXD                                F6M00580
01531  000000444645    BCD 1000MON                                F6M00590
01532  000000444751    BCD 1000MPR                                F6M00600
01533  000000444770    BCD 1000MPY                                F6M00610
01534  000000446225    BCD 1000MSE                                F6M00620
01535  000000446330    BCD 1000MTH                                F6M00630
01536  000000446366    BCD 1000MTW                                F6M00640
01537  000000447125    BCD 1000MZE                                F6M00650
01540  000000454647    BCD 1000NOP                                F6M00660
01541  000000456351    BCD 1000NTR                                F6M00670
01542  000000465121    BCD 1000ORA                                F6M00680
01543  000000465162    BCD 1000ORS                                F6M00690
01544  000000472167    BCD 1000PAX                                F6M00700
01545  000000472263    BCD 1000PBT                                F6M00710
01546  000000472467    BCD 1000PDX                                F6M00720
01547  000000474645    BCD 1000PON                                F6M00730
01550  000000476225    BCD 1000PSE                                F6M00740
01551  000000476330    BCD 1000PTH                                F6M00750
01552  000000476366    BCD 1000PTW                                F6M00760
01553  000000476724    BCD 1000PXD                                F6M00770
01554  000000477125    BCD 1000PZE                                F6M00780
01555  000000512324    BCD 1000RCD                                F6M00790
01556  000000512451    BCD 1000RDR                                F6M00800
01557  000000512462    BCD 1000RDS                                F6M00810
01560  000000512566    BCD 1000REW                                F6M00820
01561  000000514524    BCD 1000RND                                F6M00830
01562  000000514751    BCD 1000RPR                                F6M00840
01563  000000515043    BCD 1000RQL                                F6M00850
01564  000000516322    BCD 1000RTB                                F6M00860
01565  000000516324    BCD 1000RTD                                F6M00870
01566  000000516363    BCD 1000RTT                                F6M00880
01567  000000606060    BCD 1000                                   F6M00890
01570  000000622244    BCD 1000SBM                                F6M00900
01571  000000623167    BCD 1000SIX                                F6M00910
01572  000000624326    BCD 1000SLF                                F6M00920
01573  000000624345    BCD 1000SLN                                F6M00930
01574  000000624350    BCD 1000SLQ                                F6M00940
01575  000000624363    BCD 1000SLT                                F6M00950
01576  000000624366    BCD 1000SLW                                F6M00960
01577  000000624751    BCD 1000SPR                                F6M00970
01600  000000624763    BCD 1000SPT                                F6M00980
01601  000000624764    BCD 1000SPU                                F6M00990
01602  000000626244    BCD 1000SSM                                F6M01000
01603  000000626247    BCD 1000SSP                                F6M01010
01604  000000626321    BCD 1000STA                                F6M01020
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01605  000000626324          BCD 1000STD                                    F6M01030
01606  000000626346          BCD 1000STO                                    F6M01040
01607  000000626347          BCD 1000STP                                    F6M01050
01610  000000626350          BCD 1000STQ                                    F6M01060
01611  000000626371          BCD 1000STZ                                    F6M01070
01612  000000626422          BCD 1000SUB                                    F6M01080
01613  000000626545          BCD 1000SVN                                    F6M01090
01614  000000626663          BCD 1000SWT                                    F6M01100
01615  000000626724          BCD 1000SXD                                    F6M01110
01616  000000633167          BCD 1000TIX                                    F6M01120
01617  000000634350          BCD 1000TLQ                                    F6M01130
01620  000000634431          BCD 1000TMI                                    F6M01140
01621  000000634546          BCD 1000TNO                                    F6M01150
01622  000000634567          BCD 1000TNX                                    F6M01160
01623  000000634571          BCD 1000TNZ                                    F6M01170
01624  000000634665          BCD 1000TOV                                    F6M01180
01625  000000634743          BCD 1000TPL                                    F6M01190
01626  000000635046          BCD 1000TQO                                    F6M01200
01627  000000635047          BCD 1000TQP                                    F6M01210
01630  000000635121          BCD 1000TRA                                    F6M01220
01631  000000636267          BCD 1000TSX                                    F6M01230
01632  000000636351          BCD 1000TTR                                    F6M01240
01633  000000636730          BCD 1000TXH                                    F6M01250
01634  000000636731          BCD 1000TXI                                    F6M01260
01635  000000636743          BCD 1000TXL                                    F6M01270
01636  000000637125          BCD 1000TZE                                    F6M01280
01637  000000642621          BCD 1000UFA                                    F6M01290
01640  000000642644          BCD 1000UFM                                    F6M01300
01641  000000642662          BCD 1000UFS                                    F6M01310
01642  000000662451          BCD 1000WDR                                    F6M01320
01643  000000662526          BCD 1000WEF                                    F6M01330
01644  000000664751          BCD 1000WPR                                    F6M01340
01645  000000664764          BCD 1000WPU                                    F6M01350
01646  000000665162          BCD 1000WRS                                    F6M01360
01647  000000666322          BCD 1000WTB                                    F6M01370
01650  000000666324          BCD 1000WTD                                    F6M01380
01651  000000666362          BCD 1000WTS                                    F6M01390
01652  000000666365          BCD 1000WTV                                    F6M01400
01653  000000673163          BCD 1000XIT                                    F6M01410
                    01720     ORG ABSOP-N                                  F6M01420
01720 +036100000000           OCT +036100000000          ACL               F6M01430
01721 +040000000000           OCT +040000000000          ADD               F6M01440
01722 +040100000000           OCT +040100000000          ADM               F6M01450
01723 +076700000000           OCT +076700000000          ALS               F6M01460
01724 -032000000000           OCT -032000000000          ANA               F6M01470
01725 +032000000000           OCT +032000000000          ANS               F6M01480
01726 +077100000000           OCT +077100000000          ARS               F6M01490
01727 +076400000200           OCT +076400000200          BST               F6M01500
01730 -070000000000           OCT -070000000000          CAD               F6M01510
01731 -050000000000           OCT -050000000000          CAL               F6M01520
01732 +034000000000           OCT +034000000000          CAS               F6M01530
01733 +076000000030           OCT +076000000030          CFF               F6M01540
01734 +076000000002           OCT +076000000002          CAS               F6M01550
01735 +050000000000           OCT +050000000000          CLA               F6M01560
```

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01736 +076000000000          OCT +076000000000          CLM          F6M01570
01737 +050200000000          OCT +050200000000          CLS          F6M01580
01740 +076000000006          OCT +076000000006          COM          F6M01590
01741 +070000000000          OCT +070000000000          CPY          F6M01600
01742 +076000000012          OCT +076000000012          DCT          F6M01610
01743 +022000000000          OCT +022000000000          DVH          F6M01620
01744 +022100000000          OCT +022100000000          DVP          F6M01630
01745 +076000000007          OCT +076000000007          ETM          F6M01640
01746 +030000000000          OCT +030000000000          FAD          F6M01650
01747 +024000000000          OCT +024000000000          FDH          F6M01660
01750 +024100000000          OCT +024100000000          FDP          F6M01670
01751 +026000000000          OCT +026000000000          FMP          F6M01680
01752 -000000000000          OCT -000000000000          FOR          F6M01690
01753 +030200000000          OCT +030200000000          FSB          F6M01700
01754 -100000000000          OCT -100000000000          FVE          F6M01710
01755 +042000000000          OCT +042000000000          HPR          F6M01720
01756 +000000000000          OCT +000000000000          HTR          F6M01730
01757 +076600000333          OCT +076600000333          IOD          F6M01740
01760 +076000000001          OCT +076000000001          LBT          F6M01750
01761 +046000000000          OCT +046000000000          LDA          F6M01760
01762 +056000000000          OCT +056000000000          LDQ          F6M01770
01763 -076300000000          OCT -076300000000          LGL          F6M01780
01764 +076300000000          OCT +076300000000          LLS          F6M01790
01765 +076500000000          OCT +076500000000          LRS          F6M01800
01766 -076000000007          OCT -076000000007          LTM          F6M01810
01767 +053400000000          OCT +053400000000          LXA          F6M01820
01770 -053400000000          OCT -053400000000          LXD          F6M01830
01771 -100000000000          OCT -100000000000          MON          F6M01840
01772 -020000000000          OCT -020000000000          MPR          F6M01850
01773 +020000000000          OCT +020000000000          MPY          F6M01860
01774 -076000000000          OCT -076000000000          MSE          F6M01870
01775 -300000000000          OCT -300000000000          MTH          F6M01880
01776 -200000000000          OCT -200000000000          MTW          F6M01890
01777 -000000000000          OCT -000000000000          MZE          F6M01900
02000 +076100000000          OCT +076100000000          NOP          F6M01910
02001 +100000000000          OCT +100000000000          NTR          F6M01920
02002 -050100000000          OCT -050100000000          ORA          F6M01930
02003 -060200000000          OCT -060200000000          ORS          F6M01940
02004 +073400000000          OCT +073400000000          PAX          F6M01950
02005 -076000000001          OCT -076000000001          PBT          F6M01960
02006 -073400000000          OCT -073400000000          PDX          F6M01970
02007 +100000000000          OCT +100000000000          PON          F6M01980
02010 +076000000000          OCT +076000000000          PSE          F6M01990
02011 +300000000000          OCT +300000000000          PTH          F6M02000
02012 +200000000000          OCT +200000000000          PTW          F6M02010
02013 -075400000000          OCT -075400000000          PXD          F6M02020
02014 +000000000000          OCT +000000000000          PZE          F6M02030
02015 +076200000321          OCT +076200000321          RCD          F6M02040
02016 +076200000300          OCT +076200000300          RDR          F6M02050
02017 +076200000000          OCT +076200000000          RDS          F6M02060
02020 +077200000200          OCT +077200000200          REW          F6M02070
02021 +076000000010          OCT +076000000010          RND          F6M02080
02022 +076200000361          OCT +076200000361          RPR          F6M02090
02023 -077300000000          OCT -077300000000          RQL          F6M02100
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02024 +076200000220    OCT +076200000220    RTB     F6M02110
02025 +076200000200    OCT +076200000200    RTD     F6M02120
02026 -076000000012    OCT -076000000012    RTT     F6M02130
02027 +000000000000    OCT +000000000000            F6M02140
02030 -040000000000    OCT -040000000000    SBM     F6M02150
02031 -200000000000    OCT -200000000000    SIX     F6M02160
02032 +076000000140    OCT +076000000140    SLF     F6M02170
02033 +076000000140    OCT +076000000140    SLN     F6M02180
02034 -062000000000    OCT -062000000000    SLQ     F6M02190
02035 -076000000140    OCT -076000000140    SLT     F6M02200
02036 +060200000000    OCT +060200000000    SLW     F6M02210
02037 +076000000360    OCT +076000000360    SPR     F6M02220
02040 +076000000360    OCT +076000000360    SPT     F6M02230
02041 +076000000340    OCT +076000000340    SPU     F6M02240
02042 -076000000003    OCT -076000000003    SSM     F6M02250
02043 +076000000003    OCT +076000000003    SSP     F6M02260
02044 +062100000000    OCT +062100000000    STA     F6M02270
02045 +062200000000    OCT +062200000000    STD     F6M02280
02046 +060100000000    OCT +060100000000    STO     F6M02290
02047 +063000000000    OCT +063000000000    STP     F6M02300
02050 -060000000000    OCT -060000000000    STQ     F6M02310
02051 +060000000000    OCT +060000000000    STZ     F6M02320
02052 +040200000000    OCT +040200000000    SUB     F6M02330
02053 -300000000000    OCT -300000000000    SVN     F6M02340
02054 +076000000160    OCT +076000000160    SWT     F6M02350
02055 -063400000000    OCT -063400000000    SXD     F6M02360
02056 +200000000000    OCT +200000000000    TIX     F6M02370
02057 +004000000000    OCT +004000000000    TLQ     F6M02380
02060 -012000000000    OCT -012000000000    TMI     F6M02390
02061 -014000000000    OCT -014000000000    TNO     F6M02400
02062 -200000000000    OCT -200000000000    TNX     F6M02410
02063 -010000000000    OCT -010000000000    TNZ     F6M02420
02064 +014000000000    OCT +014000000000    TOV     F6M02430
02065 +012000000000    OCT +012000000000    TPL     F6M02440
02066 +016100000000    OCT +016100000000    TQO     F6M02450
02067 +016200000000    OCT +016200000000    TQP     F6M02460
02070 +002000000000    OCT +002000000000    TRA     F6M02470
02071 +007400000000    OCT +007400000000    TSX     F6M02480
02072 +002100000000    OCT +002100000000    TTR     F6M02490
02073 +300000000000    OCT +300000000000    TXH     F6M02500
02074 +100000000000    OCT +100000000000    TXI     F6M02510
02075 -300000000000    OCT -300000000000    TXL     F6M02520
02076 +010000000000    OCT +010000000000    TZE     F6M02530
02077 -030000000000    OCT -030000000000    UFA     F6M02540
02100 -026000000000    OCT -026000000000    UFM     F6M02550
02101 -030200000000    OCT -030200000000    UFS     F6M02560
02102 +076600000300    OCT +076600000300    WDR     F6M02570
02103 +077000000200    OCT +077000000200    WEF     F6M02580
02104 +076600000361    OCT +076600000361    WPR     F6M02590
02105 +076600000341    OCT +076600000341    WPU     F6M02600
02106 +076600000000    OCT +076600000000    WRS     F6M02610
02107 +076600000220    OCT +076600000220    WTB     F6M02620
02110 +076600000200    OCT +076600000200    WTD     F6M02630
02111 +076600000320    OCT +076600000320    WTS     F6M02640
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02112 +076600000030          OCT +076600000030          WTV                    F6M02650
02113 +002100000000          OCT +002100000000          XIT                    F6M02660
                    01400    END SOPR                                          F6M02670
```

```
1           AST
1                                   ************ FORTRAN II SECTION SIX ************************F6N00010
                                    FORTRAN 2   RECORD 113  -  SECOND PASS OF CIT TAPE.          F6N00011
                                                                                                 F6N00012
                                    SECOND PASS OVER CIT TAPE                                    F6N00020
                        00210       ORG 136                                                      F6N00030
     00210  0 77200 0 00204        REW 4             REWIND TAPE 4,                             F6N00040
     00211  0 50000 0 00170        CLA LIFN          STORE IFN TABLE ADDRESS.                   F6N00050
     00212  0 62100 0 00332        STA SA9                                                      F6N00060
     00213  0 62100 0 00554        STA SL9                                                      F6N00070
T    00214 -0 75400 0 00000        PXD                                                          F6N00080
     00215  0 60100 0 00166        STO L1            CLEAR L1 AND L2.                           F6N00090
     00216  0 60100 0 00167        STO L2                                                       F6N00100
     00217  0 53400 2 00224        LXA RDC,2         SET READ ERROR COUNTER.                    F6N00110
     00220  0 02000 0 00225        TRA RD                                                       F6N00120
     00221  0 76400 0 00204  ERR   BST 4             READ-ERROR PROCEDURE                       F6N00130
     00222  2 00001 2 00225        TIX RD,2,1                                                   F6N00140
     00223  0 07400 4 00004        TSX 4,4                                                      F6N00150
     00224  0 42000 0 00005  RDC   HPR 5                                                       F6N00160
     00225  0 76200 0 00224  RD    RTB 4             READ RECORD OF                             F6N00170
     00226  0 53400 4 00164        LXA ADDR,4        CIT TAPE 4.                                F6N00180
     00227  0 70000 4 01256  RD1   CPY REC-2,4                                                  F6N00190
     00230  1 00001 4 00227        TXI RD1,4,1                                                  F6N00200
     00231  0 02000 0 00571        TRA EOF                                                      F6N00210
     00232  0 77100 0 00377        ARS 255                                                      F6N00220
     00233  0 77100 0 00377        ARS 255                                                      F6N00230
     00234 -0 76000 0 00012        RTT                                                          F6N00240
     00235  0 02000 0 00221        TRA ERR                                                      F6N00250
     00236 -0 63400 4 00565        SXD RD2,4                                                    F6N00260
     00237 -0 53400 4 00164        LXD ADDR,4                                                   F6N00270
     00240 -0 63400 4 00567  RD4   SXD RD3,4                                                    F6N00280
     00241  0 50000 4 01257        CLA REC-1,4       SELECT                                     F6N00290
     00242  0 60100 0 00727        STO SL            SYMBOLIC LOCATION,                         F6N00300
     00243  0 50000 4 01256        CLA REC-2,4                                                  F6N00310
     00244  0 60100 0 00726        STO OP            SYMBOLIC OP,                               F6N00320
     00245  0 50000 4 01255        CLA REC-3,4                                                  F6N00330
     00246  0 60100 0 00730        STO SA            SYMBOLIC ADDRESS,                          F6N00340
     00247  0 50000 4 01254        CLA REC-4,4                                                  F6N00350
     00250  0 60100 0 00731        STO RA            RELATIVE ADDRESS.                          F6N00360
T    00251 -0 75400 0 00000        PXD                                                          F6N00370
     00252  0 60100 0 00174        STO EA            CLEAR EA,                                  F6N00380
     00253  0 60100 0 00732        STO RBIT          RBIT,                                      F6N00390
     00254  0 60100 0 00733        STO CBIT          CBIT.                                      F6N00400
     00255 -0 50000 0 00726        CAL OP                                                       F6N00410
     00256  0 76500 0 00022        LRS 18                                                       F6N00420
     00257  0 34000 0 00721        CAS OCT           OP EQUAL OCT TEST.                         F6N00430
     00260  0 02000 0 00265        TRA SA1                                                      F6N00440
     00261  0 02000 0 00513        TRA DATOP         YES OP EQUAL OCT. TRANSFER TO DATOP.       F6N00450
     00262  0 34000 0 00723        CAS BCD           OP EQUAL BCD TEST.                         F6N00460
     00263  0 02000 0 00265        TRA SA1                                                      F6N00470
     00264  0 02000 0 00513        TRA DATOP         YES OP EQUAL BCD. TRANSFER TO DATOP.       F6N00480
     00265 -0 50000 0 00730  SA1   CAL SA            OP NOT BCD OR OCT.                         F6N00490
     00266  0 10000 0 00341        TZE OPCAS         TRANSFER TO OPCAS IF SA EQUAL 0.           F6N00500
     00267  0 76500 0 00036        LRS 30                                                       F6N00510
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00270  0 10000 0 00323         TZE SA3          TRANSFER IF SA(1) EQUAL ZERO.                          F6N00520
00271  0 73400 4 00000         PAX 0,4                                                                 F6N00530
00272  3 00017 4 00301         TXH SA4,4,15     TRANSFER IF SA(1) GREATER THAN 15.                     F6N00540
00273  3 00016 4 00335         TXH SA8,4,14     TRANSFER IF SA(1) EQUAL 15.                            F6N00550
00274 -0 77300 0 00016  SA6     RQL 14           SA(1) LESS THAN 15. ASSEMBLE SYMBOL AND GO             F6N00560
00275 -0 76300 0 00021          LGL 17           OBTAIN LOC FROM                                        F6N00570
00276  0 07400 4 00121  SA7     TSX STIV,4       TIV.                                                   F6N00580
00277  0 07400 4 00004         TSX 4,4          ERROR IF NOT IN TIV.                                   F6N00590
00300  0 02000 0 00336         TRA SA2          SA(1) GREATER THAN 15.                                 F6N00600
00301  0 50000 0 00730  SA4     CLA SA                 SA(1) GREATER THAN 15                           F6N00610
00302  0 40200 0 00321         SUB DOL1                                                                F6N00620
00303  0 10000 0 00314         TZE LIB10        TRANSFER IF SA EQUAL DOL1 OR DOL2.                     F6N00630
00304  0 40000 0 00321         ADD DOL1                                                                F6N00640
00305  0 40200 0 00322         SUB DOL2                                                                F6N00650
00306  0 10000 0 00316         TZE LIB11                                                               F6N00660
00307  0 50000 0 00730         CLA SA                                                                  F6N00670
00310  0 07400 4 00142         TSX SDEV,4       OBTAIN LOC FROM                                        F6N00680
00311  0 07400 4 00103         TSX STEV,4       TEV OR DEV.                                            F6N00690
00312  0 07400 4 00004         TSX 4,4          ERROR IF NOT IN DEV OR TEV.                            F6N00700
00313  0 02000 0 00336         TRA SA2                                                                 F6N00710
00314  0 50000 0 00204  LIB10  CLA DOLSI        LOCATION FROM ADDRESS OF DOLSI.                        F6N00720
00315  0 02000 0 00336         TRA SA2                                                                 F6N00730
00316  0 50000 0 00204  LIB11  CLA DOLSI                                                               F6N00740
00317  0 77100 0 00022         ARS 18           LOCATION FROM DECREMENT OF DOLSI.                      F6N00750
00320  0 02000 0 00336         TRA SA2                                                                 F6N00760
00321  536000000000     DOL1   BCD 1$ 0000                                                            F6N00770
00322  535360000000     DOL2   BCD 1$$ 000                                                           F6N00780
00323  0 53400 4 00730  SA3     LXA SA,4         SA(1) EQUAL ZERO.                                      F6N00790
00324 -3 00000 4 00331         TXL SA5,4,0      IFN TEST. TRANSFER TO OBTAIN RELOCAT. LOC. FROM IFN.   F6N00800
                                                                                                       F6N00801
00325 -0 76300 0 00015         LGL 13           IFN WITH RELATIVE LOCATION. ASSEMBLE SYMBOLIC          F6N00810
00326 -0 77300 0 00012         RQL 10           ADDRESS AND GO                                         F6N00820
00327 -0 76300 0 00006         LGL 6            OBTAIN LOC FROM TIV.                                   F6N00830
00330  0 02000 0 00276         TRA SA7                                                                 F6N00840
00331 -0 53400 4 00730  SA5     LXD SA,4         OCTAIN LOC FROM                                        F6N00850
U 00332  0 50000 4      SA9     CLA IFN,4        IFN TABLE.                                             F6N00860
00333  0 77100 0 00022         ARS 18                                                                  F6N00870
00334  0 02000 0 00336         TRA SA2                                                                 F6N00880
00335  0 50000 0 00166  SA8     CLA L1           SA(1) EQUAL 15, SET LOCATION EQUAL L1.                 F6N00890
00336  0 62100 0 00174  SA2     STA EA           STORE LOCATION IN ADDRESS OF EA.                       F6N00900
00337  0 50000 0 00163         CLA TWO          SET RBIT AS RELOCATABLE.                               F6N00910
00340  0 60100 0 00732         STO RBIT                                                                F6N00920
00341 -0 50000 0 00726  OPCAS   CAL OP           ALL OPS NOT OCT OR BCD.                                F6N00930
00342  0 76500 0 00022         LRS 18                                                                  F6N00940
00343  0 34000 0 00720         CAS SYN          TEST FOR OP EQUAL SYN OR BSS.                          F6N00950
00344  0 02000 0 00351         TRA ORDOP                                                               F6N00960
00345  0 02000 0 00515         TRA SYNOP        TRANSFER TO SYNOP IF OP EQUAL SYN.                     F6N00970
00346  0 34000 0 00722         CAS BSS                                                                 F6N00980
00347  0 02000 0 00351         TRA ORDOP                                                               F6N00990
00350  0 02000 0 00503         TRA BSSOP        TRANSFER TO BSSOP IF OP EQUAL BSS.                     F6N01000
00351  0 07400 4 01400  ORDOP   TSX SOPR,4       SEARCH FOR OP.                                         F6N01010
00352  0 07400 4 00004         TSX 4,4          ERROR IF NOT FOUND.                                    F6N01020
00353  0 60200 0 00734         SLW WORD         STORE OCT OP.                                          F6N01030
00354  0 50000 0 00731         CLA RA           COMPUTE ADDRESS EQUAL                                  F6N01040
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00355   0 77100 0 00022          ARS 18          TO LOC. PLUS RELATIVE ADDRESS.
00356   0 40000 0 00174          ADD EA
00357   0 60100 0 00735          STO TEST1       SAVE ADDRESS IN TEST 1
00360   0 50000 0 00174          CLA EA          LOCATION GREATER THAN PGBK
00361   0 40200 0 00176          SUB PGBK
00362   0 12000 0 00375          TPL COMM        YES, TRANSFER
00363   0 50000 0 00735          CLA TEST1       NO, SEE IF
00364   0 40200 0 00176          SUB PGBK        ADDRESS GREATER THAN PGBK.
00365   0 12000 0 00372          TPL LIB40       YES, GO TO STORE ONE IN CBIT
00366   0 02000 0 00367          TRA LIB50       NO, CBIT=0
00367   0 50000 0 00735  LIB50   CLA TEST1
00370   0 76500 0 00017          LRS 15
00371   0 02000 0 00404          TRA TG
00372   0 50000 0 00162  LIB40   CLA ONE
00373   0 60100 0 00733          STO CBIT        STORE 1 IN CBIT
00374   0 02000 0 00367          TRA LIB50
00375   0 50000 0 00735  COMM    CLA TEST1
00376   0 12000 0 00400          TPL TA
00377   0 40000 0 00724          ADD TAG         IF NEG MAKE COMP
00400   0 76500 0 00017  TA      LRS 15          TEST FOR COMP
00401   0 10000 0 00404          TZE TG          ADDRESS.
00402   0 50000 0 00162          CLA ONE
00403   0 60100 0 00733          STO CBIT        INDICATE COMP DATA.
00404  -0 50000 0 00731  TG      CAL RA          COMBINE TAG, BINARY
00405   0 76500 0 00003          LRS 3           DECREMENT, ADDRESS, AND
00406  -0 50000 0 00726          CAL OP          OP.
00407   0 76300 0 00022          LLS 18
00410  -0 50100 0 00734          ORA WORD
00411   0 60200 0 00734  STORE   SLW WORD        STORE INSTRUCTION.
00412   0 50000 0 00166          CLA L1                UPDATE PROG CTR
00413   0 60100 0 00167          STO L2          AND PROGRAM BREAK
00414   0 40000 0 00162          ADD ONE         FOR ALL OPS.
00415   0 60100 0 00166          STO L1
00416  -0 53400 4 00512  RLCPU   LXD RLC1,4      MODIFY RLC4.
00417   2 00001 4 00431          TIX RLC2,4,1    TRANSFER IF RLC1 NOT ZERO.
00420   0 50000 0 00461          CLA RLC3        RLC1 IS ZERO SO
00421   0 62200 0 00512          STD RLC1        INITIALIZE IT TO 20.
00422  -0 53400 4 00502          LXD WCT,4       SET INDEX REGISTER 4, DECREMENT OF
00423  -0 75400 0 00000          PXD             RLC8 AND RLC6 EQUAL ZERO.
00424  -0 63400 4 00501          SXD RLC8,4
00425   0 62200 0 00514          STD RLC6        SET ABL AND ABR EQUAL ZERO.
00426   0 60200 4 00736          SLW ABL,4
00427   0 60200 4 00737          SLW ABR,4
00430   1 77776 4 00433          TXI RLC4,4,-2   MODIFY WORD COUNT.
00431  -0 63400 4 00512  RLC2    SXD RLC1,4      SAVE LENGTH OF CARD COUNT.
00432  -0 53400 4 00502          LXD WCT,4
00433   0 50000 0 00734  RLC4    CLA WORD        STORE INSTRUCTION IN ABL BLOCK
00434   0 60100 4 00736          STO ABL,4
00435   1 77777 4 00436          TXI RLC5,4,-1   MODIFY WORD COUNT
00436  -0 63400 4 00502  RLC5    SXD WCT,4       SAVE NEW WORD COUNT.
00437  -0 53400 4 00514          LXD RLC6,4      MODIFY RELOCATION BITS
00440   1 00002 4 00441          TXI RLC7,4,2    COUNT.
00441  -0 63400 4 00514  RLC7    SXD RLC6,4      SAVE RELO. BITS COUNT.
00442   0 50000 0 00732          CLA RBIT        TEST RELOCATION BIT.
```

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F6N01050
F6N01060
F6N01070
F6N01080
F6N01090
F6N01100
F6N01110
F6N01120
F6N01130
F6N01140
F6N01150
F6N01160
F6N01170
F6N01180
F6N01190
F6N01200
F6N01210
F6N01220
F6N01230
F6N01240
F6N01250
F6N01260
F6N01270
F6N01280
F6N01290
F6N01300
F6N01310
F6N01320
F6N01330
F6N01340
F6N01350
F6N01360
F6N01370
F6N01380
F6N01390
F6N01400
F6N01410
F6N01420
F6N01430
F6N01440
F6N01450
F6N01460
F6N01470
F6N01480
F6N01490
F6N01500
F6N01510
F6N01520
F6N01530
F6N01540
F6N01550
F6N01560
F6N01570
F6N01580
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00443  0 10000 0 00455        TZE RLCC          TRANSFER IF ZERO.                                  F6N01590
00444 -0 50100 0 00733        ORA CBIT                                                             F6N01600
00445  1 00001 4 00446        TXI RLCB,4,1      MODIFY RELOC. BITS COUNT                           F6N01610
00446 -0 63400 4 00514  RLCB  SXD RLC6,4                                                          F6N01620
00447  0 76500 0 00043        LRS 35                                                               F6N01630
00450 -0 76300 4 00110        LGL 72,4          MAKE ABR AND ABL RELATIVE BY                       F6N01640
00451 -0 53400 4 00501        LXD RLC8,4        STORING RELOCATION BITS.                           F6N01650
00452 -0 60200 4 00736        ORS ABL,4               STORE RELO BITS                              F6N01660
00453 -0 76300 0 00044        LGL 36                                                               F6N01670
00454 -0 60200 4 00737        ORS ABR,4                                                            F6N01680
00455 -0 53400 4 00514  RLCC  LXD RLC6,4        TEST IF TOO MANY RELOCATABLE                       F6N01690
00456  3 00104 4 00462        TXH ST8,4,68      BITS TO PUNCH COMPLETE CARD. YES, TRANSFER.         F6N01700
00457 -0 53400 4 00502        LXD WCT,4         NO, TEST END OF PUNCH BLOCK.                       F6N01710
00460 -3 77622 4 00464  ST2   TXL ST3,4,-110    IF BLOCK FULL, TRANSFER TO ST 3.                   F6N01720
00461  1 00024 0 00521  RLC3  TXI SLS,0,20      RETURN TO GET SL                                   F6N01730
00462 -0 53400 4 00502  ST8   LXD WCT,4         TEST WCT FOR ZERO.                                 F6N01740
D     00463 -3 00000 4 00475        TXL ST4,4                                                      F6N01750
      00464 -0 75400 4 00000  ST3   PXD 0,4     COMPUTE LAST ADDRESS                               F6N01760
      00465  0 76000 0 00006        COM         IN BLOCK (UNCOMPLEMENT WORD COUNT),                F6N01770
      00466 -0 73400 4 00000        PDX 0,4                                                        F6N01780
      00467  1 00736 4 00470        TXI STD,4,ABL                                                  F6N01790
      00470 -0 63400 4 00473  STD   SXD ST5,4   SAVE IT.                                           F6N01800
      00471 -0 63400 4 00473        SXD ST5,4                                                      F6N01810
      00472  0 07400 4 00600        TSX ABPCH,4 EXIT TO PUNCH CARD                                 F6N01820
      00473  0 00000 0 00736  ST5       ABL                                                       F6N01830
      00474  0 42000 0 00000  ST6   HPR                                                          F6N01840
      00475  0 50000 0 00166  ST4   CLA L1      SET ADDRESS PART OF                              F6N01850
      00476  0 62100 0 00474        STA ST6     ST6 TO PROGRAM BREAK.                            F6N01860
T     00477 -0 63400 0 00502        SXD WCT     SET WCT, RLC1 TO                                 F6N01870
T     00500 -0 63400 0 00512        SXD RLC1    ZERO.                                            F6N01880
TD    00501  1 00000 0 00521  RLC8  TXI SLS     RETURN TO GET SL.                                F6N01890
      00502  0 00000 0 00000  WCT   HTR 0                                                        F6N01900
      00503  0 50000 0 00166  BSSOP CLA L1      OP IS BSS.                                       F6N01910
      00504  0 60100 0 00167        STO L2      STORE PROGRAM COUNTER,                           F6N01920
      00505  0 50000 0 00731        CLA RA      UPDATE PROG BREAK,                               F6N01930
      00506  0 10000 0 00521        TZE SLS     AND GO TO PUNCH                                  F6N01940
      00507  0 77100 0 00022        ARS 18      ACARD IF NECESSARY,                              F6N01950
      00510  0 40000 0 00166        ADD L1      STORE NEW ADDRESS                                F6N01960
      00511  0 60100 0 00166        STO L1      FOR LOADING.                                     F6N01970
TD    00512  1 00000 0 00462  RLC1  TXI ST8                                                      F6N01980
      00513 -0 50000 0 00730  DATOP CAL SA      OCT OR BCD OP.                                   F6N01990
TD    00514  1 00000 0 00411  RLC6  TXI STORE                                                    F6N02000
      00515  0 50000 0 00174  SYNOP CLA EA      OP IS SYN.                                       F6N02010
      00516  0 60100 0 00167        STO L2      SET PROG CTR EQUAL ADDRESS                       F6N02020
      00517 -0 10000 0 00521        TNZ SLS                                                      F6N02030
      00520  0 07400 4 00004        TSX 4,4                                                      F6N02040
      00521 -0 50000 0 00727  SLS   CAL SL      ALL OPS. TEST SL                                 F6N02050
      00522  0 10000 0 00563        TZE SL6     TRANSFER IF SL IS ZERO.                          F6N02060
      00523  0 76500 0 00036        LRS 30                                                       F6N02070
      00524  0 10000 0 00535        TZE SL1     TRANSFER IF SL(1) EQUAL ZERO.                    F6N02080
      00525  0 73400 4 00000        PAX 0,4                                                      F6N02090
      00526  3 00017 4 00552        TXH SL2,4,15 SL(1) GREATER THAN 15.                          F6N02100
      00527  3 00016 4 00563        TXH SL3,4,14 SL(1) EQUAL 15.                                 F6N02110
      00530 -0 77300 0 00016        RQL 14      SL(1) LESS THAN 15. ASSEMBLE SYMBOL AND GO       F6N02120
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                00531 -0 76300 0 00021          LGL 17          SEE IF ITS IN TIV.                              F6N02130
                00532  0 07400 4 00121          TSX STIV,4                                                      F6N02140
                00533  0 02000 0 00563          TRA SL6         NOT IN TABLE.                                   F6N02150
                00534  0 02000 0 00556          TRA SL4         IN TABLE. GO STORE LOCATION IN EA.              F6N02160
                00535  0 53400 4 00727  SL1     LXA SL,4        SL(1) EQUAL ZERO. TEST ADDRESS PART OF SL.      F6N02170
D               00536 -3 00000 4 00553          TXL SL7,4       ZERO. EXIT TO GET IFN LOCATION.                 F6N02180
                00537 -0 76300 0 00015          LGL 13          NOT ZERO. ASSEMBLE SYMBOL                       F6N02190
                00540 -0 77300 0 00012          RQL 10          AND GO SEARCH TIV TABLE.                        F6N02200
                00541 -0 76300 0 00006          LGL 6                                                           F6N02210
                00542  0 07400 4 00121          TSX STIV,4                                                      F6N02220
                00543  0 02000 0 00563          TRA SL6         NOT IN TIV TABLE, SO TRANSFER.                  F6N02230
                00544  0 62100 0 00174          STA EA          IN TIV TABLE. RETURN WITH LOCATION              F6N02240
                00545  0 50000 0 00174          CLA EA          IN ADDRESS. TEST ADDRESS.                       F6N02250
                00546 -0 10000 0 00560          TNZ SL5         TRANSFER IF NOT ZERO.                           F6N02260
                00547  0 50000 0 00167  SL8     CLA L2          ZERO. PUT L2 IN TIV TABLE AS LOCATION.          F6N02270
                00550  0 62100 2 02114          STA TIV,2                                                       F6N02280
                00551  0 02000 0 00563          TRA SL6                                                         F6N02290
                00552  0 02000 0 00563  SL2     TRA SL6                                                         F6N02300
                00553 -0 53400 4 00727  SL7     LXD SL,4        IFN LOCATION.                                   F6N02310
U               00554  0 50000 4        SL9     CLA IFN,4                                                       F6N02320
                00555  0 77100 0 00022          ARS 18                                                          F6N02330
                00556  0 62100 0 00174  SL4     STA EA          CHECK STORED LOCATION (FROM TIV).               F6N02340
                00557  0 50000 0 00174          CLA EA                  EQUAL PROG CTR                          F6N02350
                00560  0 40200 0 00167  SL5     SUB L2          IF NOT EQUAL TO L2, GO TO ERROR HALT.           F6N02360
                00561  0 10000 0 00563          TZE SL6                                                         F6N02370
                00562  0 07400 4 00004          TSX 4,4                                                         F6N02380
                                00563  SL3     BSS                                                             F6N02390
A                                                                                                               F6N02400
A                               00563  SL6     BSS                                                             F6N02410
                00563 -0 53400 4 00567          LXD RD3,4       MODIFY TO GET NEW CIT.                          F6N02420
                00564  1 00004 4 00565          TXI RD2,4,4                                                     F6N02430
                00565 -3 00000 4 00240  RD2     TXL RD4,4,**                                                    F6N02440
                00566  0 53400 2 00224          LXA RDC,2                                                       F6N02450
                00567  1 00000 0 00225  RD3     TXI RD,0,**                                                     F6N02460
                00570  0 00000 0 00000  TEST6   HTR 0                                                         F6N02470
                00571  0 50000 0 00574  EOF     CLA LBT         SET RETURN OF ST4 TO EOT.                       F6N02480
                00572  0 60100 0 00475          STO ST4                 IF NECESSARY ON END OF                  F6N02490
                00573  0 02000 0 00462          TRA ST8                 FILE                                    F6N02500
TD              00574  1 00000 0 00575  LBT     TXI EOT                                                         F6N02510
                00575  0 77200 0 00204  EOT     REW 4           REWIND TAPE 4 AND RETURN TO LOADER.             F6N02520
                00576  0 76200 0 00221          RTB 1                                                           F6N02530
                00577  0 02000 0 00004          TRA 4                                                           F6N02540
                00600 -0 50000 4 00001  ABPCH   CAL 1,4         TO PUNCH CARD.                                  F6N02550
                00601  0 62200 0 00645          STD PCH1        COMPUTE LAST ADDRESS PLUS ONE, AND              F6N02560
                00602  0 77100 0 00022          ARS 18          TOTAL WORD COUNT.                               F6N02570
                00603  0 40000 0 00645          ADD PCH1                                                        F6N02580
                00604  0 62100 0 00617          STA PCH2                                                        F6N02590
                00605  0 62100 0 00635          STA PCH3                                                        F6N02600
                00606 -0 40000 4 00001          SBM 1,4                                                         F6N02610
                00607  0 10000 4 00002          TZE 2,4         GO TO HALT IF WORD COUNT LESS                   F6N02620
                00610 -0 12000 4 00002          TMI 2,4         THAN ONE.                                       F6N02630
                00611  0 73400 1 00000          PAX 0,1                                                         F6N02640
                00612  0 50000 4 00002          CLA 2,4         OBTAIN FIRST ADDRESS.                           F6N02650
                00613  0 76600 0 00223  PCH8    WTB 3           SELECT TAPE THREE.                              F6N02660
                00614  0 62100 0 00646          STA VR          SET LOADING ADDRESS.
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      00615  0 76000 0 00000         CLM                                                F6N02670
      00616  0 53400 2 00645         LXA  PCH1,2                                        F6N02680
      00617  0 36100 1 00000  PCH2   ACL  0,1          FORM CHECK SUM.                   F6N02690
      00620  3 00025 2 00623         TXH  PCH5,2,21                                     F6N02700
      00621 -2 00001 1 00623         TNX  PCH5,1,1                                      F6N02710
      00622  1 00001 2 00617         TXI  PCH2,2,1                                      F6N02720
      00623 -0 63400 2 00633  PCH5   SXD  PCH6,2        STORE WORD COUNT.                F6N02730
      00624  1 77776 2 00625         TXI  PCHR,2,-2                                     F6N02740
      00625 -0 63400 2 00646  PCHR   SXD  VR,2                                          F6N02750
      00626  0 36100 0 00646         ACL  VR                                            F6N02760
      00627  0 60200 0 00647         SLW  SUM            STORE CHECK SUM.               F6N02770
      00630  0 70000 0 00646         CPY  VR                                            F6N02780
      00631  0 70000 0 00647         CPY  SUM                                           F6N02790
      00632  1 00002 2 00633         TXI  PCH6,2,2                                      F6N02800
D     00633  1 00000 1 00634  PCH6   TXI  PCH9,1                                       F6N02810
      00634  1 77777 1 00635  PCH9   TXI  PCH3,1,-1                                    F6N02820
      00635  0 70000 1 00000  PCH3   CPY  0,1          COPY RECORD ONTO TAPE THREE.     F6N02830
      00636  2 00001 2 00634         TIX  PCH9,2,1                                      F6N02840
      00637  0 50000 0 00646  PCH7   CLA  VR           COMPUTE LOADING ADDRESS FOR NEXT CARD. F6N02850
      00640  0 77100 0 00022         ARS  18                                            F6N02860
      00641  0 40000 0 00646         ADD  VR                                            F6N02870
      00642  2 00001 1 00613         TIX  PCH8,1,1                                      F6N02880
      00643  0 76600 0 00333         IOD                                                F6N02890
      00644  0 02000 4 00003         TRA  3,4            RETURN TO PROGRAM.             F6N02900
      00645  0 00000 0 00001  PCH1   HTR  1                                            F6N02910
ATD   00646  2 00000 0 00000  VR     TIX                                                F6N02920
      00647  0 00000 0 00000  SUM    HTR  0                                             F6N02930
                          00613  WRS1   SYN  PCH8                                      F6N02940
                          00650         BSS  40                                        F6N02950
      00720  000000627045          SYN    BCD  1000SYN                                F6N02960
      00721  000000462363          OCT    BCD  1000OCT                                F6N02970
      00722  000000226262          BSS    BCD  1000BSS                                F6N02980
      00723  000000222324          BCD    BCD  1000BCD                                F6N02990
      00724  0 00000 4 00000  TAG    HTR  0,4                                           F6N03000
TD    00725  2 00000 0 00000  TCD    TIX  0                                             F6N03010
      00726  0 00000 0 00000  OP     HTR  0                                             F6N03020
      00727  0 00000 0 00000  SL     HTR  0                                             F6N03030
      00730  0 00000 0 00000  SA     HTR  0                                             F6N03040
      00731  0 00000 0 00000  RA     HTR  0                                             F6N03050
      00732  0 00000 0 00000  RBIT   HTR  0                                             F6N03060
      00733  0 00000 0 00000  CBIT   HTR  0                                             F6N03070
      00734  0 00000 0 00000  WORD   HTR  0                                             F6N03080
      00735  0 00000 0 00000  TEST1  HTR  0                                             F6N03090
                          00736  ABL    BSS  1                                         F6N03100
                          00737  ABR    BSS  109                                       F6N03110
                          01260  REC    BES  100                                       F6N03120
                          01260  RLP    SYN  REC                                       F6N03130
A                         00000         END                                            F6N03140
                          00001 0  IFN
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1          AST
1                                        FORTRAN 2   RECORD 115  -  LIBRARY SEARCH.                    F6P00010
                                                                                                        F6P00020
                                         LIBRARY SEARCH                                                 F6P00030
                                                                                                        F6P00040
                        00030   PC1    SYN 24                                                          F6P00050
                        00036   SUBIN  SYN 30                                                          F6P00060
M                       02114   ABSOP  SYN 1100                                                        F6P00070
M                       00162   ONE    SYN 114                                                         F6P00080
M                       00177   SW1    SYN 127                                                         F6P00090
M                       02114   TRB    SYN ABSOP                                                       F6P00100
M                       00203   SW5    SYN 131                                                         F6P00110
M                       00163   TWO    SYN 115                                                         F6P00120
M                       00161   ZERO   SYN 113                                                         F6P00130
                        00210          ORG 136                                                         F6P00140
      00210   0 53400 1 00544          LXA RDC,1        SET DRUM READ ERROR COUNTER.                   F6P00150
      00211   0 76200 0 00303   D5     RDR 3            SELECT DRUM 3 (TRANSFER VECTOR TABLE).         F6P00160
T     00212  -0 75400 0 00000   A4     PXD 0                    TRANSFER VECTOR                       F6P00170
      00213   0 46000 0 00212          LDA A4                                                          F6P00180
      00214  -0 70000 0 03133          CAD TVR-1        READ WORD COUNT OF TABLE INTO TVR-1.           F6P00190
      00215   0 76000 0 00006          COM                                                             F6P00200
      00216  -0 70000 0 01001          CAD SUM                                                         F6P00210
      00217   0 76000 0 00006          COM                                                             F6P00220
      00220   0 10000 0 00223          TZE D4           NO READ ERROR.                                 F6P00230
      00221   2 00001 1 00211          TIX D5,1,1                                                      F6P00240
      00222   0 07400 4 00774          TSX OUTER,4                                                     F6P00250
      00223  -0 53400 1 03133   D4     LXD TVR-1,1      SET INDEX REG 1 WITH WORD CT. OF TRANS. VECTOR.F6P00260
D     00224  -3 00000 1 00475          TXL WEF,1        IFNO TRANSFER VECTOR, GO TO W.E.F.             F6P00270
      00225   0 53400 2 00544          LXA RDC,2                                                       F6P00280
      00226   0 76200 0 00303   A5     RDR 3                                                           F6P00290
T     00227  -0 75400 0 00002   A6     PXD 2            READ TRANSFER                                  F6P00300
      00230   0 46000 0 00227          LDA A6           VECTOR INTO STORAGE, FIRST SUBROUTINE NAME INTOF6P00310
      00231  -0 70000 1 03133   A7     CAD TVR-1,1      TVR-1-WD COUNT, LAST SUBR. NAME INTO TVR-2,    F6P00320
      00232   2 00001 1 00231          TIX A7,1,1                                                      F6P00330
      00233   0 70000 0 01001          CPY SUM                                                         F6P00340
      00234   0 76000 0 00006          COM                                                             F6P00350
      00235  -0 70000 0 01001          CAD SUM                                                         F6P00360
      00236   0 76000 0 00006          COM                                                             F6P00370
      00237   0 10000 0 00242          TZE A8           TEST CHECK SUM.                                F6P00380
      00240   2 00001 2 00226          TIX A5,2,1                                                      F6P00390
      00241   0 07400 4 00774          TSX OUTER,4                                                     F6P00400
M     00242   0 50000 0 00203   A8     CLA SW5          CHECK SUM OKAY.                                F6P00410
M     00243   0 34000 0 00162          CAS ONE                                                         F6P00420
      00244   0 02000 0 00247          TRA A1           GO TO TEST SENSE SWITCH FIVE.                  F6P00430
      00245   0 02000 0 00252          TRA A3           1 IN SW5 MEANS ASSUME SENSE SWITCH 5 DOWN      F6P00440
      00246   0 02000 0 00463          TRA FINI         0 IN SW5 MEANS ASSUME SENSE SWITCH 5 IS UP.    F6P00450
      00247   0 76000 0 00165   A1     SWT 5            SENSE SWITCH 5 TEST.                           F6P00460
      00250   0 02000 0 00463          TRA FINI         UP.                                            F6P00470
      00251   0 02000 0 00252          TRA A3           DOWN.                                          F6P00480
      00252   0 76200 0 00221   A3     RTB 1            SPACE TAPE1 OVER EOF (THAT IS, OVER SYSTEM).   F6P00490
      00253   0 60000 0 01002   A10    STZ RCT                                                         F6P00500
      00254   0 60000 0 01003          STZ LIBCT                                                       F6P00510
M     00255   0 50000 0 00162          CLA ONE                                                         F6P00520
      00256   0 60100 0 01004          STO PASCT                                                       F6P00530
      00257   0 60000 0 01005   LOOP1  STZ CTF
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00260  0 07400 4 00537  A11   TSX SUB1,4      READ TAPE1 RECORD.                                          F6P00540
00261  0 02000 0 00433        TRA EOF        RETURN HERE IF END OF FILE                                  F6P00550
00262  0 50000 0 01327        CLA BUFF-1     RETURN AT END OF RECORD TO EXAMINE FIRST WORD.              F6P00560
00263 -0 12000 0 00265        TMI A12        PROG. CARD TEST. FIRST WORD IS MINUS ON PROG.               F6P00570
                                             CARD.                                                       F6P00580
00264  0 02000 0 00260        TRA A11        NOT A PROGRAM CARD. GO TO READ ANOTHER RECORD.              F6P00590
                                             PROGRAM CARD.                                               F6P00600
00265  0 62200 0 00335  A12   STD A18        SAVE LENGTH OF RECORD (BITS 4-18 HAVE NO. OF                F6P00610
00266  0 62200 0 00303        STD A15        WORDS IN RECORD EXCLUDING 9-ROW.                            F6P00620
00267 -0 53400 1 01007        LXD FR4,1      SAVE LENGTH OF                                              F6P00630
00270  0 50000 0 01325        CLA BUFF-3     TRANSFER VECTOR (ROW 8 DECREMENT).                          F6P00640
00271  0 62200 0 01006        STD VLENG                                                                  F6P00650
00272 -0 53400 2 03133  A16   LXD TVR-1,2    TEST FOR PRIMARY NAME ON PROG CARD.                         F6P00660
00273  0 50000 1 01326        CLA BUFF-2,1   NOT PRIMARY NAME.                                           F6P00670
00274 -0 12000 0 00302        TMI SEC        YES, PRIMARY NAME. SELECT NAME AND                          F6P00680
00275  0 50000 1 01327        CLA BUFF-1,1   COMPARE IT TO NAME IN TRANSFER VECTOR.                      F6P00690
00276  0 34000 2 03133  A14   CAS TVR-1,2                                                                F6P00700
00277  0 02000 0 00301        TRA A13        FOUND ROUTINE, GO TO EQ.                                    F6P00710
00300  0 02000 0 00305        TRA EQ         NOT EQUAL, GO TO SELECT NEXT TR. VEC. NAME.                 F6P00720
00301  2 00001 2 00276  A13   TIX A14,2,1    NOT FOUND. GO TO TEST NEXT WORD ON CARD.                    F6P00730
00302  1 00002 1 00303  SEC   TXI A15,1,2    ANY MORE WORDS ON PROG. CARD. IF YES, TRANSFER.             F6P00740
00303 -3 00303 1 00272  A15   TXL A16,1,*    NO MORE PRI. NAMES ON CARD. GO READ NEXT REC.               F6P00750
00304  0 02000 0 00260        TRA A11        OF LIBRARY TAPE.                                            F6P00760
00305  0 07400 4 00760  EQ    TSX ERASE,4    WHEN PRIM. NAME ON PROG. CARD EQUALS VARIABLE               F6P00770
00306 -0 63400 1 00322        SXD EQ2,1      NAME IN TRANS. VEC., GO ERASE NAME FROMTVR.                 F6P00780
00307  0 53400 4 01003  EQ4   LXA LIBCT,4    SET XR4 EQUAL NO. OF LIB. ROUTINES FOUND.                   F6P00790
00310  0 50000 1 01327        CLA BUFF-1,1   ENTER NAME OF FOUND SUBROUTINE IN LIBF TABLE.               F6P00800
00311  0 60100 4 03607        STO LIBF-1,4           AND ERASE NAME FROM                                 F6P00810
00312  0 50000 0 01003        CLA LIBCT              TVR TABLE                                           F6P00820
M      00313  0 40000 0 00162        ADD ONE        UPDATE LIBCT                                        F6P00830
00314  0 60100 0 01003        STO LIBCT                                                                  F6P00840
00315  0 50000 0 01005        CLA CTF        UPDATE CTP.                                                 F6P00850
M      00316  0 40000 0 00162        ADD ONE                                                             F6P00860
00317  0 60100 0 01005        STO CTF        OTHER NAMES ON CARD. NO, TRANSFER.                          F6P00870
00320 -3 00004 1 00323        TXL EQ3,1,4                                                                F6P00880
00321  1 77776 1 00307        TXI EQ4,1,-2   YES, GO ENTER IN LIBF.                                      F6P00890
00322  0 00000 0 00000  EQ2   HTR 0                                                                      F6P00900
00323 -0 53400 1 00322  EQ3   LXD EQ2,1                                                                  F6P00910
00324  0 02000 0 00334        TRA A18-1                                                                  F6P00920
00325 -0 53400 2 03133  A19   LXD TVR-1,2            OF THIS ROUTINE                                     F6P00930
00326  0 50000 1 01327        CLA BUFF-1,1   SELECT NAME ON PROGRAM CARD                                  F6P00940
00327  0 34000 2 03133  A17   CAS TVR-1,2    IS IT CALLED FOR BY TRANSFER VECTOR.                        F6P00950
00330  0 02000 0 00332        TRA NO                                                                     F6P00960
00331  0 02000 0 00337        TRA YES        YES, TRANSFER.                                              F6P00970
00332  2 00001 2 00327  NO    TIX A17,2,1    NO, TEST FOR ANY MORE NAMES IN TR. VECTOR. YES,             F6P00980
                                             TRANSFER.                                                   F6P00990
00333  0 07400 4 00506  A20   TSX LIBEN,4    NO, GO ENTER NAME IN LIBF IF NOT ALREADY THERE.             F6P01000
00334  1 00002 1 00335        TXI A18,1,2    INCREMENT PROG CARD COUNTER BY 2,                           F6P01010
00335 -3 00335 1 00325  A18   TXL A19,1,*    THIS IS SET BY A12, CONTAINS NO. OF WORDS ON                F6P01020
                                             PROGRAM CARD.                                               F6P01030
00336  0 02000 0 00342        TRA A21        TRANS. WHEN ALL NAMES ON CARD HAVE BEEN CHECKED             F6P01040
00337  0 07400 4 00760  YES   TSX ERASE,4    ERASE NAME FROM TRANSFER VECTOR TABLE.                      F6P01050
00340  0 50000 1 01327        CLA BUFF-1,1   SELECT SUBROUTINE NAME AND GO                               F6P01060
00341  0 02000 0 00333        TRA A20        ENTER IT IN LIBF.                                           F6P01070
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00342 -0 53400 2 00303  A21    LXD A15,2                                                    F6P01080
00343  3 00026 2 00400          TXH EXCAD,2,22  TRANSFER IF PROG. CARD HAS MORE THAN 22 WORDS. F6P01090
00344  0 07400 4 00523          TSX WRITE,4     WRITE PROG CARD ON TAPE 3                    F6P01100
00345  0 00002 0 00000          HTR 0,0,2                                                    F6P01110
00346  0 07400 4 00537  B13    TSX SUB1,4      READ RECORD FROM LIB. TAPE                   F6P01120
00347  0 02000 0 00433          TRA EOF         EOF.                                         F6P01130
00350  0 50000 0 01006  X3     CLA VLENG       WD. CT. OF TRANS. VEC. OF LIBRARY SUBROUTINE. F6P01140
00351  0 10000 0 00356          TZE A22         IF NO TRANSFER VECTOR, GO TO WRITE.          F6P01150
00352  0 34000 0 01012          CAS L20D                                                     F6P01160
00353  0 02000 0 00365          TRA X2          GO TO X2 IF TRANS VEC. OF LIB. SUBR. GREATER F6P01170
                                                THAN 20.                                     F6P01180
00354  0 02000 0 00355          TRA X1          GO TO X1 IF TRANS VEC OF LIB. SUBR LESS THAN ORF6P01190
                                                EQUAL 20.                                    F6P01200
00355  0 07400 4 00613  X1     TSX LOOP3,4     GO SEARCH LIBF FOR SUB-SUBROUTINE NAME, ETC. F6P01210
00356  0 07400 4 00523  A22    TSX WRITE,4     GO WRITE TRANS. VECT. RECORD ON TAPE 3.      F6P01220
00357  0 00004 0 00000          HTR 0,0,4                                                    F6P01230
00360  0 07400 4 00537  LOOP2  TSX SUB1,4      GO READ NEW RECORD FROM LIBRARY TAPE.        F6P01240
00361  0 02000 0 00433          TRA EOF         EOF ON LIBRARY TAPE.                         F6P01250
00362  0 50000 0 01327          CLA BUFF-1      TEST FOR PROGRAM CARD.                       F6P01260
00363 -0 12000 0 00265          TMI A12         YES, PROG CARD. TRANSFER.                    F6P01270
00364  0 02000 0 00356          TRA A22         NO, GO TO WRITE CARD ON TAPE THREE.          F6P01280
00365  0 40200 0 01012  X2     SUB L20D        TO TREAT 20 AT A TIME.                       F6P01290
00366  0 60100 0 01006          STO VLENG                                                    F6P01300
00367  0 50000 0 01012          CLA L20D                                                     F6P01310
00370  0 07400 4 00613          TSX LOOP3,4     SEARCH FOR SUB+SUBROUT IN LIBF. IF NOT THERE, F6P01320
                                                ENTER IN TVR TABLE.                          F6P01330
00371  0 07400 4 00523          TSX WRITE,4     WRITE RECORD ON TAPE 3.                      F6P01340
00372  0 00004 0 00000          HTR 0,0,4                                                    F6P01350
00373  0 07400 4 00537          TSX SUB1,4      READ NEXT RECORD FROM LIB TAPE               F6P01360
00374  0 02000 0 00433          TRA EOF         EOF                                          F6P01370
00375  0 50000 0 01327          CLA BUFF-1      IS IT A PROG. CARD.                          F6P01380
00376  0 12000 0 00350          TPL X3          NO, GO PROCESS TRANS. VEC.                   F6P01390
00377  0 07400 4 00774  ERROR  TSX OUTER,4     YES. ERROR.                                  F6P01400
00400  0 50200 0 01013  EXCAD  CLS L22D        TO WRITE FIRST CARD OG PROG. CARD.           F6P01410
00401  0 60100 0 01327  B9     STO BUFF-1                                                   F6P01420
00402  0 07400 4 00647          TSX CHSUM,4     COMPUTE CHECK SUM.                           F6P01430
00403  0 07400 4 00523          TSX WRITE,4     WRITE IT ON TAPE 3.                          F6P01440
                                                BLANKS                                       F6P01450
00404  0 00002 0 00000          HTR 0,0,2                                                    F6P01460
00405 -0 75400 2 00000          PXD 0,2                                                      F6P01470
00406  0 40200 0 01013          SUB L22D        MORE THAN 22 WORDS.                          F6P01480
00407 -0 12000 0 00346          TMI B13         NO, GO TO B13.                               F6P01490
00410 -0 73400 2 00000          PDX 0,2         YES, DECREMENT WD. CT. BY 22 AND STORE IT IN F6P01500
                                                INDEX REGISTER 2.                            F6P01510
00411  0 40200 0 01000          SUB ONEDE                                                    F6P01520
00412  0 62200 0 00417          STD BOO1                                                     F6P01530
M 00413 -0 53400 1 00162        LXD ONE,1                                                    F6P01540
00414  0 50000 1 01277  BOO    CLA BUFF-25,1   MOVE INFO. READ FROM LIB. TAPE UP IN BUFFER, F6P01550
00415  0 60100 1 01325          STO BUFF-3,1                                                 F6P01560
00416  1 00001 1 00417          TXI BOO1,1,1                                                 F6P01570
00417 -3 00417 1 00414  BOO1   TXL BOO,1,*                                                  F6P01580
00420 -3 00025 2 00423          TXL B8,2,21                                                  F6P01590
00421  0 50200 0 01013          CLS L22D                                                     F6P01600
00422  0 02000 0 00401          TRA B9                                                       F6P01610
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00423 -0 75400 2 00000  B8     PXD 0,2                                          F6P01620
00424 -0 73400 1 00000         PDX 0,1          IF NECESSARY                    F6P01630
00425  0 60000 1 01325  B12    STZ BUFF-3,1     AND FILL IN ZEROES IF NECESSARY. F6P01640
00426  1 00001 1 00427         TXI B11,1,1                                      F6P01650
00427 -3 00026 1 00425  B11    TXL B12,1,22                                     F6P01660
00430 -0 75400 2 00000         PXD 0,2                                          F6P01670
00431 -0 76000 0 00003         SSM                                              F6P01680
00432  0 02000 0 00401         TRA B9                                           F6P01690
00433  0 50000 0 01004  EOF    CLA PASCT                                        F6P01700
M 00434  0 40200 0 00162       SUB ONE                                          F6P01710
00435  0 10000 0 00440         TZE D1           TRANSFER IF ONLY ONE SEARCH     F6P01720
00436  0 50000 0 01005         CLA CTF          END OF SEARCH TEST              F6P01730
00437  0 10000 0 00451         TZE D3           CTF IS ZERO IF NO SUBROUTINE FOUND IN SEARCH. F6P01740
00440  0 50000 0 01004  D1     CLA PASCT        PREPARE FOR ANOTHER             F6P01750
M 00441  0 40000 0 00162       ADD ONE          SEARCH.                         F6P01760
00442  0 60100 0 01004         STO PASCT                                        F6P01770
                                                CHARACTER.                      F6P01780
00443  0 53400 1 01002         LXA RCT,1        SET XR1 EQUAL NO. OF RECORDS READ FROM LIB. F6P01790
00444  1 00001 1 00445         TXI D2,1,1       TAPE.                           F6P01800
00445  0 76400 0 00201  D2     BST 1            BACK SPACE TAPE THAT MANY RECORDS. F6P01810
00446  2 00001 1 00445         TIX D2,1,1                                       F6P01820
00447  0 60000 0 01002         STZ RCT          SET RCT EQUAL ZERO AND GO START SEARCH F6P01830
00450  0 02000 0 00257         TRA LOOP1                                        F6P01840
00451  0 53400 1 01003  D3     LXA LIBCT,1      ANY SUBROUTINES FOUND           F6P01850
D 00452 -3 00000 1 00463       TXL FINI,1       NO, GO TO FINI.                 F6P01860
00453  0 07400 4 00573         TSX SPACE,4      YES. GO WRITE, SUBROUTINES PUNCHED F6P01870
00454  0 00024 0 00734             FOUND,,20    FROM LIBRARY ON TAPE TWO.       F6P01880
00455 -0 53400 2 00676         LXD LNC,2        SET RECORD LENGTH TAPE TWO EQUAL 20. F6P01890
00456  0 50000 1 03610  D9     CLA LIBF,1       SELECT SUBROUTINE NAME.         F6P01900
00457  0 60100 0 01015         STO NAME                                         F6P01910
00460  0 07400 4 00656         TSX SUB2,4       GO CONVERT AND WRITE IT IN T-2 BUFFER (WRITING F6P01920
                                                OFF WHEN NECESSARY)             F6P01930
00461  2 00001 1 00456         TIX D9,1,1       TRANSFER IF MORE SUBR. NAMES,   F6P01940
00462  0 07400 4 00576         TSX WLL,4        GO WRITE FINAL RECORD ON TAPE TWO. F6P01950
00463 -0 53400 1 03133  FINI   LXD TVR-1,1      ANY TRANSFER VECTOR.            F6P01960
D 00464 -3 00000 1 00475       TXL WEF,1        NO, GO TO WEF.                  F6P01970
00465  0 07400 4 00573         TSX SPACE,4      YES, GO WRITE SUBROUTINES NOT PUNCHED FROM F6P01980
00466  0 00024 0 00760             LOST,,20     LIBRARY.                        F6P01990
00467 -0 53400 2 00676         LXD LNC,2        RESET TAPE TWO RECORD LENGTH TO 20. F6P02000
00470  0 50000 1 03133  D10    CLA TVR-1,1      SELECT NAME IN TVR TABLE.       F6P02010
00471  0 60100 0 01015         STO NAME         GO WRITE IT IN TAPE TWO BUFFER. F6P02020
00472  0 07400 4 00656         TSX SUB2,4                                       F6P02030
00473  2 00001 1 00470         TIX D10,1,1      TRANSFER IF ANY MORE NAMES IN TVR TABLE. F6P02040
00474  0 07400 4 00576         TSX WLL,4        GO WRITE FINAL RECORD.          F6P02050
00475  0 77200 0 00201  WEF    REW 1                                            F6P02060
00476  0 50000 0 00036         CLA SUBIN        TO SEE IF MAIN PROGRAM          F6P02070
00477 -0 10000 0 00502         TNZ Y1           NO, GO TO WRITE END OF FILE     F6P02080
00500  0 76600 0 00223         WTB 3            YES, SO                         F6P02090
00501  0 70000 0 00505         CPY TCD          WRITE TRANSFER CARD ON TAPE 3   F6P02100
00502  0 77000 0 00203  Y1     WEF 3            WRITE END OF FILE MARK ON TAPE 3. F6P02110
00503  0 77200 0 00203         REW 3                                            F6P02120
00504  0 02000 0 03634         TRA RECQ                                         F6P02130
00505 -0 00000 0 00000  TCD    MZE                                              F6P02140
00506  0 53400 2 01003  LIBEN  LXA LIBCT,2      ENTER WITH SUBR. NAME IN ACC.   F6P02150
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      00507 -0 63400 2 00515        SXD LIBA,2                                                F6P02160
      00510 -0 53400 2 01000        LXD ONEDE,2                                               F6P02170
      00511  0 34000 2 03610  LIBC  CAS LIBF,2      SELECT NAME IN LIBF. TABLE. EQUAL SUBROUTINE F6P02180
                                                    NAME.                                     F6P02190
                                                                                              F6P02200
      00512  0 02000 0 00514        TRA LIBB                                                  F6P02210
      00513  0 02000 4 00001        TRA 1,4        YES. RETURN TO PROGRAM.                    F6P02220
      00514  1 00001 2 00515  LIBB  TXI LIBA,2,1    NO. TEST IF ANY MORE NAMES IN LIBF TABLE.  F6P02230
      00515 -3 00515 2 00511  LIBA  TXL LIBC,2,*    MORE, GO SELECT NEXT ONE.                  F6P02240
      00516  0 60100 2 03610        STO LIBF,2     NO MORE. ENTER SUBR. NAME IN LIBF.         F6P02250
      00517  0 50000 0 01003        CLA LIBCT                                                 F6P02260
M     00520  0 40000 0 00162        ADD ONE        UPDATE NO. OF SUBRS. IN LIBF.,             F6P02270
      00521  0 60100 0 01003        STO LIBCT                                                 F6P02280
      00522  0 02000 4 00001        TRA 1,4        AND RETURN TO PROGRAM.                     F6P02290
      00523  0 76600 0 00223  WRITE WTB 3          SELECT TAPE THREE.                         F6P02300
      00524  0 50000 4 00001        CLA 1,4                                                   F6P02310
      00525  0 62200 0 00527        STD WR4                                                   F6P02320
      00526 -0 53400 1 01327        LXD BUFF-1,1                                              F6P02330
      00527  1 00000 1 00530  WR4   TXI WR3,1,**                                            F6P02340
      00530 -0 63400 1 00534  WR3   SXD WR1,1      SET DECR. OF WR1 EQUAL WD. CT. FROM LIB. TAPE F6P02350
                                                    PLUS DECREMENT OF 1,4                     F6P02360
M     00531  0 53400 1 00162        LXA ONE,1                                                 F6P02370
      00532  0 70000 1 01330  WR2   CPY BUFF,1      WRITE WORD FROM BUFFER ONTO TAPE THREE     F6P02380
      00533  1 00001 1 00534        TXI WR1,1,1                                               F6P02390
      00534 -3 00030 1 00532  WR1   TXL WR2,1,24     TEST END OF CARD.                        F6P02400
      00535  0 76600 0 00333        IOD                                                       F6P02410
      00536  0 02000 4 00002        TRA 2,4          RETURN TO PROG. EXIT POINT PLUS 2.       F6P02420
      00537  0 53400 2 00544  SUB1  LXA RDC,2       READ LIBRARY TAPE RECORD.                F6P02430
      00540  0 02000 0 00545        TRA RD                 ROUTINE                           F6P02440
      00541  0 76400 0 00201  ERR   BST 1            READ-ERROR PROCEDURE.                    F6P02450
      00542  2 00001 2 00545        TIX RD,2,1                                                F6P02460
      00543  0 07400 4 00774        TSX OUTER,4                                               F6P02470
      00544  0 42000 0 00005  RDC   HPR 5                                                     F6P02480
      00545  0 76200 0 00221  RD    RTB 1            SELECT TAPE 1,                           F6P02490
M     00546 -0 53400 1 00162        LXD ONE,1        SET XR1=0.                               F6P02500
      00547  0 70000 1 01327  SUBA  CPY BUFF-1,1     COPY RECORD INTO BUFF-1,-2,...           F6P02510
      00550  1 00001 1 00547        TXI SUBA,1,1                                              F6P02520
      00551  0 02000 4 00001        TRA 1,4          EOF                                      F6P02530
      00552  0 77100 0 00377        ARS 255                                                   F6P02540
      00553  0 77100 0 00377        ARS 255          EOR                                      F6P02550
      00554 -0 76000 0 00012        RTT                                                       F6P02560
      00555  0 02000 0 00541        TRA ERR                                                   F6P02570
      00556  0 50000 0 01002        CLA RCT          INCREASE RECORD COUNT BY ONE             F6P02580
M     00557  0 40000 0 00162        ADD ONE                                                   F6P02590
      00560  0 60100 0 01002        STO RCT                                                   F6P02600
      00561  0 02000 4 00002        TRA 2,4          AND RETURN TO PROGRAM EXIT PLUS 2.       F6P02610
      00562  0 50000 4 00001  PRINT CLA 1,4          TO WRITE A BCD RECORD ON TAPE TWO.       F6P02620
      00563 -0 73400 2 00000        PDX 0,2                                                   F6P02630
D     00564 -3 00000 2 00572        TXL NONE,2                                                F6P02640
      00565  0 76600 0 00202  D7    WTD 2                                                     F6P02650
      00566  0 62100 0 00567        STA POOP                                                  F6P02660
      00567  0 70000 2 00567  POOP  CPY *,2                                                  F6P02670
      00570  2 00001 2 00567        TIX POOP,2,1                                              F6P02680
      00571  0 76600 0 00333        IOD                                                       F6P02690
      00572  0 02000 4 00002  NONE  TRA 2,4
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00573   0 76600 0 00202  SPACE WTD 2          WRITE A WORD OF BLANKS ON TAPE TWO.          F6P02700
00574   0 70000 0 00703        CPY BLANKS                                                  F6P02710
00575   0 02000 0 00562        TRA PRINT                                                   F6P02720
00576  -0 63400 4 00702  WLL   SXD IR4,4        PREPARE TO WRITE FINAL RECORD ON TAPE TWO,   F6P02730
00577   1 00002 2 00600        TXI ME20,2,2                                                F6P02740
00600  -0 75400 2 00000  ME20  PXD 0,2                                                     F6P02750
00601   0 60100 0 00610        STO LND                                                     F6P02760
00602   0 77100 0 00022        ARS 18                                                      F6P02770
00603   0 62100 0 00610        STA LND                                                     F6P02780
00604   0 50000 0 01017        CLA LNE                                                     F6P02790
00605   0 40200 0 00610        SUB LND                                                     F6P02800
00606   0 60100 0 00610        STO LND                                                     F6P02810
00607   0 07400 4 00562        TSX PRINT,4       AND GO WRITE IT.                          F6P02820
00610   0 00000 0 00000  LND                                                             F6P02830
00611  -0 53400 4 00702        LXD IR4,4                                                   F6P02840
00612   0 02000 4 00001        TRA 1,4                                                     F6P02850
00613   0 40000 0 01014  LOOP3 ADD THRDE                                                 F6P02860
00614   0 62200 0 00626        STD A27                                                     F6P02870
00615  -0 53400 1 01007        LXD FR4,1                                                   F6P02880
00616   0 53400 2 01003  A28   LXA LIBCT,2              SUBROUTINE IN TVR                 F6P02890
00617   0 50000 1 01327        CLA BUFF-1,1      SELECT NAME FROM SUBROUTINE TRANS. VEC.   F6P02900
00620   0 34000 2 03610  A24   CAS LIBF,2        SELECT NAME FROM LIBF TABLE.              F6P02910
00621   0 02000 0 00623        TRA A23           NOT EQUAL                                 F6P02920
00622   0 02000 0 00625        TRA A26           SUBROUTINE IS IN LIBF.                    F6P02930
00623   2 00001 2 00620  A23   TIX A24,2,1       NOT EQUAL, ANY MORE NAMES IN LIBF. YES,TRANS. F6P02940
00624   0 02000 0 00630        TRA A25           NO. NOT IN LIBF.                          F6P02950
00625   1 00001 1 00626  A26   TXI A27,1,1       ANY MORE NAMES IN SUBROUT. TRANS. VECTOR. F6P02960
00626  -3 00626 1 00616  A27   TXL A28,1,*       YES.                                      F6P02970
00627   0 02000 4 00001        TRA 1,4           NO, RETURN TO PROGRAM                     F6P02980
00630   0 50000 0 03133  A25   CLA TVR-1         SET DECR. OF A31 EQUAL WD CT. OF TVR TABLE. F6P02990
00631   0 62200 0 00641        STD A31                 IF NOT ALREADY IN                 F6P03000
00632  -0 53400 2 01000        LXD ONEDE,2                                                 F6P03010
00633   0 10000 0 00645        TZE EXT2          TRANSFER IF NO ENTRIES IN TVR TABLE       F6P03020
00634   0 50000 1 01327        CLA BUFF-1,1      SELECT THE NAME FROM SUBROUT. TR. VECTOR. F6P03030
00635   0 34000 2 03133  A32   CAS TVR-1,2       IS IT IN THE TVR TABLE.                   F6P03040
00636   0 02000 0 00640        TRA A30                                                     F6P03050
00637   0 02000 0 00625        TRA A26           YES, TRANSFER.                            F6P03060
00640   1 00001 2 00641  A30   TXI A31,2,1                                                 F6P03070
00641  -3 00641 2 00635  A31   TXL A32,2,*                                                 F6P03080
00642   0 60100 2 03133        STO TVR-1,2       NO. PUT IT THERE, UPDATE COUNT OF TVR TABLE. F6P03090
00643  -0 63400 2 03133        SXD TVR-1,2                                               + F6P03100
00644   0 02000 0 00625        TRA A26                                                     F6P03110
00645   0 50000 1 01327  EXT2  CLA BUFF-1,1      SELECT NAME FROM SUBR. TRANS. VEC. AND    F6P03120
00646   0 02000 0 00642        TRA A31+1         GO STORE IT.                              F6P03130
M  00647   0 53400 1 00163  CHSUM LXA TWO,1      COMPUTE CHECK SUM AND STORE IT IN BUFF-2. F6P03140
00650  -0 50000 0 01327        CAL BUFF-1                                                  F6P03150
00651   0 36100 1 01327  B6    ACL BUFF-1,1                                                F6P03160
00652   1 00001 1 00653        TXI B5,1,1                                                  F6P03170
00653  -3 00027 1 00651  B5    TXL B6,1,23                                                 F6P03180
00654   0 60200 0 01326        SLW BUFF-2                                                  F6P03190
00655   0 02000 4 00001        TRA 1,4                                                     F6P03200
00656  -0 63400 4 00702  SUB2  SXD IR4,4                                                  F6P03210
00657  -0 50000 0 00703        CAL BLANKS                                                  F6P03220
00660   0 60200 2 03634        SLW LIN+1,2       STORE BLANKS IN BOTH WORDS OF ENTRY.      F6P03230
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00661   0 60200 2 03635          SLW LIN+2,2                                    F6P03240
00662   0 56000 0 01015  CNS     LDQ NAME        ASSENBLE BCD REPRESENTATION OF F6P03250
00663   0 53400 4 00664          LXA SIX,4       SUBROUTINE NAME.               F6P03260
00664  -0 76300 0 00006  SIX     LGL 6                                          F6P03270
00665   0 60200 0 01016          SLW SYM                                        F6P03280
00666  -0 32000 0 00705          ANA 6BITS                                      F6P03290
00667   0 40200 0 00704          SUB BLANK                                      F6P03300
00670   0 10000 0 00674          TZE CNA                                        F6P03310
00671  -0 50000 0 01016          CAL SYM                                        F6P03320
00672   0 60200 2 03635          SLW LIN+2,2     STORE IT IN WORD TWO OF ENTRY. F6P03330
00673   2 00001 4 00664          TIX SIX,4,1                                    F6P03340
00674   2 00002 2 00700  CNA     TIX EXIT,2,2    RECORD NOT FULL. DECR. XR2 AND EXIT TO PROGRAM.F6P03350
00675   0 07400 4 00562          TSX PRINT,4     RECORD FULL. GO WRITE IT.      F6P03360
00676   0 00024 0 03634  LNC         LIN+1,,20                                  F6P03370
00677  -0 53400 2 00676          LXD LNC,2       RESET RECORD LENGTH COUNTER    F6P03380
00700  -0 53400 4 00702  EXIT    LXD IR4,4       AND RETURN TO PROGRAM          F6P03390
00701   0 02000 4 00001          TRA 1,4                                        F6P03400
00702   0 00000 0 00000  IR4         0,0,0                                      F6P03410
00703   606060606060    BLANKS BCD 1                                           F6P03420
00704   000000000060     BLANK BCD 100000                                      F6P03430
00705  +000000000077     6BITS OCT 77                                          F6P03440
00706  +000000000012     TEN   DEC 10                                          F6P03450
00707  +000000000000     LOC   DEC 0                                           F6P03460
00710   606060606060           BCD 7                                          F6P03470
00711   606060606060
00712   606060606060
00713   606060606060
00714   606060606060
00715   606060606060
00716   606060606060
00717   606062642251           BCD 6  SUBROUTINES PUNCHED FROM LIBRARY        F6P03480
00720   466463314525
00721   626047644523
00722   302524602651
00723   464460433122
00724   512151706060
00725   606060606060           BCD 7                                          F6P03490
00726   606060606060
00727   606060606060
00730   606060606060
00731   606060606060
00732   606060606060
00733   606060606060                                                          F6P03500
A                 00734  FOUND BSS                                          F6P03510
00734   606060606060           BCD 7
00735   606060606060
00736   606060606060
00737   606060606060
00740   606060606060
00741   606060606060
00742   606060606060
00743   626422514664           BCD 6SUBROUTINES NOT PUNCHED FROM LIBRARY       F6P03520
00744   633145256260
00745   454663604764
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00746  452330252460
00747  265146446043
00750  312251215170
00751  606060606060          BCD 7                                                    F6P03530
00752  606060606060
00753  606060606060
00754  606060606060
00755  606060606060
00756  606060606060
00757  606060606060
A                    00760  LOST   BSS                                              F6P03540
00760  0 50000 0 03133  ERASE CLA TVR-1        DECREASE WD CT OF TVR BY ONE.        F6P03550
00761  0 40200 0 01000        SUB ONEDE                                             F6P03560
00762  0 62200 0 03133        STD TVR-1                                             F6P03570
00763  0 62200 0 00770        STD NEXT                                              F6P03580
00764  0 10000 0 00772        TZE EXT1.       TEST FOR ANY WORDS LEFT IN TVR TABLE. F6P03590
00765  0 50000 2 03132  SKIP  CLA TVR-2,2                                          F6P03600
00766  0 60100 2 03133        STO TVR-1,2     MOVE UP ENTRIES IN TVR TABLE         F6P03610
00767  1 00001 2 00770        TXI NEXT,2,1                                          F6P03620
00770 -3 00770 2 00765  NEXT  TXL SKIP,2,*                                         F6P03630
00771  0 02000 4 00001        TRA 1,4         EXIT TO PROGRAM                       F6P03640
00772  0 60000 0 03132  EXT1  STZ TVR-2       WHEN NO WORDS LEFT IN TVR TABLE, STORE ZERO IN F6P03650
00773  0 02000 4 00001        TRA 1,4         TVR-2 AND RETURN TO PROGRAM.          F6P03660
00774  0 77200 0 00201  OUTER REW 1                                                F6P03670
00775  0 76200 0 00221        RTB 1                                                 F6P03680
00776  0 76200 0 00221        RTB 1                                                 F6P03690
00777  0 02000 0 00004        TRA 4                                                 F6P03700
01000  0 00001 0 00000  ONEDE      0,0,1                                           F6P03710
01001  0 00000 0 00000  SUM                                                        F6P03720
U      01002  0 00000 0         RCT       IN ADDRESS                             F6P03730
01003  0 00000 0 00000  LIBCT       (ADDRESS)                                      F6P03740
01004  0 00000 0 00000  PASCT       (ADDRESS)                                      F6P03750
01005  0 00000 0 00000  CTF         (ADDRESS)                                      F6P03760
01006  0. 00000 0 00000 VLENG      0,0,                                           F6P03770
01007  0 00004 0 00000  FR4        0,0,4                                          F6P03780
01010  0 00000 0 00024  L20        20,0,0                                         F6P03790
01011  0 00002 0 00000  TWODE      0,0,2                                          F6P03800
01012  0 00024 0 00000  L20D       0,0,20                                         F6P03810
01013  0 00026 0 00000  L22D       0,0,22                                         F6P03820
01014  0 00003 0 00000  THRDE      0,0,3                                          F6P03830
01015  0 00000 0 00000  NAME  HTR 0                                               F6P03840
01016  0 00000 0 00000  SYM   HTR 0                                               F6P03850
01017  0 00026 0 03636  LNE       LIN+3,,22                                       F6P03860
                        01330  BUFF  BES 200                                      F6P03870
                        03134  TVR   BES 900                                      F6P03880
                        03610  LIBF  BES 300                                      F6P03890
                        03610        BSS 19                                       F6P03900
                        03633  LIN   BSS 1.                                       F6P03910
                                                                                  F6P03920
                             PUNCH BINARY LOADER IF CARDS ARE OUTPUT              F6P03930
                             AND IF MAIN ROUTINE, PUNCH PROGRAM                   F6P03940
M      03634  0 50000 0 00162  RECQ  CLA ONE          ARE CARDS OUTPUT            F6P03950
M      03635  0 34000 0 00177        CAS SW1                                       F6P03960
       03636  0 02000 0 03643        TRA WLP1        EQUALS ZERO. ASSUME SWITCH UP, GO PUNCH CARDS. F6P03970
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         03637  0 02000 0 03716          TRA OUT          EQUALS ONE, ASSUME SWITCH DOWN. NO CARD OUPUT.  F6P03980
         03640  0 76000 0 00161          SWT 1            TEST SWITCH ONE.                                F6P03990
         03641  0 02000 0 03643          TRA WLP1         UP SO GO TO PUNCH ON LINE.                      F6P04000
         03642  0 02000 0 03716          TRA OUT          DOWN SO GO TO RETURN TO LOADER.                 F6P04010
         03643  0 50000 0 00036  WLP1    CLA SUBIN        TEST FOR SUB DEF.                               F6P04020
         03644 -0 10000 0 03653          TNZ RTF          IF SOURCE PROG IS A SUBROUTINE, GO READ TAPE 3  F6P04030
         03645  0 53400 1 03736          LXA WPLV,1       MAIN ROUTINE. PUNCH LOADER.                     F6P04040
         03646 -0 53400 2 03736  WPL2    LXD WPLV,2       SET CARD LENGTH.                                F6P04050
         03647  0 76600 0 00341          WPU              SELECT PUNCH.                                   F6P04060
         03650 -2 00001 2 03646  WPL3    TNX WPL2,2,1     TRANSFER IF CARD FULL.                          F6P04070
         03651  0 70000 1 04340          CPY ZER+216,1    COPY LOADER WORD.                               F6P04080
         03652  2 00001 1 03650          TIX WPL3,1,1     TRANSFER IF NOT FINISHED PUNCHING LOADER.       F6P04090
M        03653  0 53400 1 00162  RTF     LXA ONE,1        SET IR1 EQUAL ONE.                              F6P04100
         03654 -0 63400 1 03712  RT9     SXD RT1,1        SAVE WORD COUNT OF STORAGE BLOCK TO BE PUNCHED  F6P04110
         03655 -0 53400 2 03662          LXD RT2,2        SET IR2 EQUAL FIVE FOR READ-ERROR COUNTER.      F6P04120
         03656  0 76200 0 00223  RTR     RTB 3            READ TAPE THREE.                                F6P04130
         03657 -0 53400 4 03701          LXD RT3,4        SET IR4 EQUAL 24.                               F6P04140
M        03660  0 70000 1 02114  RT7     CPY TRB,1        COPY BINARY INST. INTO STORAGE.                 F6P04150
         03661  1 00001 1 03667          TXI RT4,1,1      INCREASE WORD COUNT ONE.                        F6P04160
         03662  1 00005 0 03723  RT2     TXI TEF,,5       END OF FILE ON TAPE 3.                          F6P04170
M        03663  0 60000 1 02114  RTZ     STZ TRB,1,6*4096 EOR STORE ZERO.                                 F6P04180
         03664  1 00001 1 03665          TXI RT6,1,1      INCREASE WORD COUNT BY ONE                      F6P04190
         03665  2 00001 4 03663  RT6     TIX RTZ,4,1      FILL OUT CARD (IN STORAGE) WITH ZEROS.          F6P04200
TD       03666  1 00000 0 03673          TXI RT5                                                          F6P04210
         03667  2 00001 4 03660  RT4     TIX RT7,4,1      MOD. AND TEST END OF CARD. TRANSFER IF CARD NOT  F6P04220
                                                          FILLED.                                         F6P04230
         03670  0 70000 0 03735          CPY DUMP         NO INDEX IN XR4 IS AN ERROR HERE,               F6P04240
         03671  0 02000 0 03727          TRA RTE          SINCE RECORD LENGTH ON TAPE 3 IS CARD LENGTH,   F6P04250
         03672  0 07400 4 00774          TSX OUTER,4                                                      F6P04260
                                                                                                          F6P04270
         03673  0 76600 0 00333  RT5     IOD                                                              F6P04280
         03674  0 77100 0 00377          ARS 255          CHECK FOR TAPE CHECK.                           F6P04290
         03675  0 77100 0 00377          ARS 255                                                          F6P04300
         03676 -0 76000 0 00012          RTT                                                              F6P04310
         03677  0 02000 0 03727          TRA RTE          GO TO READ ERROR PROCEDURE.                     F6P04320
         03700 -0 53400 1 03712  RTA     LXD RT1,1        TAPE READ OKAY. ADD 24 (FOR CARD JUST READ)     F6P04330
         03701  1 00030 1 03702  RT3     TXI RT8,1,24     TO WORD COUNT.                                  F6P04340
         03702 -3 01130 1 03654  RT8     TXL RT9,1,24*25  TEST END OF PUNCH BLOCK.                        F6P04350
M        03703  0 53400 4 00161          LXA ZERO,4       BLOCK FULL. SET XR4 EQUAL ZERO,                 F6P04360
M        03704  0 53400 1 00162  PIC     LXA ONE,1        AND PUNCH OUT PUNCH BLOCK.                      F6P04370
         03705  0 76600 0 00341  PC3     WPU              PUNCH CARD.                                     F6P04380
         03706 -0 53400 2 03701          LXD RT3,2        SET XR2 EQUAL 24                                F6P04390
M        03707  0 70000 1 02114  PC2     CPY TRB,1                                                        F6P04400
         03710  1 00001 1 03711          TXI *+1,1,1                                                      F6P04410
         03711  2 00001 2 03707          TIX PC2,2,1      TRANSFER IF NOT END OF CARD.                    F6P04420
         03712 -3 00000 1 03705  RT1     TXL PC3,1,**     END OF PUNCH BLOCK TEST. TRANS. IF NOT END.     F6P04430
D        03713 -3 00000 4 03653          TXL RTF,4        GO READ MORE FROM TAPE THREE.                   F6P04440
         03714  0 76600 0 00341  PTC     WPU              PUNCH TWO BLANK CARDS.                          F6P04450
         03715  0 76600 0 00341          WPU                                                              F6P04460
         03716  0 76200 0 00221  OUT     RTB 1            RETURN TO LOADER.                               F6P04470
         03717  0 76200 0 00221          RTB 1                                                            F6P04480
         03720  0 76200 0 00221          RTB 1                                                            F6P04490
         03721  0 02000 0 00004          TRA 4                                                            F6P04500
ATD      03722  2 00000 0 00000          TIX                                                              F6P04510
         03723 -2 00030 1 03714  TEF     TNX PTC,1,24     HAS LAST BLOCK BEEN PUNCHED. TRANSFER TO
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                                                          PUNCH ENDING BLANKS IF YES.                   F6P04520
   03724 -0 63400 1 03712        SXD RT1,1                SAVE WORD COUNT OF PUNCH BLOCK,               F6P04530
M  03725  0 53400 4 00162        LXA ONE,4                AND GO PUNCH                                  F6P04540
   03726  0 02000 0 03704        TRA PIC                  FINAL BLOCK.                                  F6P04550
   03727  2 00001 2 03732  RTE   TIX BST,2,1              READ ERROR PROCEDURE. TRIED 5 TIMES. NO, TRANS.F6P04560
   03730  0 07400 4 00774        TSX OUTER,4              YES.                                          F6P04570
   03731  0 00000 0 03700        HTR RTA                                                                F6P04580
   03732  0 76400 0 00203  BST   BST 3                    BACK SPACE TAPE 3                             F6P04590
   03733 -0 53400 1 03712        LXD RT1,1                AND RESET WORD COUNT TO ONE.                  F6P04600
   03734  0 02000 0 03656        TRA RTR                  GO READ TAPE 3.                               F6P04610
                    03735  DUMP  BSS 1                                                                  F6P04620
M                   02114  TRB   SYN ABSOP                                                              F6P04630
   03736  0 00031 0 00330  WPLV      216,0,25                                                           F6P04640
   03737  0 00040 0 00000  WRCC      0,0,32                                                             F6P04650
                    03740        BSS 40                                                                 F6P04660
                    04010  ZER   BSS 216                                                                F6P04670
                    04010  ZRO   SYN ZER                                                                F6P04680
                    04010        ORG ZRO                                                                F6P04690
                                     BINARY LOADER AS OCTAL DATA                                        F6P04700
   04010 +053400100000           OCT 053400100000                                                       F6P04710
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   04012 +177777100001           OCT 177777100001                                                       F6P04730
   04013 +000000100000           OCT 000000100000                                                       F6P04740
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   04015 +076200000321           OCT 076200000321                                                       F6P04760
   04016 +070000177452           OCT 070000177452                                                       F6P04770
   04017 +177777100006           OCT 177777100006                                                       F6P04780
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   04021 +377470100005           OCT 377470100005                                                       F6P04800
   04022 -053400177715           OCT 453400177715                                                       F6P04810
   04023 -063400177715           OCT 463400177715                                                       F6P04820
   04024 +060000077453           OCT 060000077453                                                       F6P04830
   04025 +076200000321           OCT 076200000321                                                       F6P04840
   04026 +070000000000           OCT 070000000000                                                       F6P04850
   04027 +002000077500           OCT 002000077500                                                       F6P04860
   04030 +000000000015           OCT 000000000015                                                       F6P04870
   04031 +060000200000           OCT 060000200000                                                       F6P04880
   04032 +200001200021           OCT 200001200021                                                       F6P04890
   04033 +014000000024           OCT 014000000024                                                       F6P04900
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   04036 +000000000030           OCT 000000000030                                                       F6P04930
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   04040 +050000000000           OCT 050000000000                                                       F6P04950
   04041 +070000000001           OCT 070000000001                                                       F6P04960
   04042 -012000077626           OCT 412000077626                                                       F6P04970
   04043 +010000000015           OCT 010000000015                                                       F6P04980
   04044 +060000077777           OCT 060000077777                                                       F6P04990
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   04046 -300037177516           OCT 700037177516                                                       F6P05010
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   04050 +062100000025           OCT 062100000025                                                       F6P05030
   04051 +040000000026           OCT 040000000026                                                       F6P05040
   04052 +062100000026           OCT 062100000026                                                       F6P05050
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A                   00000    END                                 F6P06870
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                          0   SW1 00177,00177
                          0   SW5 00203,00203
                          0   TRB 02114,02114
                          0   TWO 00163,00163
                          0 ZERO 00161,00161
                          0ABSOP 02114,02114
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1
1          PST

                    APPLIED PROGRAMMING, IBM , L. MAY AND A. S. NOBLE JR.
                    704 FORTRAN II / SECTION ONE.                    29 OCT 58
                    8K VERSION WITHOUT CODING ON DRUMS.

                    SECTION 1= READS IN AND CLASSIFIES STATEMENTS. FOR ARITHMETIC4F10000
                    FORMULAS, COMPILES THE OBJECT (OUTPUT) INSTRUCTIONS. FOR     4F10001
                    NONARITHMETIC STATEMENTS INCLUDING INPUT-OUTPUT, DOES A      4F10002
                    PARTIAL COMPILATION, AND RECORDS THE REMAINING INFORMATION   4F10003
                    IN TABLES.                                                   4F10004
                              THE FIVE MAJOR DIVISIONS OF SECTION 1 ARE=         4F10005
                    COMMON, STATES A, B, C, AND D. COMMON REMAINS IN LOWER MEMORY4F10006
                    THROUGHOUT SECTION1. STATE A READS IN AND CLASSIFIES ALL     4F10007
                    STATEMENTS, AND TREATS NONARITHMETIC STATEMENTS. STATES B,   4F10008
                    C, AND D TREAT ARITHMETIC FORMULAS.                          4F10009
                                                                                 4F10010
                    SECTION 1 / COMMON =                                         4F10011
                    704 FORTRAN MASTER RECORD CARD / COMMON = F0140000.           4F10012
                00000          ORG 0                                             4F100121
00000   0 00004 0 00030         PZE ORGCOM,,1TOCS                                 4F100122
00001   0 00000 0 06322         PZE STATEB-1                                      4F100123
                                                                                  4F10013
                    PART 1 / WORKING STORAGE, BUFFERS, AND TABLE PARAMETERS=      4F10014
                                        EIFNO AND SENSE SWITCH SIMULATORS.        4F10015
                                        TAPE TABLE BUFFERS.                       4F10016
                                        TAPE TABLE PARAMETERS - INTET.            4F10017
                                        DRUM TABLE PARAMETERS.                    4F10018
                                        FORSUB COUNT AND BUFFER.                  4F10019
                                        CIB BUFFER AND PARAMETERS.                4F10020
                                        REMAINING WORKING STORAGE.                4F10021
                    PART 2 / CONSTANTS USED BY SECTION ONE.                       4F10022
                    PART 3 / SUBROUTINES USED BY SECTION ONE=                     4F10023
                    NAME                FUNCTION                                  4F10024
                    C0150,2             SCAN, AND CONVERT NUMERICS.               4F10025
                    C0160,2             SCAN CHARACTERS.                          4F10026
                    C0180,2             CONVERT NUMERICS.                         4F10027
                    C0190X,4            INITIALIZE C0190 TO 1ST WORD OF F.        4F10028
                    C0390,4             INSERT CHARACTER.                         4F10029
                    C0190,4             OBTAIN NEXT NON-BLANK CHAR IN AC.         4F10030
                    CITOO,4             COMPILED INSTRUCTION TABLE ENTRIES.       4F10031
                    DIM.SR,4            DIMENSION TABLE SEARCH.                   4F10032
                    DRTABS(,4)          DRUM TABLE ENTRIES.                       4F10033
                    GETIFN,4            GET INTERNAL FORMULA NUMBER.              4F10034
                    JIF(GIF),4          JUMPS (GETS) IFN IN SL AND TL.            4F10035
                    MTR000              MONITOR STATES FROM DRUM.                 4F10036
                    RA000,4             COMPUTE RELATIVE ADDRESS.                 4F10037
                    RDRX,4              READ DRUM INTO BUFR.                      4F10038
                    SR6DC1,1            CONVERT 6 BCD DIGITS TO 1 BINARY.         4F10039
                    SS000,4             SCAN AND PROCESS SUBSCRIPTS.              4F10040
                    SUBX00,4            ADD BLANKS TO SUBROUTINE NAMES.           4F10041
                    TESTFX,1            TEST FOR FIXED OR FLOATING POINT.         4F10042
                    TEST..,4            TEST CHARACTER IN THE AC.                 4F10043
                    TETOO,1             TAPE TABLE ENTRIES.                       4F10044
                                                                                  4F10045
```

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```
                                DIAG                        DIAGNOSTIC CALLERS.                          4F10046
                                                                                                         4F10047
                                THE FOLLOWING CONVENTIONS ARE USED IN THIS LISTING=                      4F10048
                                                                                                         4F10049
                                ** IN THE ADDRESS, TAG, OR DECREMENT OF AN INSTRUCTION                   4F10050
                                INDICATES THAT THIS FIELD WILL BE MODIFIED BY THE PROGRAM.               4F10051
                                * IN COL/36 INDICATES THE INSTRUCTION IS A TRANSFER OUT OF               4F10052
                                THIS LOGICAL BLOCK OR SUBROUTINE.                                        4F10053
                                C IN COL/34 INDICATES THE INSTRUCTION WAS CORRECTED.                     4F10054
                                P IN COL/32 INDICATES THE INSTRUCTION WAS INSERTED (PATCH).              4F10055
                                                                                                         4F10056
                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *    4F10057
                                                                                                         4F10058
                                COMMON/1-WORKING STORAGE, BUFFERS, AND TABLE PARAMETERS=                 4F10059
                     00030 ORGCOM ORG 24                                                                 4F10060
                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *    4F10061
                                                                                                         4F10062
                                EIFNO AND SENSE SWITCH SIMULATORS.                                       4F10063
00030  0 00000 0 00000 EIFNO  PZE **,,**                  EXTERNAL,,INTERNAL FORMULA NUMBER.            4F10064
00031  0 00000 0 00002 ENDI1  PZE 2                       SIMULATOR FOR SENSE SWITCH 1.                 4F10065
00032  0 00000 0 00002 ENDI2  PZE 2                       SIMULATOR FOR SENSE SWITCH 2.                 4F10066
00033  0 00000 0 00002 ENDI3  PZE 2                       SIMULATOR FOR SENSE SWITCH 3.                 4F10067
00034  0 00000 0 00002 ENDI4  PZE 2                       SIMULATOR FOR SENSE SWITCH 4.                 4F10068
00035  0 00000 0 00002 ENDI5  PZE 2                       SIMULATOR FOR SENSE SWITCH 5.                 4F10069
                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *    4F10070
                                                                                                         4F10071
                                BUFFERS USED BY TET00 FOR THE TAPE TABLES.                               4F10072
                     00036 TEIFNO BSS 10                   EXTERNAL,,INTERNAL FORMULA NUMBERS.           4F10073
                     00050 TDO    BSS 10                   DO STATEMENTS.                                4F10074
                     00062 TIFGO  BSS 10                   IF AND GO TO STATEMENTS.                      4F10075
                     00074 TRAD   BSS 10                   IF AND GO TO TRANSFER ADDRESSES.              4F10076
                     00106 FORTAG BSS 10                   INDEXES TO TAU AND SIGMA TABLES.              4F10077
                     00120 FORVAR BSS 10                   RIGHT - NON-SUB. FX. PT. VARIABLES.           4F10078
                     00132 FORVAL BSS 10                   LEFT  - NON-SUB. FX. PT. VARIABLES.           4F10079
                     00144 FRET   BSS 10                   FREQUENCY STATEMENTS.                         4F10080
                     00156 EQUIT  BSS 10                   EQUIVALENCE STATEMENTS.                       4F10081
                     00170 CLOSUB BSS 10                   NAMES OF SUBROUTINES.                         4F10082
                     00202 FORMAT BSS 10                   FORMAT STATEMENTS.                            4F10083
                     00214 SUBDEF BSS 10                   SUBROUTINE DEFINITION STATEMENTS.             4F10084
                     00226 COMMON BSS 10                   UPPER MEMORY STORAGE STATEMENTS.              4F10085
                     00240 HOLARG BSS 10                   HOLLERITH ARGUMENTS FOR SUBROUTINE.           4F10086
                     00252 NONEXC BSS 10                   NON-EXECUTED STATEMENTS.                      4F10087
                     00264 TSTOPS BSS 10                   STOP STATEMENTS.                              4F10088
                     00276 CALLFN BSS 10                   1ST / LAST IFN FOR CALL STATEMENTS.           4F10089
                     00310 FMTEFN BSS 10                   TABLE OF FORMAT EXTERNAL FORMNOS.             4F10090
                                 END OF THE TAPE TABLE BUFFERS.                                          4F10091
                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *    4F10092
                                                                                                         4F10093
                                INTET/ TABLE PARAMETERS USED BY TET00, WHERE                             4F10094
                                                        O = ORIGIN OF TABLE BUFFER,                      4F10095
                                                        B = BUFFER CAPACITY,                             4F10096
                                                        A = ADDRESS OF TABLE ENTRY,                      4F10097
                                                        E = ENTRY LENGTH IN WORDS,                       4F10098
                                                        C = COUNT OF BLOCKS PUT ON TAPE,                 4F10099
```

```
00322  0 00012 0 00036 INTET  PZE TEIFNO,,10
00323  0 00001 0 00030        PZE EIFNO,,1
00324  0 00000 0 00000        PZE **,,**

00325  0 00012 0 00050        PZE TDO,,10
00326  0 00005 0 01105        PZE 1C,,5
00327  0 00000 0 00000        PZE **,,**

00330  0 00012 0 00062        PZE TIFGO,,10
00331  0 00002 0 01105        PZE 1C,,2
00332  0 00000 0 00000        PZE **,,**

00333  0 00012 0 00074        PZE TRAD,,10
00334  0 00001 0 01112        PZE 1G,,1
00335  0 00000 0 00000        PZE **,,**

00336  0 00012 0 00106        PZE FORTAG,,10
00337  0 00001 0 01347        PZE G,,1
00340  0 00000 0 00000        PZE **,,**

00341  0 00012 0 00120        PZE FORVAR,,10
00342  0 00002 0 01347        PZE G,,2
00343  0 00000 0 00000        PZE **,,**

00344  0 00012 0 00132        PZE FORVAL,,10
00345  0 00002 0 01347        PZE G,,2
00346  0 00000 0 00000        PZE **,,**

00347  0 00012 0 00144        PZE FRET,,10
00350  0 00001 0 01112        PZE 1G,,1
00351  0 00000 0 00000        PZE **,,**

00352  0 00012 0 00156        PZE EQUIT,,10
00353  0 00002 0 01105        PZE 1C,,2
00354  0 00000 0 00000        PZE **,,**

00355  0 00012 0 00170        PZE CLOSUB,,10
00356  0 00001 0 01347        PZE G,,1
00357  0 00000 0 00000        PZE **,,**

00360  0 00012 0 00202        PZE FORMAT,,10
00361  0 00002 0 01347        PZE G,,2
00362  0 00000 0 00000        PZE **,,**

00363  0 00012 0 00214        PZE SUBDEF,,10
00364  0 00001 0 01112        PZE 1G,,1
00365  0 00000 0 00000 SBDFCN PZE **,,**

00366  0 00012 0 00226        PZE COMMON,,10
00367  0 00001 0 01112        PZE 1G,,1
00370  0 00000 0 00000        PZE **,,**
```

```
P = PORTION OF BUFFER THAT IS FULL.                    4F10100
                                                       4F10101
00) O,,B.                                              4F10102
    A,,E.                                              4F10103
    C,,P.                                              4F10104
                                                       4F10105
01) O,,B.                                              4F10106
    A,,E.                                              4F10107
    C,,P.                                              4F10108
                                                       4F10109
02) O,,B.                                              4F10110
    A,,E.                                              4F10111
    C,,P.                                              4F10112
                                                       4F10113
03) O,,B.                                              4F10114
    A,,E.                                              4F10115
    C,,P.                                              4F10116
                                                       4F10117
04) O,,B.                                              4F10118
    A,,E.                                              4F10119
    C,,P.                                              4F10120
                                                       4F10121
05) O,,B.                                              4F10122
    A,,E.                                              4F10123
    C,,P.                                              4F10124
                                                       4F10125
06) O,,B.                                              4F10126
    A,,E.                                              4F10127
    C,,P.                                              4F10128
                                                       4F10129
07) O,,B.                                              4F10130
    A,,E.                                              4F10131
    C,,P.                                              4F10132
                                                       4F10133
08) O,,B.                                              4F10134
    A,,E.                                              4F10135
    C,,P.                                              4F10136
                                                       4F10137
09) O,,B.                                              4F10138
    A,,E.                                              4F10139
    C,,P.                                              4F10140
                                                       4F10141
10) O,,B.                                              4F10142
    A,,E.                                              4F10143
    C,,P.                                              4F10144
                                                       4F10145
11) O,,B.                                              4F10146
    A,,E.                                              4F10147
    C,,P.                                              4F10148
                                                       4F10149
12) O,,B.                                              4F10150
    A,,E.                                              4F10151
    C,,P.                                              4F10152
                                                       4F10153
```

```
00371  0 00012 0 00240        PZE HOLARG,,10                  13) O,,B.                          4F10154
00372  0 00001 0 01112        PZE 1G,,1                           A,,E.                          4F10155
00373  0 00000 0 00000        PZE **,,**                          C,,P.                          4F10156
                                                                                                  4F10157
00374  0 00012 0 00252        PZE NONEXC,,10                  14) O,,B.                          4F10158
00375  0 00001 0 00030        PZE EIFNO,,1                        A,,E.                          4F10159
00376  0 00000 0 00000        PZE **,,**                          C,,P.                          4F10160
                                                                                                  4F10161
00377  0 00012 0 00264        PZE TSTOPS,,10                  15) O,,B.                          4F10162
00400  0 00001 0 00030        PZE EIFNO,,1                        A,,E.                          4F10163
00401  0 00000 0 00000        PZE **,,**                          C,,P.                          4F10164
                                                                                                  4F10165
00402  0 00012 0 00276        PZE CALLFN,,10                  16) O,,B.                          4F10166
00403  0 00001 0 01123        PZE CALLNM,,1                       A,,E.                          4F10167
00404  0 00000 0 00000        PZE **,,**                          C,,P.                          4F10168
                                                                                                  4F10169
00405  0 00012 0 00310        PZE FMTEFN,,10                  17) O,,B.                          4F10170
00406  0 00001 0 01366        PZE SET,,1                          A,,E.                          4F10171
00407  0 00000 0 00000        PZE **,,**                          C,,P.                          4F10172
                                                                                                  4F10173
              00410            BSS 3                           EXPANSION SPACE FOR INTET.         4F10174
                                 END OF TAPE TABLE PARAMETERS.                                    4F10175
                               * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F10176
                                                                                                  4F10177
                               ....IX/ TABLE PARAMETERS USED BY DRTABS, WHERE                     4F10178
                                                       ARG1 = 1ST LOCATION OF ARGUMENT,           4F10179
                                                       L    = LENGTH OF ARGUMENT IN WORDS,4F10180
                                                       TDA  = LOC. OF NEXT DRUM ENTRY,            4F10181
                                                       N    = NO. OF ENTRIES ON DRUM,             4F10182
                                                       ***  = TXL FOR ENTRY SUM TABLES,           4F10183
                                                       ***  = TXH FOR BLOCK SUM TAB(FLCN),4F10184
                                                       FDA  = LOC. OF 1ST DRUM ENTRY,             4F10185
                                                       K    = BUFFER CAPACITY IN ENTRIES,         4F10186
                                                       DBL  = K*(L+1) FOR ENTRY SUM TABLE,4F10187
                                                       DBL  = K*L+1   FOR BLOCK SUM TABLE,4F10188
                                                       J    = DRUM CAPACITY IN ENTRIES,           4F10189
                                                       I    = 5 - DRUM NUMBER.                    4F10190
                                                                                                  4F10191
00413  0 00001 0 01350        PZE G+1,,1                      FIXCON) ARG1+L,,L                  4F10192
00414  0 00000 0 00002        PZE FIXCON,,**                          TDA,,N                     4F10193
00415 -3 00062 0 00002 TXLOP  TXL FIXCON,,50*1                    *** FDA,,K*L                   4F10194
00416  0 00144 0 00144        PZE 50*2,,100                           DBL,,J                     4F10195
00417  1 00003 0 02073 FXCNIX TXI ALT,,5-2                        TXI ALT,,I                     4F10196
                                                                                                  4F10197
00420  0 00001 0 01350        PZE G+1,,1                      FLOCON) ARG1+L,,L                  4F10198
00421  0 00000 0 00312        PZE FLOCON,,**                          TDA,,N                     4F10199
00422  3 00062 0 00312 TXHOP  TXH FLOCON,,50*1                   *** FDA,,K*L                   4F10200
00423  0 00702 0 00063        PZE 50*1+1,,450                         DBL,,J                     4F10201
00424  1 00003 0 02073 FLCNIX TXI ALT,,5-2                        TXI ALT,,I                     4F10202
                                                                                                  4F10203
00425  0 00002 0 01133        PZE E+3+2,,2                    TAU1  ) ARG1+L,,L                  4F10204
00426  0 00000 0 00000        PZE TAU1,,**                            TDA,,N                     4F10205
00427 -3 00062 0 00000        TXL TAU1,,25*2                    *** FDA,,K*L                   4F10206
00430  0 00144 0 00113        PZE 25*3,,100                           DBL,,J                     4F10207
```

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00431   1 00001 0 02073 TAU1IX TXI ALT,,5-4                        TXI ALT,,I                      4F10208
                                                                                                    4F10209
00432   0 00004 0 01135         PZE E+3+4,,4                TAU2  ) ARG1+L,,L                       4F10210
00433   0 00000 0 00454         PZE TAU2,,**                        TDA,,N                          4F10211
00434  -3 00060 0 00454         TXL TAU2,,12*4                  *** FDA,,K*L                        4F10212
00435   0 00132 0 00074         PZE 12*5,,90                        DBL,,J                          4F10213
00436   1 00001 0 02073 TAU2IX  TXI ALT,,5-4                    TXI ALT,,I                      4F10214
                                                                                                    4F10215
00437   0 00006 0 01137         PZE E+3+6,,6                TAU3  ) ARG1+L,,L                       4F10216
00440   0 00000 0 01356         PZE TAU3,,**                        TDA,,N                          4F10217
00441  -3 00060 0 01356         TXL TAU3,,8*6                   *** FDA,,K*L                        4F10218
00442   0 00113 0 00070         PZE 8*7,,75                         DBL,,J                          4F10219
00443   1 00001 0 02073 TAU3IX  TXI ALT,,5-4                    TXI ALT,,I                      4F10220
                                                                                                    4F10221
00444   0 00001 0 01142         PZE E+11+1,,1               SIGMA1) ARG1+L,,L                       4F10222
00445   0 00001 0 01230         PZE SIGMA1+2,,1                     TDA,,N                          4F10223
00446  -3 00036 0 01226         TXL SIGMA1,,30*1                *** FDA,,K*L                        4F10224
00447   0 00036 0 00074         PZE 30*2,,30                        DBL,,J                          4F10225
00450   1 00003 0 02073 SIG1IX  TXI ALT,,5-2                    TXI ALT,,I                      4F10226
                                                                                                    4F10227
00451   0 00002 0 01107         PZE 1C+2,,2                 DIM1  ) ARG1+L,,L                       4F10228
00452   0 00000 0 00310         PZE DIM1,,**                        TDA,,N                          4F10229
00453  -3 00000 0 00310 ORGDM1  TXL DIM1,,0                     *** FDA,,K*L                        4F10230
00454   0 00144 0 00000         PZE 0,,100                          DBL,,J                          4F10231
00455   1 00002 0 02071 DIM1IX  TXI DIMALT,,5-3                 TXI ALT,,I                      4F10232
                                                                                                    4F10233
00456   0 00002 0 01107         PZE 1C+2,,2                 DIM2  ) ARG1+L,,L                       4F10234
00457   0 00000 0 00764         PZE DIM2,,**                        TDA,,N                          4F10235
00460  -3 00000 0 00764 ORGDM2  TXL DIM2,,0                     *** FDA,,K*L                        4F10236
00461   0 00144 0 00000         PZE 0,,100                          DBL,,J                          4F10237
00462   1 00002 0 02071 DIM2IX  TXI DIMALT,,5-3                 TXI ALT,,I                      4F10238
                                                                                                    4F10239
00463   0 00003 0 01110         PZE 1C+3,,3                 DIM3  ) ARG1+L,,L                       4F10240
00464   0 00000 0 01440         PZE DIM3,,**                        TDA,,N                          4F10241
00465  -3 00000 0 01440 ORGDM3  TXL DIM3,,0                     *** FDA,,K*L                        4F10242
00466   0 00132 0 00000         PZE 0,,90                           DBL,,J                          4F10243
00467   1 00002 0 02071 DIM3IX  TXI DIMALT,,5-3                 TXI ALT,,I                      4F10244
                                 END OF DRUM TABLE PARAMETERS.                                      4F10245
                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F10246
                                                                                                    4F10247
                                COUNT AND BUFFER FOR TABLE OF FUNCTION NAMES AND DEGREES.           4F10248
            00470 BK      BSS 1                               FORSUB COUNTER.                       4F10249
            00471 FORSUB  BSS 100                             NAMES AND DEGREES OF FUNCTIONS.       4F10250
                                 END OF FUNCTION COUNT AND BUFFER.                                  4F10251
                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F10252
                                                                                                    4F10253
                                PARAMETERS AND BUFFER FOR COMPILED INSTRUCTION TABLE.               4F10254
00635   0 00144 0 00000 BS      PZE ,,100                           CIB CAPACITY (4 * 25).          4F10255
00636   0 00000 0 00000 EC      PZE ,,**                            ENTRY COUNT = NO. WORDS IN CIB. 4F10256
00637   0 00000 0 00000 BBOX    PZE ,,**                            2S COMPLEMENT OF THE ENTRY COUNT.4F10257
            00640 CIB     BSS 100                             COMPILED INSTRUCTION BUFFER.          4F10258
                                 END OF CIT PARAMETERS AND BUFFER.                                  4F10259
                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F10260
                                                                                                    4F10261
```

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                                    ALL OF THE ABOVE BUFFERS AND PARAMETERS ARE USED BY 1 PRIME.  4F10262
                                                                                                  4F102625
                    01100           ORG 576
                    01100 ERASE     BSS 5                   COMMON WORKING STORAGE.               4F10263
                    01105 1C        BSS 5                   COMMON WORKING STORAGE.               4F10264
                    01112 1G        BSS 1                   COMMON WORKING STORAGE.               4F10265
                    01113 2G        BSS 1                   COMMON WORKING STORAGE FOR STATE A.   4F10266
                    01114 3G        BSS 1                                                         4F10267
                    01115 1H        BSS 1                                                         4F10268
                    01116 2H        BSS 1                                                         4F10269
                    01117 3LBAR     BSS 1                   STORAGE USED BY ARITHMETIC.           4F10270
                    01120 ARERAS    BSS 1                   STORAGE USED BY ARITHMETIC.           4F10271
01121 -0 00001 0 00004 ARGCNT       MZE 4,,1                ARGUMENT COUNTER USED BY C30,C32.     4F10272
                    01122 ARGCTR    BSS 1                   STORAGE USED BY ARITHMETIC.           4F10273
                                                                                                  4F10274
01123  0 00000 0 00000 CALLNM       PZE **,,**
                    01124 CHSAVE    BSS 1                   WORKING STORAGE USED BY ROYCNV.       4F10275
                    01125 DIMSAV    BSS 1                   WORKING STORAGE USED BY SS000.        4F10276
                    01126 E         BSS 14                  WORKING STORAGE USED BY SS000.        4F10277
                                                                                                  4F10278
                    01144 EPSM3     BSS 3
                    01147  EPS      BSS 1                   EPSILON - VARIABLE USED BY RA000.     4F10279
                    01150 E1C       BSS 1                   COMMON WORKING STORAGE.               4F10280
                    01151  EFN      BSS 1                   EXTERNAL FORMULA NUMBER (F-1).        4F10281
                    01152 F         BSS 111                 ASSEMBLED STATEMENT REGION.           4F10282
                    01331 FIRSTC    BSS 1                   USED BY SS000,TESTFX,C3000.           4F10283
                    01332 FSNAME    BSS 1                   NAME OF FUNCTION.                     4F10284
                    01333 FT        BSS 12                  SOURCE PROGRAM INPUT BUFFER.          4F10285
                                                                                                  4F10286
                    01347 G         BSS 2
                    01351  GTAG     BSS 1                   VARIABLE USED BY IOT, RA.             4F10287
01352  307400000000     HOLCNT      BCD 1H(0000             WORKING STORAGE USED BY C3300.        4F10288
                                                                                                  4F10289
                    01353 I         BSS 1
                    01354 LEFT      BSS 3                   STORAGE USED BY ARITHMETIC.           4F10290
                                                                                                  4F10291
01357  0 00000 0 00000 LENGTH       PZE **,,**
                    01360 NBAR      BSS 1                   STORAGE USED BY ARITHMETIC.           4F10292
                                                                                                  4F10293
                    01361  N2       BSS 1
                    01362 OPNWRD    BSS 1                   ERASABLE USED BY STATE D.             4F10294
                                                                                                  4F10295
01363  0 00000 0 00000 PHI(I)       PZE **,,**
01364  0 00000 0 00010  RAT         PZE 8,,**               VARIABLE USED BY IOT.                 4F10296
                    01365 RESIDU    BSS 1                   REMAINDER OF F-REGION WORD.(C0190)    4F10297
                                                                                                  4F10298
01366  1 00000 0 00000  SET         PON  ,,
                    01367  SL       BSS 1                                                         4F10299
                    01370 SYMBOL    BSS 1                   WORKING STORAGE USED BY SS000.        4F10300
                                                                                                  4F10301
01371  0 00000 0 00370  TL          PZE 31*8,,**
01372  0 00000 0 00000 TLINE        PZE **                  VARIABLE USED BY IOT.                 4F10302
                                     END OF COMMON WORKING STORAGE, BUFFERS, AND PARAMETERS.      4F10303
                                    * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F10304
                                                                                                  4F10305
                                    COMMON/2-CONSTANTS USED BY SECTION ONE=                       4F10306
                                                                                                  4F10307
01373 +000000000012     TEN     OCT 12                      (1010) - CTEST-11                     4F10308
01374 +000000000077     ENDMK   OCT 77                      111111 - CTEST-10                     4F10309
01375 +000000000074     OPEN    OCT 74                      (      - CTEST-9                      4F10310
01376 +000000000073     COMMA   OCT 73                      ,      - CTEST-8                      4F10311
01377 +000000000034     CLOS    OCT 34                      )      - CTEST-7                      4F10312
01400 +000000000013     EQUAL   OCT 13                      =      - CTEST-6                      4F10313
01401 +000000000040     11Z     OCT 40                      -      - CTEST-5                      4F10314
```

```
01402 +000000000061     SLASH   OCT 61
01403 +000000000033     POINT   OCT 33
01404 +000000000020     12Z     OCT 20
01405 +000000000054     STAR    OCT 54
                  01406 CTEST   BSS 0

01406  000000000000     L(0)    BCD 1000000
01407  000000000001     L(1)    BCD 1000001
01410  000000000002     L(2)    BCD 1000002
01411  000000000003     L(3)    BCD 1000003
01412  000000000004     L(4)    BCD 1000004
01413  000000000005     L(5)    BCD 1000005
01414  000000000006     L(6)    BCD 1000006
01415  000000000007     L(7)    BCD 1000007
01416  000000000010     L(8)    BCD 1000008
01417  000000000011     L(9)    BCD 1000009
01420 +000000000014     MINUS   OCT 14
01421  000000000023     L(C)    BCD 100000C
01422  000000000026     L(F)    BCD 100000F
01423  000000000030     L(H)    BCD 100000H
01424 +000000000032     CHAR2   OCT 32
01425  000000000046     L(O)    BCD 1000000
01426 +000000000052     CHAR3   OCT 52
01427 +000000000053     SPECOP  OCT 53
01430 +000000000060     BLANK   OCT 60
01431  000000000062     L(S)    BCD 100000S
01432  000000000063     L(T)    BCD 100000T
01433  000000000067     L(X)    BCD 100000X
01434  000000000071     L(Z)    BCD 100000Z
01435 +000000000072     PM      OCT 72
01436 +000000000100     BIT29   OCT 100
01437 +000000000121      A81    DEC 81
01440 +000000000140     L(96)   OCT 140
01441 +000000000160     L(112)  OCT 160
01442 +000000000777     MASK3   OCT 777
01443 +000000001000     1E9     OCT 1000
01444  000000002174     L(A(    BCD 10000A(
01445  000000003074     L(H(    BCD 10000H(
01446  000000003174     L(I(    BCD 10000I(
01447 +000000006212     SAPSYM  OCT 6212
01450 +000000006712     IFSYM   OCT 6712
01451 +000000007112     CALLER  OCT 7112
01452 +000000077777     MASK2   OCT 77777
01453 +000000400000     2E17    OCT 400000
01454 +000001000000     2E18    OCT 1000000
01455   0 00001 0 00001  DECR1   PZE 1,,1
01456 +000001000002     ABTAG2  OCT 1000002
01457   0 00002 0 00000   D2     PZE ,,2
01460 +000002000004     ABTAG3  OCT 2000004
01461   0 00003 0 00000  D3CN    PZE ,,3
01462 +000003077775     BETAD2  OCT 3077775
01463   0 00006 0 00000   D6     PZE ,,6
01464   0 00020 0 00000  FSIND   PZE ,,16
01465   0 00021 0 00000  DEC17   PZE ,,17
```

```
/       - CTEST-4                          4F10315
.       - CTEST-3                          4F10316
+       - CTEST-2                          4F10317
*       - CTEST-1                          4F10318
ADDRESS USED FOR INDEXING ABOVE.           4F10319
                                           4F10320
0                                          4F10321
1                                          4F10322
2                                          4F10323
3                                          4F10324
4                                          4F10325
5                                          4F10326
6                                          4F10327
7                                          4F10328
8                                          4F10329
9                                          4F10330
-                                          4F10331
C                                          4F10332
F                                          4F10333
H                                          4F10334
CONSTANT USED BY CD000.                    4F10335
0 (ALPHABETIC)                             4F10336
CONSTANT USED BY CD000.                    4F10337
00000$                                     4F10338
000000000060                               4F10339
S                                          4F10340
T                                          4F10341
X                                          4F10342
Z                                          4F10343
RECORD MARK (ILLEGAL) -CD000               4F10344
                                           4F10345
CONSTANT USED BY IOT.                      4F10346
USED BY C0500.                             4F10347
USED BY C0400.                             4F10348
                        -ARITHMETIC.       4F10349
ADDRESS=8                                  4F10350
INTERNAL FLO-PT VARIABLE PREFIX.           4F10351
                                           4F10352
INTERNAL FXD-PT VARIABLE PREFIX.           4F10353
                                           4F10354
                                           4F10355
                                           4F10356
2**15-1                 -ARITHMETIC.       4F10357
TAG=4                                      4F10358
DECREMENT=1                                4F10359
CONSTANT USED BY DRTABS.                   4F10360
CONSTANT USED BY C3200.                    4F10361
CONSTANT USED BY IOT.                      4F10362
CONSTANT USED BY C3200.                    4F10363
CONSTANT USED BY IOT.                      4F10364
3*2**18+(-3)            -ARITHMETIC.       4F10365
CONSTANT USED BY IOT.                      4F10366
                                           4F10367
                                           4F10368
```

```
01466   0 00022 0 00000 DEC18   PZE  ,,18
01467 +000032000000     PZ      OCT  32000000
01470 +000037777600     MASK5   OCT  37777600
01471   0 00040 0 00000 FNIND   PZE  ,,32
01472   0 00043 0 00000 DEC35   PZE  ,,35
01473 +000052000000     MZ      OCT  52000000
01474 +000200000000     NGTBIT  OCT  000200000000
01475   0 00220 0 00000 .BTA    PZE  ,,144
01476   0 00300 0 00000 BDA     PZE  0,0,192
01477   006060606060    5BLANS  BCD  10
01500   010000000000    E(      BCD  1100000
01501   020000000000    I(      BCD  1200000
01502   030000000000    A(      BCD  1300000
01503   040000000000    P(      BCD  1400000
01504   060000000000    O(      BCD  1600000
01505   070000000000    X(      BCD  1700000
01506 +077775077775     BETAD1  OCT  77775077775
01507 +077777000000     1BAR    OCT  77777000000
01510 +170000000000      15P    DEC  15B5
01511 +176060606060     PROCTR  OCT  176060606060
01512 +200000000000     ADPLUS  OCT  200000000000
01513   217400000000    FLOVAR  BCD  1A(0000
01514   256747740160    FXFX    BCD  1EXP(1
01515   256747740260    FLFX    BCD  1EXP(2
01516   256747740360    FLFL    BCD  1EXP(3
01517   317400000000    FIXVAR  BCD  1I(0000
01520 -0 00000 0 00000  MINUS0  MZE  0
01521 -0 00002 0 00000  DECMI2  MZE  ,,2
01522 -130000000000     ADSPOP  OCT  530000000000
01523 -136000000000     DOLSGN  OCT  536000000000
01524 -140000000000     ADSTAR  OCT  -140000000000
01525 -145400000000     STRSTR  OCT  -145400000000
01526   606060606060    BLANKS  BCD  1
01527 -377777700000     MASK1   OCT  -377777700000
01530 -377777777737     MASK4   OCT  -377777777737
01531 -377777777777     ALL1    OCT  -377777777777

01532   212424000000    L(ADD)  BCD  1ADD000
01533   214362000000    L(ALS)  BCD  1ALS000
01534   214521000000    L(ANA)  BCD  1ANA000
01535   215162000000    L(ARS)  BCD  1ARS000
01536   226262000000    L(BSS)  BCD  1BSS000
01537   232143000000    L(CAL)  BCD  1CAL000
01540   233062000000    L(CHS)  BCD  1CHS000
01541   234321000000    L(CLA)  BCD  1CLA000
01542   234344000000    L(CLM)  BCD  1CLM000
01543   234362000000    L(CLS)  BCD  1CLS000
01544   234770000000    L(CPY)  BCD  1CPY000
01545   242363000000    L(DCT)  BCD  1DCT000
01546   242524000000    L(DED)  BCD  1DED000
01547   246547000000    L(DVP)  BCD  1DVP000
01550   262124000000    L(FAD)  BCD  1FAD000
01551   262447000000    L(FDP)  BCD  1FDP000
01552   264447000000    L(FMP)  BCD  1FMP000
```

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                                                    4F10369
PLUS ZERO -CD000.                                   4F10370
                        -ARITHMETIC.                4F10371
                                                    4F10372
                                                    4F10373
MINUS ZERO -CD000.                                  4F10374
                                                    4F10375
CONSTANT USED BY IOT.                               4F10376
CONSTANT USED BY IOT.                               4F10377
006060606060                                        4F10378
                        -ARITHMETIC.                4F10379
                        -ARITHMETIC.                4F10380
                        -ARITHMETIC.                4F10381
                        -ARITHMETIC.                4F10382
                        -ARITHMETIC.                4F10383
                        -ARITHMETIC.                4F10384
(-3(*2**18+(-3)         -ARITHMETIC.                4F10385
(2**15-1)*2**18DECREMENT MASK.                      4F10386
CONSTANT USED BY IOT.                               4F10387
                                                    4F10388
ADDITION SIGN -ARITHMETIC.                          4F10389
A( INTERNAL FLOATING PT. VARIABLE.                  4F10390
                                                    4F10391
                                                    4F10392
                                                    4F10393
I( INTERNAL FIXED PT. VARIABLE.                     4F10394
                                                    4F10395
                                                    4F10396
$00000                                              4F10397
CONSTANT USED BY C32000                             4F10398
MULTIPLICATION SIGN -ARITHMETIC.                    4F10399
EXPONENTIATION SIGN -ARITHMETIC.                    4F10400
606060606060                                        4F10401
-(2**20-U.*2**15        -ARITHMETIC.                4F10402
                        -ARITHMETIC.                4F10403
END OF STATEMENT WORD.                              4F10404
                                                    4F10405
SYMBOLIC OPERATION CODE.                            4F10406
SYMBOLIC OPERATION CODE.                            4F10407
SYMBOLIC OPERATION CODE.                            4F10408
SYMBOLIC OPERATION CODE.                            4F10409
SYMBOLIC OPERATION CODE.                            4F10410
                                                    4F10411
SYMBOLIC OPERATION CODE.                            4F10412
SYMBOLIC OPERATION CODE.                            4F10413
SYMBOLIC OPERATION CODE.                            4F10414
SYMBOLIC OPERATION CODE.                            4F10415
                                                    4F10416
SYMBOLIC OPERATION CODE.                            4F10417
                                                    4F10418
SYMBOLIC OPERATION CODE.                            4F10419
SYMBOLIC OPERATION CODE.                            4F10420
SYMBOLIC OPERATION CODE.                            4F10421
SYMBOLIC OPERATION CODE.                            4F10422
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01553  266222000000     L(FSB) BCD 1FSB000                    SYMBOLIC OPERATION CODE.          4F10423
01554  304751000000     L(HPR) BCD 1HPR000                    SYMBOLIC OPERATION CODE.          4F10424
01555  432421000000     L(LDA) BCD 1LDA000                                                      4F10425
01556  432450000000     L(LDQ) BCD 1LDQ000                    SYMBOLIC OPERATION CODE.          4F10426
01557  434362000000     L(LLS) BCD 1LLS000                    SYMBOLIC OPERATION CODE.          4F10427
01560  435162000000     L(LRS) BCD 1LRS000                    SYMBOLIC OPERATION CODE.          4F10428
01561  436724000000     L(LXD) BCD 1LXD000                    SYMBOLIC OPERATION CODE.          4F10429
01562  444770000000     L(MPY) BCD 1MPY000                    SYMBOLIC OPERATION CODE.          4F10430
01563  446225000000     L(MSE) BCD 1MSE000                    SYMBOLIC OPERATION CODE.          4F10431
01564  465121000000     L(ORA) BCD 1ORA000                    SYMBOLIC OPERATION CODE.          4F10432
01565  476225000000     L(PSE) BCD 1PSE000                    SYMBOLIC OPERATION CODE.          4F10433
01566  476724000000     L(PXD) BCD 1PXD000                    SYMBOLIC OPERATION CODE.          4F10434
01567  504751000000     L(QPR) BCD 1QPR000                    CONSTANT USED BY C3200.           4F10435
01570  506724000000     L(QXD) BCD 1QXD000                    CONSTANT USED BY C3200.           4F10436
01571  626321000000     L(STA) BCD 1STA000                    SYMBOLIC OPERATION CODE.          4F10437
01572  626346000000     L(STO) BCD 1STO000                    SYMBOLIC OPERATION CODE.          4F10438
01573  626350000000     L(STQ) BCD 1STQ000                    SYMBOLIC OPERATION CODE.          4F10439
01574  626422000000     L(SUB) BCD 1SUB000                    SYMBOLIC OPERATION CODE.          4F10440
01575  626724000000     L(SXD) BCD 1SXD000                    SYMBOLIC OPERATION CODE.          4F10441
01576  633167000001     L(TIX) BCD 1TIX001                                                      4F10442
01577  634665000000     L(TOV) BCD 1TOV000                    SYMBOLIC OPERATION CODE.          4F10443
01600  635046000000     L(TQO) BCD 1TQO000                    SYMBOLIC OPERATION CODE.          4F10444
01601  635121000000     L(TRA) BCD 1TRA000                    SYMBOLIC OPERATION CODE.          4F10445
01602  636267000000     L(TSX) BCD 1TSX000                    SYMBOLIC OPERATION CODE.          4F10446
01603  642621000000     L(UFA) BCD 1UFA000                    SYMBOLIC OPERATION CODE.          4F10447
                          END OF COMMON CONSTANTS USED BY SECTION ONE.                          4F10448
                         * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F10449
                                                                                                4F10450
                         COMMON/3-SUBROUTINES USED BY SECTION ONE=                              4F10451
                                                                                                4F10452
                         * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F10453
                                                                                                4F10454
                         C0150,2/ CALLS=C0190,DIAG,C0180,C0160. CALLER=C0100.                   4F10455
                         C0150 INSPECTS 1ST NB CHAR STARTING IN MQ. IF NUMERIC, SETS I4F10456
                         = 0, AND CONVERTS SUCCESSIVE NUMERICS TO BINARY. IF NON-               4F10457
                         NUMERIC, SETS I = -0, AND PACKS INTO 1G SUCCESSIVE CHARACTERS4F10458
                         UNTIL A ,()= OR ENDMK IS MET, AND LEFT IN THE AC.                      4F10459
01604 -0 63400 2 01607 C0150   SXD C015X,2                    SAVE THE C(XR2).                  4F10460
01605  0 07400 4 01707         TSX C0190,4                  * TEST 1ST NON-BLANK CHARACTER       4F10461
01606  0 34000 0 01417         CAS L(9)                       FOR NUMERIC OR NON-NUMERIC.       4F10462
01607  1 00000 0 01615 C015X   TXI C0151,0,**                 IF NON-NUMERIC, TRANSFER.         4F10463
01610  0 76100 0 00000         NOP                            IF NUMERIC, THEN                  4F10464
01611  0 07400 2 01655         TSX C0180,2                  * GO CONVERT TO BINARY.             4F10465
01612  0 60100 0 01113         STO 2G                         SAVE NEXT NON-NUMERIC CHARACTER.  4F10466
01613  0 50000 0 01406         CLA L(0)                       PREPARE TO SET I TO +0.           4F10467
01614  1 00000 0 01620  FWA    TXI C0152,0,**                 GO SET I FOR NUMERIC.             4F10468
01615  0 07400 2 01624 C0151   TSX C0160,2                  * ASSEMBLE NON-NUMERICS IN 1G.      4F10469
01616  0 60100 0 01113         STO 2G                         SAVE PUNCTUATION MARK, AND        4F10470
01617  0 50200 0 01406         CLS L(0)                       PREPARE TO SET I TO -0.           4F10471
01620  0 60100 0 01353 C0152   STO I                          SET I = +0, OR -0.                4F10472
01621  0 50000 0 01113         CLA 2G                         PICKUP NEXT CHARACTER,            4F10473
01622 -0 53400 2 01607         LXD C015X,2                    RESTORE THE C(XR2), AND           4F10474
01623  0 02000 2 00001         TRA 1,2                      * RETURN TO CALLER.                 4F10475
                          END OF PROGRAM C0150.                                                 4F10476
```

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                                        * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F10477
                                                                                                          4F10478
                                        C0160,2/ CALLS=C0190,DIAG. CALLERS=C0100,C0200,C1000,C1200,       4F10479
                                        C1500,C3000,C3100,C0150.                                          4F10480
                                        C0160 ASSEMBLES LEFT-ADJUSTED IN 1G, THE CHAR IN THE AC AND       4F10481
                                        SUCCESSIVE NB CHARS STARTING IN THE MQ, UNTIL A ,()= OR ENDMK4F10482
                                        IS MET AND LEFT IN THE AC. ALSO MARKS END OF WORD WITH A          4F10483
                                        BLANK, IF LESS THAN 6 CHARACTERS.                                 4F10484
01624 -0 63400 2 01631 C0160  SXD C016X,2                  SAVE THE C(XR2), AND                           4F10485
01625  0 53400 2 01406        LXA L(0),2                   SET XR2 TO CONTROL SHIFTING.                   4F10486
01626  0 60000 0 01112        STZ 1G                       CLEAR WORKING STORAGE.                         4F10487
01627  0 53400 4 02652 C0161  LXA CTESTX,4                 TEST                                           4F10488
01630  0 34000 4 01406 C0162  CAS CTEST,4                  CHARACTER                                      4F10489
01631  1 00000 0 01633 C016X  TXI C0163,0,**               IN THE AC                                      4F10490
D 01632  1 00000 0 01642      TXI C0165,0                  AGAINST                                        4F10491
01633  2 00001 4 01630 C0163  TIX C0162,4,1                ALL PUNCTUATION.                               4F10492
01634 -3 00036 2 01636        TXL C0164,2,30               IF SYMBOL EXCEEDS 6 CHARACTERS,                4F10493
01635  0 07400 4 03400        TSX DIAG,4                 * GO TO THE DIAGNOSTIC.                          4F10494
01636  0 76700 2 00036 C0164  ALS 30,2                     BUILD LEFT-ADJUSTED                            4F10495
01637 -0 60200 0 01112        ORS 1G                       SYMBOL IN WORKING STORAGE.                     4F10496
01640  0 07400 4 01707        TSX C0190,4                * GET NEXT NB CHARACTER IN THE AC.               4F10497
01641  1 00006 2 01627        TXI C0161,2,6                UPDATE SHIFT COUNT, AND CONTINUE.              4F10498
01642  3 00000 2 01644 C0165  TXH C0167,2,0                IF PUNCTUATION IS 1ST CHARACTER,               4F10499
01643  0 07400 4 03400 C0166  TSX DIAG,4                 * OR ILLEGAL, GO TO THE DIAGNOSTIC.              4F10500
01644 -3 00005 4 01643 C0167  TXL C0166,4,5                IF LEGAL PUNCTUATION, THEN                     4F10501
01645  0 60100 0 01115        STO 1H                       SAVE, AND                                      4F10502
01646  0 50000 0 01430        CLA BLANK                    ADD A BLANK                                    4F10503
01647  0 76700 2 00036        ALS 30,2                     TO SYMBOLS THAT ARE LESS                       4F10504
01650 -0 60200 0 01112        ORS 1G                       THAN 6 CHARACTERS IN LENGTH.                   4F10505
01651  0 50000 0 01115        CLA 1H                       PICKUP PUNCTUATION MARK,                       4F10506
01652 -0 53400 2 01631        LXD C016X,2                  RESTORE THE C(XR2), AND                        4F10507
01653  0 02000 2 00001        TRA 1,2                    * RETURN TO CALLER.                              4F10508
                                    END OF PROGRAM C0160.                                                 4F10509
                                        * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F10510
                                                                                                          4F10511
                                        C0180,2/ CALLS=C0190,DIAG. CALLERS=C0100,C0200,C0300,C0400,       4F10512
                                        C1000,C1100,C1200,C1400,C1500,C0150.                              4F10513
                                        C0180 CONVERTS SUCCESSIVE NUMERICS STARTING IN THE MQ TO          4F10514
                                        BINARY, PLACES RESULT IN 1G, AND LEAVES 1ST NON-NUMERIC IN        4F10515
                                        THE AC. 1ST NUMERIC IS ASSUMED TO BE ALREADY IN THE AC.           4F10516
01654  0 07400 4 01707 C0180X TSX C0190,4                * OBTAIN 1ST NUMERIC IN THE AC.                  4F105165
01655  0 60100 0 01112 C0180  STO 1G                       PLACE 1ST NUMERIC IN 1G.                       4F10517
01656  0 07400 4 01707        TSX C0190,4                * EXAMINE NEXT NON-BLANK CHARACTER,              4F10518
01657  0 34000 0 01417        CAS L(9)                     AND IF NON-NUMERIC, THEN                       4F10519
01660  0 02000 2 00001        TRA 1,2                    * RETURN TO CALLER.                              4F10520
01661  0 76100 0 00000        NOP                          IF NUMERIC, THEN                               4F10521
01662  0 60100 0 01113        STO 2G                       SAVE DIGIT IN 2G.                              4F10522
01663  0 50000 0 01112        CLA 1G                       MULTIPLY                                       4F10523
01664  0 76700 0 00002        ALS 2                        C(1G)                                          4F10524
01665  0 40000 0 01112        ADD 1G                       BY                                             4F10525
01666  0 76700 0 00001        ALS 1                        10,                                            4F10526
01667  0 40000 0 01113        ADD 2G                       AND ADD CURRENT DIGIT.                         4F10527
01670  1 76626 0 01655  DCF   TXI C0180,0,-F               REPEAT PROCESS FOR NEXT CHARACTER.             4F10528
                                    END OF PROGRAM C0180.                                                 4F10529
```

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                                        * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F10530
                                                                                                        4F10531
                                        C0190X,4/ CALLERS=CD000,CB000,CC000,C0300,C3300.                4F10532
                                        C0190X INITIALIZES C0190 TO OBTAIN 1ST WORD OF FORMULA IN F.    4F10533
01671   0 50000 0 01670 C0190X  CLA DCF                         SET FORMULA WORD                       4F10534
01672   0 62200 0 01614         STD FWA                         ADDRESS = -(F-REGION ADDRESS),         4F10535
01673  -0 63400 0 01724         SXD CHCTR,0                     SET CHARACTER COUNT = 0,               4F10536
01674   0 02000 4 00001         TRA 1,4                       * RETURN TO MAIN ROUTINE.                4F10537
                                 END OF PROGRAM C0190X.                                                 4F10538
                                        * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F10539
                                                                                                        4F10540
                                        C0390,4/ CALLERS=C0300,C3300.                                   4F10541
                                        C0390 INSERTS THE CHARACTER IN THE AC INTO THE 1ST POSITION     4F10542
                                        TO THE LEFT OF THAT DEFINED BY FWA AND XR1.                     4F10543
01675   0 50000 0 01374 C0390   CLA ENDMK                       PREPARE TO CHANGE                      4F10544
01676  -0 53400 2 01614         LXD FWA,2                       THE PROPER CHARACTER                   4F10545
01677  -0 53400 1 01724         LXD CHCTR,1                     IN THE F-REGION.                       4F10546
01700  -2 00001 1 01703         TNX C0393,1,1                   ADJUST MASK                            4F10547
01701  -0 76300 0 00006 C0392   LGL 6                           TO POSITION                            4F10548
01702   2 00001 1 01701         TIX C0392,1,1                   CHARACTER.                             4F10549
01703   0 76000 0 00006 C0393   COM                             INVERT MASK, AND                       4F10550
01704   0 32000 2 77777         ANS -1,2                        ERASE PROPER CHARACTER.                4F10551
01705  -0 76300 0 00044         LGL 36                          ADJUST CHARACTER, AND                  4F10552
01706  -0 60200 2 77777         ORS -1,2                        INSERT IN ERASED POSITION.             4F10553
                                        C0390 CONTINUES BY USING C0190.                                 4F10554
                                                                                                        4F10555
                                        C0190,4/ CALLERS=CD000,CB000,CC000,C0100,C0200,C0300,C0400,     4F10556
                                        C0900,C1000,C1100,C1200,C1400,C1500,C1600,C3000,C3100,C3200,    4F10557
                                        C3300,C3400,C0150,C0160,C0180,SS000,ROYCNV,RSC,LPR.             4F10558
                                        C0190 OBTAINS IN AC TH  NEXT NON-BLANK CHARACTER OF FORMULA.    4F10559
01707  -0 63400 1 01723 C0190   SXD C0194,1                     SAVE THE C(XR1), AND                   4F10560
01710  -0 53400 1 01724         LXD CHCTR,1                     SET XR1 = CHARACTER COUNT.             4F10561
01711   0 56000 0 01365         LDQ RESIDU                      PICK UP ANY REMAINING CHARACTERS.      4F10562
01712   2 00001 1 01720 C0191   TIX C0193,1,1                   IF NONE,                               4F10563
01713  -0 53400 1 01614         LXD FWA,1                       PICK UP NEXT FORMULA                   4F10564
01714   0 56000 1 00000         LDQ 0,1                         WORD FROM F-REGION,                    4F10565
01715   1 77777 1 01716         TXI C0192,1,-1                  AND INCREASE                           4F10566
01716  -0 63400 1 01614 C0192   SXD FWA,1                       FORMULA WORD ADDRESS BY 1.             4F10567
01717   0 53400 1 01414         LXA L(6),1                      RESET XR1 FOR 6 NEW CHARACTERS.        4F10568
01720  -0 75400 0 00000 C0193   PXD ,0                          EXAMINE                                4F10569
01721  -0 76300 0 00006         LGL 6                           NEXT CHARACTER                         4F10570
01722   0 34000 0 01430         CAS BLANK                       AND COMPARE WITH A BLANK.              4F10571
01723   1 00000 0 01725 C0194   TXI C0195,0,**                  IF BLANK,                              4F10572
01724   1 00000 0 01712 CHCTR   TXI C0191,0,**                  GO EXAMINE NEXT CHARACTER.             4F10573
01725  -0 63400 1 01724 C0195   SXD CHCTR,1                     IF NOT BLANK, RESET CHAR COUNT,        4F10574
01726  -0 60000 0 01365         STQ RESIDU                      SAVE ANY REMAINING CHARACTERS,         4F10575
01727  -0 53400 1 01723         LXD C0194,1                     RESTORE THE C(XR1), AND                4F10576
01730   0 02000 4 00001         TRA 1,4                       * RETURN TO MAIN ROUTINE.                4F10577
                                 END OF PROGRAM C0190.                                                  4F10578
                                        * * * * * * * * * *   * * * * * * * * * * * * * * * * * * * *4F10579
                                                                                                        4F10580
                                        CITOO,4/ CALLERS=C0200,C0400,C0900,C1000,C1100,C1300,C1600,     4F10581
                                        C3200,RDC,WBT,RBT,WRD,BRW,EFT,LPR,CMA,EMK,INPUT(OUTPUT),        4F10582
                                        ETMSW(LTMSW),LIB,VRA(VRD).                                      4F10583
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                                        CIT00 MAKES ENTRIES IN THE COMPILED INSTRUCTION TABLE. WHEN  4F10584
                                        THE BUFFER IS FULL IT IS WRITTEN AS A RECORD ONTO TAPE 3.     4F10585
01731 -0 63400 2 01102 CIT00   SXD CITXR2,2                SAVE THE C(XR2).                          4F10586
01732 -0 63400 1 01101         SXD CITXR1,1                SAVE THE C(XR1).                          4F10587
01733 -0 60000 0 01150         STQ CITMQR                  SAVE THE C(MQR).                          4F10588
01734 -0 53400 2 00637         LXD BBOX,2                  SET XR2 = 2S COMPL OF NO-WRDS-ENTD.       4F10589
01735  0 50000 0 00635         CLA BS                      COMPARE BLOCK SIZE                        4F10590
01736  0 40200 0 00636         SUB EC                      WITH ENTRY COUNT.                         4F10591
01737 -0 10000 0 01747         TNZ CIT04                   IF BLOCK IS NOT FULL,GO MAKE ENTRY.       4F10592
01740  0 76600 0 00223         WRS CITTAP                  PREPARE TO WRITE BLOCK ON CIT TAPE.       4F10593
01741  0 73400 1 00000         PAX ,1                      SET XR1 = 0, AND                          4F10594
01742  0 70000 1 00640 CIT01   CPY CIB,1                   COPY SUCCESSIVE                           4F10595
01743  1 77777 1 01744         TXI CIT02,1,-1              WORDS OF BLOCK                            4F10596
01744  1 00001 2 01745 CIT02   TXI CIT03,2,1               AND CONTINUE                              4F10597
01745  3 00001 2 01742 CIT03   TXH CIT01,2,1               UNTIL XR2 = 0.                            4F10598
01746  0 76600 0 00333         IOD                         WHEN DONE,                                4F10599
01747  0 53400 1 01412 CIT04   LXA L(4),1                  SET XR1 = ENTRY SIZE.                     4F10600
01750  1 77777 4 01751 CIT05   TXI CIT05+1,4,-1            SET XR4 = -(ADDR OF NEXT ENTRY WRD)       4F10601
01751  0 50000 4 00000         CLA 0,4                     AND PICK UP ADDRESS OF NEXT ENTRY         4F10602
01752  0 62100 0 01753         STA CIT06                   TO SET NEXT ADDRESS.                      4F10603
01753  0 50000 0 00000 CIT06   CLA **                      MOVE ENTRY                                4F10604
01754  0 60100 2 00640         STO CIB,2                   INTO CIB BUFFER,                          4F10605
01755  1 77777 2 01756         TXI CIT07,2,-1              AND COUNT -1 FOR EACH WORD ENTERED.       4F10606
01756  2 00001 1 01750 CIT07   TIX CIT05,1,1               WHEN DONE,                                4F10607
01757 -0 63400 2 00637         SXD BBOX,2                  SAVE THE C(XR2), AND                      4F10608
01760 -0 75400 2 02032 DMSR99  PXD DMSR05+1,2              COMPUTE THE                               4F10609
01761  0 76000 0 00006         COM                         REAL NUMBER                               4F10610
01762  0 40000 0 01454         ADD 2E18                    OF WORDS ENTERED                          4F10611
01763 -0 73400 2 02031 DMSR98  PDX DMSR05,2                IN CIB BUFFER, AND                        4F10612
01764 -0 63400 2 00636         SXD EC,2                    SAVE IN EC.                               4F10613
01765  0 56000 0 01150         LDQ CITMQR                  RESTORE THE C(MQR),                       4F10614
01766 -0 53400 1 01101         LXD CITXR1,1                RESTORE THE C(XR1),                       4F10615
01767 -0 53400 2 01102         LXD CITXR2,2                RESTORE THE C(XR2), AND                   4F10616
01770  0 02000 4 00001         TRA 1,4                   * EXIT TO MAIN ROUTINE (5TH WRD CS).        4F10617
                                END OF PROGRAM CIT00.                                               4F10618
                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F10619
                                                                                                    4F10620
                                                                                                    4F10621
                                DIM.SR,4/ CALLS=DIAG. CALLERS=C1200,SS000,CMA.                      4F10622
                                DIM.SR SEARCHS THE DIMENSION TABLES. ENTRANCE IS TO DIM1SR,         4F10623
                                DIM2SR, OR DIM3SR ACCORDING TO THE DIMENSION.                       4F10624
                                DIM1SR= ENTRY POINT FOR 1 DIMENSION TABLE.                          4F10625
01771 -0 63400 4 01774 DIM1SR  SXD DMSR00,4                SAVE THE C(XR4) FOR RETURN,               4F10626
01772 -0 53400 4 00452         LXD DIM1IX-3,4              SET XR4 = NUMBER OF ENTRIES IN DIM1       4F10627
01773  0 50000 0 00453         CLA ORGDM1                  AND PICK UP 1ST ADDRESS OF DIM1 TO        4F10628
01774  1 00000 0 02000 DMSR00  TXI DMSR01,0,**             GO SET DRUM ADDRESS.                      4F10629
                                DIM2SR= ENTRY POINT FOR 2 DIMENSION TABLE.                          4F10630
01775 -0 63400 4 01774 DIM2SR  SXD DMSR00,4                SAVE THE C(XR4) FOR RETURN,               4F10631
01776 -0 53400 4 00457         LXD DIM2IX-3,4              SET XR4 = NUMBER OF ENTRIES IN DIM2       4F10632
01777  0 50000 0 00460         CLA ORGDM2                  AND PICK UP 1ST ADDRESS OF DIM2 TO        4F10633
02000  0 62100 0 01104 DMSR01  STA DRMADR                 SET DRUM ADDRESS.                         4F10634
02001  0 50000 0 01760         CLA DMSR99                  SET LOOP ADDRESS TO                       4F10635
02002  0 62100 0 02041         STA DMSR15                  DMSR05+1 FOR DIM1 AND DIM2.               4F10636
02003 -0 50000 0 02065         CAL DMCN12                  (STZ D3)                                  4F10637
02004  1 00000 0 02014 DMSR11  TXI DMSR02,0,**             GO SET OP FOR DIM1 AND DIM2.              4F10638
```

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                                                DIM3SR= ENTRY POINT FOR 3 DIMENSION TABLE.                  4F10638
                                                SAVE THE C(XR4) FOR RETURN,                                 4F10639
                                                SET XR4 = NUMBER OF ENTRIES IN DIM34F10640
                                                AND PICK UP 1ST ADDRESS OF DIM3 TO 4F10641
                                                SET DRUM ADDRESS.                                           4F10642
                                                SET LOOP ADDRESS TO                                         4F10643
                                                DMSR05 FOR DIM3.                                            4F10644
                                                (CPY D3)                                                    4F10645
                                                SET OP CODES ACCORDING                                      4F10646
                                                TO DIMENSION.                                               4F10647
                                                IF TABLE IS EMPTY, GO OUT.                                  4F10648
                                                SAVE ENTRY COUNT IN CASE OF ERROR.                          4F10649
                                                SET ERROR COUNTER FOR 5 ATTEMPTS.                           4F10650
                                                SAVE ERROR COUNTER, AND                                     4F10651
                                                RESET ENTRY COUNT.                                          4F10652
                                                SELECT DRUM.                                                4F10653
                                                GET NAME OF VARIABLE.                                       4F10654
                                                LOAD CURRENT DRUM ADDRESS, AND                              4F10655
                                                COPY DRUM SYMBOL.                                           4F10656
                                                COMPARE WITH NAME OF VARIABLE, AND                          4F10657
                                                IF NOT LESS, COPY N1 AND N2.                                4F10658
                                                (DIM1 AND DIM2 = STZ , DIM3 = CPY).                         4F10659
                                                COPY CHECKSUM.                                              4F10660
                                                COMPARE DRUM SYMBOL WITH NAME OF V.                         4F10661
                                              * GO TO DIAGNOSTIC - MACHINE ERROR.                           4F10662
                                                IF NOT EQUAL, THEN                                          4F10663
                                                CONTINUE                                                    4F10664
                                                PROCESS                                                     4F10665
                                                UNTIL                                                       4F10666
                                                TABLE                                                       4F10667
                                                IS EXHAUSTED.                                               4F10668
                                                PASS OVER ENTRY                                             4F10669
                                                (DIM1 AND DIM2 = STZ, DIM3 = CPY).                          4F10670
                                                AND CHECKSUM, AND                                           4F10671
                                                REPEAT LOOP.                                                4F10672
                                                RESTORE THE C(XR4), AND                                     4F10673
                                              * TAKE NOT FOUND EXIT.                                        4F10674
                                                COMPUTE A                                                   4F10675
                                                NEW                                                         4F10676
                                                LOGICAL CHECKSUM                                            4F10677
                                                FOR ENTRY, AND                                              4F10678
                                                COMPARE WITH                                                4F10679
                                                DRUM CHECKSUM.                                              4F10680
                                                IF NOT EQUAL, THEN                                          4F10681
                                                REPEAT ATTEMPT,                                             4F10682
                                                UNLESS PROCESS                                              4F10683
                                              * FAILED 5 TIMES IN READING DRUM.                             4F10684
                                                RESTORE THE C(XR4), AND                                     4F10685
                                              * TAKE FOUND EXIT TO MAIN ROUTINE.                            4F10686
                                                                                                            4F10687
02005 -0 63400 4 01774 DIM3SR SXD DMSR00,4      CONSTANT USED BY DIM.SR.                                    4F10688
02006 -0 53400 4 00464        LXD DIM3IX-3,4    CONSTANT USED BY DIM.SR.                                    4F10689
02007  0 50000 0 00465        CLA ORGDM3        VARIABLE USED BY IO AND FL.                                 4F10690
02010  0 62100 0 01104        STA DRMADR        VARIABLE USED BY FL.                                        4F10691
02011  0 50000 0 01763        CLA DMSR98
02012  0 62100 0 02041        STA DMSR15
02013 -0 50000 0 02066        CAL DMCN3
02014  0 60200 0 02031 DMSR02 SLW DMSR05
02015  0 60200 0 02044        SLW DMSR07
02016 -3 00000 4 02047        TXL DMSR08,4,0
02017 -0 63400 4 02004        SXD DMSR11,4
02020  0 53400 4 01413 DMSR14 LXA L(5),4
02021 -0 63400 4 02035 DMSR13 SXD DMSR12,4
02022 -0 53400 4 02004        LXD DMSR11,4
02023  0 76200 0 00303        RDR 3
02024  0 50000 0 01130        CLA E+2
02025  0 46000 0 01104        LDA DRMADR
02026  0 70000 0 01100 DMSR04 CPY DRSYM
02027  0 04000 0 02043        TLQ DMSR06
02030  0 70000 0 01101        CPY D12
02031  0 00000 0 01102 DMSR05 PZE D3
02032  0 70000 0 01103        CPY DRCKSM
02033  0 34000 0 01100        CAS DRSYM
02034  0 07400 4 03400        TSX DIAG,4
02035  1 00000 0 02051 DMSR12 TXI DMSR09,0,**
02036  0 70000 0 01100        CPY DRSYM
02037  0 04000 0 02043        TLQ DMSR06
02040  0 70000 0 01101        CPY D12
02041  2 00001 4 00000 DMSR15 TIX **,4,1
D      02042  1 00000 0 02047        TXI DMSR08,0
02043  0 70000 0 01101 DMSR06 CPY D12
02044  0 00000 0 01102 DMSR07 PZE D3
02045  0 70000 0 01103        CPY DRCKSM
02046  2 00001 4 02026        TIX DMSR04,4,1
02047 -0 53400 4 01774 DMSR08 LXD DMSR00,4
02050  0 02000 4 00001        TRA 1,4
02051 -0 50000 0 01100 DMSR09 CAL DRSYM
02052  0 36100 0 01101        ACL D12
02053  0 36100 0 01102        ACL D3
02054  0 76000 0 00006        COM
02055  0 36100 0 01103        ACL DRCKSM
02056  0 76000 0 00006        COM
02057  0 10000 0 02063        TZE DMSR10
02060 -0 53400 4 02035        LXD DMSR12,4
02061  2 00001 4 02021        TIX DMSR13,4,1
02062  0 07400 4 03400        TSX DIAG,4
02063 -0 53400 4 01774 DMSR10 LXD DMSR00,4
02064  0 02000 4 00002        TRA 2,4

02065  0 60000 0 01102 DMCN12 STZ D3
02066  0 70000 0 01102 DMCN3  CPY D3
02067  456351000000    ENT    BCD 1NTR000
02070  477125000000    NZE    BCD 1PZE000
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                                        END OF PROGRAM DIM.SR.                                                  4F10692
                                        * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F10693
                                                                                                                4F10694
                                        DRTABS(,4)/ CALLS=RDRX,DIAG. CALLERS=C1200,SS000,ROYCNV,CMA,            4F10695
                                        VRA(VRD).                                                               4F10696
                                        DRTABS IS CALLED BY TSX ....IX,4 -WHERE .... IS THE NAME OF             4F10697
                                        THE DRUM TABLE REFERRED TO. DRTABS MAKES ENTRIES IN THE DRUM            4F10698
                                        TABLES, AND ALSO SEARCHES THE DRUM TABLES FOR INFORMATION.              4F10699
                                        DIMALT= ENTRY POINT FOR DIMENSION TABLES.                               4F10700
02071 -0 50000 0 00415 DIMALT CAL  TXLOP                    PICK UP SWITCH CONTROL,                             4F10701
D     02072  1 00000 0 02074       TXI  DRTABS,0            AND GO SET SWITCH FOR DIM TABLES.                   4F10702
                                        ALT= ENTRY POINT FOR ALL OTHER DRUM TABLES.                             4F10703
02073  0 50000 0 00422 ALT    CLA  TXHOP                    PICK UP SWITCH CONTROL,                             4F10704
02074  0 63000 0 02135 DRTABS STP  DIMSW                    SET SWITCH.                                         4F10705
02075  0 50000 4 00000         CLA  0,4                     GET CALLER (TSX ....IX,4) IN AC.                    4F10706
02076 -0 63400 1 02535         SXD  XR1,1                   SAVE THE C(XR1),                                    4F10707
02077 -0 63400 2 02173         SXD  XR2,2                   SAVE THE C(XR2),                                    4F10708
02100 -0 63400 4 02215         SXD  XR4,4                   SAVE THE C(XR4), AND                                4F10709
02101 -0 60000 0 02357         STQ  MQ                      SAVE THE C(MQR).                                    4F10710
02102  0 40000 0 01407         ADD  L(1)                    PREPARE TO MOVE PARAMETERS                          4F10711
02103  0 62100 0 02107         STA  MOVE                    INTO WORKING STORAGE.                               4F10712
02104  0 40200 0 01412         SUB  L(4)                    PREPARE TO UPDATE                                   4F10713
02105  0 62100 0 02213         STA  UPDATE                  PERMANENT PARAMETER.                                4F10714
02106  0 53400 1 01413         LXA  L(5),1                  MOVE 5 WORDS                                        4F10715
02107 -0 50000 1 00000 MOVE    CAL  **,1                    (....IX+1)                                          4F10716
02110  0 60200 1 02365         SLW  TEMP,1                  OF PARAMETERS                                       4F10717
02111  2 00001 1 02107         TIX  MOVE,1,1                INTO WORKING STORAGE.                               4F10718
02112  0 50200 0 02360         CLS  NAR                     INITIALIZE                                          4F10719
02113  0 62100 0 02221         STA  TRY                     ALL                                                 4F10720
02114  0 40000 0 01407         ADD  L(1)                    GENERAL                                             4F10721
02115  0 62100 0 02200         STA  ESUM1                   INSTRUCTIONS=                                       4F10722
02116  0 62100 0 02202         STA  ESUM2                   X                                                   4F10723
02117  0 77100 0 00021         ARS  17                      X                                                   4F10724
02120  0 40100 0 02526         ADM  BIAS                    X                                                   4F10725
02121  0 62100 0 02530         STA  JUMP1                   X                                                   4F10726
02122  0 62100 0 02555         STA  JUMP2                   X                                                   4F10727
02123 -0 50000 0 02362         CAL  FDA                     X                                                   4F10728
02124  0 62200 0 02235         STD  COMPR                   X                                                   4F10729
02125  0 63000 0 02530         STP  JUMP1                   X                                                   4F10730
02126  0 63000 0 02152         STP  SW                      X                                                   4F10731
02127  0 63000 0 02210         STP  RX4                     X                                                   4F10732
02130  0 50000 0 02533         CLA  LBUF                    X                                                   4F10733
02131  0 62100 0 02222         STA  BUFL                    X                                                   4F10734
02132  0 50000 0 02361         CLA  TDA                     X                                                   4F10735
02133 -0 53400 2 02361         LXD  TDA,2                   X                                                   4F10736
02134 -0 63400 2 02146         SXD  BUFF+1,2                X                                                   4F10737
D     02135 -3 00000 0 02145 DIMSW   TXL  BUFF,0            IF DIM TABLE, SKIP SEARCH.                          4F10738
02136 -3 00000 2 02150         TXL  XERR01+1,2,0            SKIP IF TABLE IS EMPTY.                             4F10739
02137 -0 53400 1 02360         LXD  NAR,1                                                                       4F10740
02140 -0 63400 2 02223         SXD  NC,2                                                                        4F10741
02141 -0 63400 2 02143         SXD  ADD01,2                                                                     4F10742
02142 -2 00001 1 02235 ADD02   TNX  COMPR,1,1               COMPUTES (N*L).                                     4F10743
02143  1 00000 2 02142 ADD01   TXI  ADD02,2,**              (N)                                                 4F10744
02144 -0 53400 2 02362 BUFFM1  LXD  FDA,2                                                                       4F10745
```

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02145 -0 53400 1 02363 BUFF    LXD DBL,1
02146  2 00000 1 02150         TIX BUFF+3,1,**
02147  1 00000 0 02256 XERR01  TXI WHICH,0
02150 -0 53400 1 02364         LXD DI,1
02151  0 76600 1 00305         WDR 5,1
02152 -3 00000 0 02174 SW      TXL EBLK,0
02153 -3 00000 2 02156         TXL ADD04,2,0
02154  1 00001 2 02155         TXI ADD03,2,1
02155 -2 00062 2 02163 ADD03   TNX ADD05,2,50
02156  0 60000 0 02365 ADD04   STZ DUMP
02157  0 50000 0 02361         CLA TDA
02160  0 62100 0 02362         STA FDA
02161  0 40000 0 01407         ADD L(1)
02162  0 62100 0 02361         STA TDA
02163 -0 50000 0 02365 ADD05   CAL DUMP
02164  0 36100 0 01347         ACL G
02165  0 60200 0 02365         SLW DUMP
02166  0 46000 0 02362         LDA FDA
02167  0 70000 0 02365         CPY DUMP
02170  0 76600 1 00305         WDR 5,1
02171  0 46000 0 02361         LDA TDA
02172  0 70000 0 01347         CPY G
02173  1 00000 0 02205 XR2     TXI NOWIN,0,**
02174 -0 75400 0 00000 EBLK    PXD ,0
02175 -0 53400 2 02360         LXD NAR,2
02176  0 46000 0 02361         LDA TDA
02177 -2 00001 2 02202         TNX ESUM2,2,1
02200 -0 70000 2 00000 ESUM1   CAD **,2
02201  2 00001 2 02200         TIX ESUM1,2,1
02202 -0 70000 0 00000 ESUM2   CAD **
02203  0 60200 0 02365         SLW DUMP
02204  0 70000 0 02365         CPY DUMP
02205 -0 50000 0 02360 NOWIN   CAL NAR
02206  0 77100 0 00022         ARS 18
02207  0 40000 0 01455         ADD DECR1
02210 -3 00000 0 02212 RX4     TXL RX4+2,0,**
02211  0 40200 0 01407         SUB L(1)
02212  0 40100 0 02361         ADM TDA
02213  0 60100 0 00000 UPDATE  STO **
02214 -0 53400 2 02361         LXD TDA,2
02215  1 00000 0 02247 XR4     TXI OUT,0,**
02216 -0 53400 4 02223 NXBLK   LXD NC,4
02217 -0 53400 2 02362         LXD FDA,2
02220 -0 53400 1 02360 NEW     LXD NAR,1
02221  0 50000 1 00000 TRY     CLA **,1
02222  0 34000 2 00000 BUFL    CAS **,2
02223  1 00000 0 02225 NC      TXI NC+2,0,**
02224  1 77777 2 02242         TXI YEA,2,-1
02225 -2 00001 4 02144         TNX BUFFM1,4,1
02226 -0 63400 1 02227         SXD NC+4,1
02227  2 00000 2 02220         TIX NEW,2,**
02230 -0 63400 4 02223         SXD NC,4
02231 -0 50000 0 02363         CAL DBL
02232  0 40100 0 02362         ADM FDA
```

```
L(J)                                                    4F10746
(N) TEST FOR TABLE OVERFLOW.                            4F10747
GO FIND OUT WHICH TABLE OVERFLOWED.                     4F10748
                                                        4F10749
                                                        4F10750
ENTRY SUM=TXL, BLOCK SUM=TXH.                           4F10751
SKIP IF TABLE IS EMPTY.                                 4F10752
                                                        4F10753
SKIP IF BLOCK IS NOT YET FULL.                          4F10754
START NEW BLOCK CHECKSUM.                               4F10755
CHANGE CHECKSUM ADDRESS.                                4F10756
                                                        4F10757
SET ENTRY ADDR = CHECKSUM ADDR +1.                      4F10758
                                                        4F10759
                                                        4F10760
ADD NEW FLOCON TO                                       4F10761
CHECKSUM FOR THIS BLOCK.                                4F10762
                                                        4F10763
WRITE BLOCK CHECKSUM ON DRUM.                           4F10764
                                                        4F10765
                                                        4F10766
WRITE NEW FLOCON ON DRUM.                               4F10767
GO UPDATE FLOCON PARAMETER.                             4F10768
FOR ALL TABLES EXCEPT FLOCON=                           4F10769
(L)                                                     4F10770
NEXT DRUM ENTRY ADDRESS.                                4F10771
IF L = 1,                                               4F10772
(ARG1+L-1) WRITE NEW                                    4F10773
ENTRY ON DRUM.                                          4F10774
(ARG1+L-1)                                              4F10775
COMPUTE AND                                             4F10776
WRITE CHECKSUM FOR NEW ENTRY.                           4F10777
UPDATE PERMANENT                                        4F10778
PARAMETERS FOR ENTRY                                    4F10779
JUST ADDED TO TABLE.                                    4F10780
IF TABLE WAS FLOCON,                                    4F10781
READJUST.                                               4F10782
N=N+1,TDA=TDA+(L+1) OR (L).                             4F10783
(....IX-3)                                              4F10784
L(N)                                                    4F10785
GET TAG AND EXIT.                                       4F10786
                                                        4F10787
L(K*L),K=K.                                             4F10788
L(L)                                                    4F10789
(ARG1+L)                                                4F10790
(BUFR OR CTABL)                                         4F10791
NOT FOUND.                                              4F10792
K*L = K*L-1.                                            4F10793
N = N-1 OR ITEM NOT IN TABLE.                           4F10794
                                                        4F10795
K = K-1.                                                4F10796
SAVE CURRENT VALUE OF N,                                4F10797
AND GET NEW BLOCK.                                      4F10798
                                                        4F10799
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02233   0 62100 0 02362          STA FDA                                                4F10800
02234  -0 53400 2 02241          LXD NTL,2                                              4F10801
02235   2 00000 2 02237 COMPR    TIX COMPR+2,2,**                                       4F10802
02236  -0 63400 2 02362          SXD FDA,2                                              4F10803
02237  -0 63400 2 02241          SXD NTL,2                                              4F10804
02240   0 07400 4 02520          TSX RDRX,4                                             4F10805
02241   1 00000 0 02216 NTL      TXI NXBLK,0,**                                         4F10806
02242   2 00001 1 02221 YEA      TIX TRY,1,1                                            4F10807
02243  -0 53400 2 02361          LXD TDA,2                                              4F10808
02244  -0 63400 4 02245          SXD YEA+3,4                                            4F10809
02245   2 00000 2 02247          TIX OUT,2,**                                           4F10810
02246   0 53400 2 01406          LXA L(0),2                                             4F10811
02247  -0 75400 2 00000 OUT      PXD ,2                                                 4F10812
02250   0 77100 0 00022          ARS 18                                                 4F10813
02251  -0 53400 2 02173          LXD XR2,2                                              4F10814
02252  -0 53400 4 02215          LXD XR4,4                                              4F10815
02253  -0 53400 1 02535          LXD XR1,1                                              4F10816
02254   0 56000 0 02357          LDQ MQ                                                 4F10817
02255   0 02000 4 00001          TRA 1,4                                                4F10818
02256  -0 53400 4 02215 WHICH    LXD XR4,4                                              4F10819
02257   0 50000 4 00000          CLA 0,4                                                4F10820
02260  -0 32000 0 01452          ANA MASK2                                              4F10821
02261   0 40200 0 02274          SUB CONX                                               4F10822
02262   0 53400 4 01417          LXA L(9),4                                             4F10823
02263   0 40200 0 01413 COMPUT   SUB L(5)                                               4F10824
02264   0 10000 0 02267          TZE WHICHX                                             4F10825
02265   2 00001 4 02263          TIX COMPUT,4,1                                         4F10826
02266   0 07400 4 03400          TSX DIAG,4                                             4F10827
02267  -0 75400 4 00000 WHICHX   PXD ,4                                                 4F10828
02270   0 76000 0 00006          COM                                                    4F10829
02271   0 40000 0 01454          ADD 2E18                                               4F10830
02272  -0 73400 4 00000          PDX ,4                                                 4F10831
D   02273   1 00000 0 03400      TXI DIAG,0                                             4F10832
                                                                                        4F10833
02274   0 00000 0 00412 CONX     PZE FXCNIX-5                                           4F10834
                  02357 BUFR     BES 50                                                 4F10835
                  02357 MQ       BSS 1                                                  4F10836
                  02360 NAR      BSS 1                                                  4F10837
                  02361 TDA      BSS 1                                                  4F10838
                  02362 FDA      BSS 1                                                  4F10839
                  02363 DBL      BSS 1                                                  4F10840
                  02364 DI       BSS 1                                                  4F10841
                  02365 TEMP     BSS 0                                                  4F10842
                  02365 DUMP     BSS 1                                                  4F10843
                                  END OF PROGRAM DRTABS.                                4F10844
                                 * * * * * * * * * * * * * * * * * * * * * * * * * * * * 4F10845
                                                                                        4F10846
                                 GETIFN,4/ CALLERS=C0100,C0200,C1000,C1100,C1600,C3200. 4F10847
                                 GETIFN PLACES THE INTERNAL FORMULA NUMBER IN AC AND IN 1C. 4F10848
                                 PLACE THE INTERNAL FORMULA                             4F10849
02366  -0 53400 1 00030 GETIFN   LXD EIFNO,1  NUMBER IN XR1, IN THE DECREMENT          4F10850
02367  -0 75400 1 00000          PXD ,1       OF THE AC, AND IN 1C. THEN               4F10851
02370   0 60100 0 01105          STO 1C                                                 4F10852
02371   0 02000 4 00001          TRA 1,4    * RETURN TO CALLER.                         4F10853
                                  END OF PROGRAM GETIFN.
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                                        * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F10854
                                                                                                          4F10855
                                        JIF(GIF),4/ CALLERS=RDC,EFT,LPR,SPC,CMA,EMK,INPUT(OUTPUT),        4F10856
                                        VRA(VRD),C3200.                                                   4F10857
                                        JIF = ENTRY POINT USED BY RDC,LPR,SPC,CMA,EMK,VRA(VRD),C3200.     4F10858
02372 -0 50000 0 00030 JIF     CAL EIFNO                    INCREASE THE                                  4F10859
02373  0 40000 0 01454         ADD D1                       INTERNAL FORMULA NUMBER                       4F10860
02374  0 62200 0 00030         STD EIFNO                    BY 1.                                         4F10861
                                        GIF = ENTRY POINT USED BY EFT,INPUT(OUTPUT).                      4F10862
02375 -0 50000 0 00030 GIF     CAL EIFNO                    PICKUP IFN,                                   4F10863
02376 -0 32000 0 01507         ANA 1BAR                     CLEAR SL, AND                                 4F10864
02377  0 60200 0 01367 L(SL)   SLW SL                       PLACE IFN IN THE DECREMENTS                   4F10865
02400  0 62200 0 01371 L(TL)   STD TL                       OF SL AND TL.                                 4F10866
02401  0 02000 4 00001         TRA 1,4                    * EXIT TO CALLER.                               4F10867
                                         END OF PROGRAM JIF(GIF).                                         4F10868
                                        * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F10869
                                                                                                          4F10870
02402  0 02000 0 03440         TRA STATEA          RETURN FROM DIAGNOSTIC                                4F10873
                  02403         BSS 28              NOT USED.                                             4F10874
                                                                                                          4F10901
                                                                                                          4F10908
                                        RA000,4/ CALLERS=LPR,ARITH.                                       4F10909
                                        RA000 COMPUTES RELATIVE ADDRESS.                                  4F10910
02437 -0 63400 4 01100 RA000   SXD RAXR4,4                  SAVE THE C(XR4) FOR RETURN.                   4F10911
02440  0 60000 0 01147         STZ EPS                      CLEAR EPSILON (WORKING STORAGE).              4F10912
02441  0 50000 0 01125         CLA DIMSAV                   EXAMINE THE                                   4F10913
02442  0 73400 4 01132  ED2    PAX E+4,4                    DIMENSION COUNT, AND                          4F10914
02443 -3 00002 4 02445         TXL ED1,4,2                  IF 3 DIMENSION,                               4F10915
02444  0 40000 0 01407         ADD L(1)                     INCREASE IT 1.                                4F10916
02445  0 40100 0 02442 ED1     ADM ED2                      THEN SET                                      4F10917
02446  0 62100 0 02447         STA ED3                      ED3 ADDRESS TO                                4F10918
02447  0 50000 4 00000  ED3    CLA **,4                     EXAMINE SUCCESSIVE                            4F10919
02450  0 56000 0 01454         LDQ D1                       SUBSCRIPT                                     4F10920
02451  0 10000 0 02454         TZE ED4                      VARIABLES, AND                                4F10921
02452 -0 60000 0 01147         STQ EPS                      ACCORDINGLY SET                               4F10922
02453  0 56000 0 01406         LDQ L(0)                     EPSILON AND                                   4F10923
02454 -0 60000 4 01147  ED4    STQ EPS,4                    EPSILON SUB I                                 4F10924
02455  2 00001 4 02447         TIX ED3,4,1                  TO 1 OR TO 0. WHEN DONE,                      4F10925
02456  0 50000 0 01454         CLA D1                       IF 1 DIMENSION, PICKUP DECREMENT 1,           4F10926
02457  0 53400 4 01125         LXA DIMSAV,4                 AND GO SUBTRACT ADDEND 1.                     4F10927
02460 -3 00001 4 02511         TXL 1D1,4,1                  IF 2 OR 3 DIMENSION, THEN                     4F10928
02461  0 56000 0 01141         LDQ E+11                     PICKUP ADDENDS 1 AND 2,                       4F10929
02462  0 60000 0 01141         STZ E+11                     CLEAR E+11, AND                               4F10930
02463 -0 62000 0 01141         SLQ E+11                     RESTORE ADDEND 1 TO E+11.                     4F10931
02464 -0 76300 0 00022         LGL 18                       ADJUST AND PLACE                              4F10932
02465 -0 60000 0 01361         STQ N2                       ADDEND 2 IN N2.                               4F10933
02466  0 56000 0 01134         LDQ E+6                      AND, IF 2 DIMENSION                           4F10934
02467  0 50000 0 01146         CLA EPS-1                    PICKUP EPSILON SUB 1,                         4F10935
02470 -3 00002 4 02503         TXL 2D1,4,2                  AND GO SUBTRACT ADDEND 2.                     4F10936
02471  0 40200 0 01142         SUB E+12                     IF 3 DIMENSION, SET GTAG                      4F10937
02472  0 60100 0 01351         STO GTAG                     TO EPSILON SUB 1 - ADDEND 3.                  4F10938
02473  0 56000 0 01136         LDQ E+8                      PICKUP DIMENSIONS 1 AND 2,                    4F10939
02474  0 60000 0 01136         STZ E+8                      CLEAR E+8, AND                                4F10940
02475 -0 62000 0 01136         SLQ E+8                      RESTORE DIMENSION 1 TO E+8.                   4F10941
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02476 -0 76300 0 00022        LGL 18                ADJUST, AND MULTIPLY                    4F10942
02477  0 20000 0 01351        MPY GTAG              DIMENSION 2 TIMES GTAG.                 4F10943
02500  0 76700 0 00021        ALS 17                THEN ADD                                4F10944
02501  0 40000 0 01145        ADD EPS-2             EPSILON SUB 2                           4F10945
02502  0 56000 0 01136        LDQ E+8               TO THE PRODUCT, AND                     4F10946
02503  0 40200 0 01361 2D1    SUB N2                SUBTRACT ADDEND 2.                      4F10947
02504  0 60100 0 01351        STO GTAG              MULTIPLY                                4F10948
02505  0 20000 0 01351        MPY GTAG              THE RESULT                              4F10949
02506  0 76700 0 00021        ALS 17                TIMES                                   4F10950
02507  0 40000 4 01147        ADD EPS,4             DIMENSION 1, AND ADD IN EPSILON         4F10951
02510  0 40000 0 01147        ADD EPS               SUB I AND EPSILON.                      4F10952
02511  0 40200 0 01141  1D1   SUB E+11              SUBTRACT ADDEND 1,                      4F10953
02512  0 60100 0 01351        STO GTAG              AND PLACE THE RESULT                    4F10954
02513 -0 50000 0 01126        CAL E                 IN THE DECREMENT OF GTAG,               4F10955
02514  0 77100 0 00030        ARS 24                WITH I-TAUTAG                           4F10956
02515  0 62100 0 01351        STA GTAG              IN THE ADDRESS.                         4F10957
02516 -0 53400 4 01100        LXD RAXR4,4           RESTORE THE C(XR4), AND                 4F10958
02517  0 02000 4 00001        TRA 1,4             * EXIT TO CALLER.                         4F10959
                               END OF PROGRAM RA000.                                       4F10960
                              * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F10961
                                                                                          4F10962
                              RDRX,4/ CALLS=DIAG. CALLER=DRTABS.                          4F10963
                              RDRX READS A BLOCK OF DRUM ENTRIES INTO 50 WORD BUFR.       4F10964
02520  0 53400 1 01413 RDRX   LXA DRMERC,1          SET FOR 5 ATTEMPTS TO READ DRUM.        4F10965
02521 -0 53400 2 02364 REP    LXD DI,2              SET XR2 = (5-DRUM NUMBER).              4F10966
02522  3 00000 2 02524        TXH BIAS-2,2,0        IF NOT GREATER THAN ZERO,               4F10967
02523  0 07400 4 03400        TSX DIAG,4          * GO TO DIAGNOSTIC.                       4F10968
02524  0 76200 2 00305        RDR 5,2               SELECT CURRENT DRUM.                    4F10969
02525 -0 53400 2 02362        LXD FDA,2             SET XR2 = NO. OF WORDS TO COPY.         4F10970
02526 -0 75400 0 02554 BIAS   PXD ETSUM,0           CLEAR THE AC.                           4F10971
02527  0 46000 0 02362        LDA FDA               DRUM ORIGIN OF CURRENT BLOCK.           4F10972
TD 02530 -3 00000 0 00000 JUMP1 TXL **              (ETSUM-2*L) TXL=ENTRY,TXH=BLOCK.        4F10973
02531 -0 70000 0 02365        CAD DUMP              READ                                    4F10974
02532  0 76000 0 00006        COM                   FLOCON BLOCK                            4F10975
02533 -0 70000 2 02357 LBUF   CAD BUFR,2            AND COMPUTE                             4F10976
02534  2 00001 2 02533        TIX LBUF,2,1          LOGICAL CHECKSUM.                       4F10977
02535  1 00000 0 02562 XR1    TXI PROVE,0,**        GO TEST CHECKSUM.                       4F10978
02536  0 70000 2 02357        CPY BUFR,2            COPY LOOP                               4F10979
02537 -2 00001 2 02564        TNX ERR,2,1           FOR ALL                                 4F10980
02540  0 70000 2 02357        CPY BUFR,2            TABLES                                  4F10981
02541 -2 00001 2 02564        TNX ERR,2,1           EXCEPT                                  4F10982
02542  0 70000 2 02357        CPY BUFR,2            FLOCON=                                 4F10983
02543 -2 00001 2 02564        TNX ERR,2,1           X                                       4F10984
02544  0 70000 2 02357        CPY BUFR,2            X                                       4F10985
02545 -2 00001 2 02564        TNX ERR,2,1           X                                       4F10986
02546  0 70000 2 02357        CPY BUFR,2            X                                       4F10987
02547 -2 00001 2 02564        TNX ERR,2,1           X                                       4F10988
02550  0 70000 2 02357        CPY BUFR,2            X                                       4F10989
02551 -2 00001 2 02564        TNX ERR,2,1           X                                       4F10990
02552  0 70000 2 02357        CPY BUFR,2            X                                       4F10991
02553  0 76100 0 00000        NOP                   X                                       4F10992
02554 -0 70000 0 02365 ETSUM  CAD DUMP              SUM CHECKSUMS.                          4F10993
02555  2 00001 2 00000 JUMP2  TIX **,2,1           (ETSUM-2*L) TEST END OF BLOCK.          4F10994
02556 -0 53400 2 02362 RDRXCR LXD FDA,2             COMPUTE                                 4F10995
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02557   0 76000 0 00006         COM                          NEW                                    4F10996
02560   0 36100 2 02357         ACL  BUFR,2                  LOGICAL                                4F10997
02561   2 00001 2 02560         TIX  RDRXCR+2,2,1            CHECKSUM, AND                          4F10998
02562   0 76000 0 00006 PROVE   COM                          IF CHECKSUMS COMPARE                   4F10999
02563   0 10000 4 00001         TZE  1,4                   * RETURN TO MAIN ROUTINE.                4F11000
02564   2 00001 1 02521 ERR     TIX  REP,1,1                 OTHERWISE, REPEAT UP TO 5 TIMES.       4F11001
02565   0 07400 4 03400         TSX  DIAG,4                * FAILED 5 TIMES IN READING DRUM.        4F11002
                                 END OF PROGRAM RDRX.                                              4F11003
                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F11004
                                                                                                   4F11005
                                SR6DC1,1/ CALLS=DIAG. CALLERS=CA000,SS000.                         4F11006
                                SR6DC1 CONVERTS UP TO 6 BCD DIGITS TO THEIR BINARY EQUIV.          4F11007
02566  -0 63400 2 02574 SR6DC1  SXD  SR6XR2,2                SAVE THE C(XR2), AND                   4F11008
02567   0 53400 2 01414         LXA  L(6),2                  SET TO COUNT 6 CHARACTERS.             4F11009
02570   0 60000 0 01101         STZ  SR6WRK                  INITIALIZE OUTPUT CELL TO 0.           4F11010
02571  -0 75400 0 00000 SR6DC2  PXD  ,0                      OBTAIN NEXT CHARACTER                  4F11011
02572  -0 76300 0 00006         LGL  6                       IN AC AND                              4F11012
02573   0 34000 0 01430         CAS  ABLANK                  TEST FOR BLANK.                        4F11013
02574   1 00000 0 02576 SR6XR2  TXI  SR6DC3,0,**             IF NOT BLANK,                          4F11014
02575   1 77777 0 02610 ENDWRD  TXI  SR6DC4,0,-1             (DECR= END OF PROBLEM INDICATOR)       4F11015
02576   0 34000 0 01417 SR6DC3  CAS  L(9)                    TEST FOR NUMERIC.                      4F11016
02577   0 07400 4 03400         TSX  DIAG,4                * IF NON-NUMERIC - GO TO DIAGNOSTIC.     4F11017
02600   0 76100 0 00000  NOP    NOP                          IF NUMERIC,                            4F11018
02601   0 60100 0 01102         STO  SR6WRK+1                SAVE DIGIT, AND                        4F11019
02602   0 50000 0 01101         CLA  SR6WRK                  MULTIPLY PREVIOUS PARTIAL              4F11020
02603   0 76700 0 00002         ALS  2                       RESULT BY 10,                          4F11021
02604   0 40000 0 01101         ADD  SR6WRK                  AND ADD IN                             4F11022
02605   0 76700 0 00001         ALS  1                       CURRENT DIGIT, SAVING                  4F11023
02606   0 40000 0 01102         ADD  SR6WRK+1                NEW PARTIAL RESULT.                    4F11024
02607   0 60100 0 01101         STO  SR6WRK                  THEN ADJUST COUNT, AND                 4F11025
02610   2 00001 2 02571 SR6DC4  TIX  SR6DC2,2,1              WHEN 6 CHARS HAVE BEEN TREATED,        4F11026
02611   0 50000 0 01101         CLA  SR6WRK                  LEAVE OUTPUT IN AC,                    4F11027
02612  -0 53400 2 02574         LXD  SR6XR2,2                RESTORE THE C(XR2), AND                4F11028
02613   0 02000 1 00001  TRA    TRA  1,1                   * EXIT TO MAIN ROUTINE.                  4F11029
                                 END OF PROGRAM SR6DC1.                                            4F11030
                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F11031
                                                                                                   4F11032
                                SS000,4/ CALLS=C0190,DIAG,SR6DC1,DIM.SR,DRTABS,TET00,TESTFX.       4F11033
                                CALLERS=ARITH,LPR,C0200.                                           4F11034
                                SS000 SCANS SUBSCRIPT COMBINATIONS AND MAKES TABLE ENTRIES.        4F11035
02614  -0 63400 2 02731 SS000   SXD  SXR2,2                  SAVE C(XR2),                           4F11036
02615  -0 63400 1 02730         SXD  SXR1,1                  SAVE C(XR1),                           4F11037
02616  -0 63400 4 02732         SXD  SXR4,4                  SAVE C(XR4), AND                       4F11038
02617   0 60000 0 01100         STZ  DIMCTR                  SET DIMCTR = 0.                        4F11039
02620   0 53400 4 01414         LXA  L(6),4                  INITIALIZE                             4F11040
02621  -0 63400 4 02726         SXD  SBS2,4                  FOR EACH SUBSCRIPT MEMBER.             4F11041
02622  -0 50000 0 00422         CAL  TXHOP                   PICK UP TXH OP, AND                    4F11042
02623   0 63000 0 02776         STP  SBC6                    SET OP                                 4F11043
02624   0 63000 0 02777         STP  SBC8                    SWITCHES.                              4F11044
02625  -0 50000 0 00415         CAL  TXLOP                   PICK UP TXL OP, AND                    4F11045
02626   0 63000 0 03014         STP  SBC4                    SET OP SWITCH.                         4F11046
02627   0 53400 3 01414 SS001   LXA  L(6),3                  SET FOR 6 CHARACTERS OF MULTIPLIER.    4F11047
02630   0 60000 0 01370         STZ  SYMBOL                  CLEAR WORKING STORAGE.                 4F11048
02631   0 07400 4 01707         TSX  C0190,4               * GET FIRST NON BLANK CHAR IN THE AC.    4F11049
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   02632  0 34000 0 01417         CAS L(9)          COMPARE IT WITH 9.                   4F11050
D  02633  1 00000 0 02704         TXI SS0045,0      RETURN TO EXPLICIT CODING.           4F11051
   02634  0 76100 0 00000         NOP               IF NUMERIC,                          4F11052
   02635  0 60100 0 01331         STO FIRSTC        SAVE RIGHT-ADJUSTED DIGIT, AND       4F11053
   02636  0 76700 2 00044 SS0012  ALS 36,2          LEFT-ADJUST DIGIT TO                 4F11054
   02637 -0 60200 0 01370         ORS SYMBOL        BUILD SYMBOL.                        4F11055
   02640  1 00006 2 02641         TXI SS0013,2,6    UPDATE SHIFT DECREMENT, AND          4F11056
   02641  1 77777 1 02642 SS0013  TXI SS0014,1,-1   UPDATE COUNT OF CHARS COLLECTED.     4F11057
   02642  0 07400 4 01707 SS0014  TSX C0190,4     * GET NEXT NB CHARACTER IN THE AC.     4F11058
   02643  0 53400 4 02652         LXA CTESTX,4      SET XR4 = NO. OF PUNCTUATION MARKS.4F11059
   02644  0 34000 4 01406 SS0015  CAS CTEST,4       TEST THIS CHARACTER AGAINST          4F11060
D  02645  1 00000 0 02647         TXI SS0016,0      ALL PUNCTUATION.                     4F11061
   02646  0 02000 4 02733         TRA SUBTR,4       IF EQUALITY IS FOUND, TRANSFER.      4F11062
   02647  2 00001 4 02644 SS0016  TIX SS0015,4,1    IF NOT FOUND TO BE PUNCTUATION,      4F11063
   02650  0 34000 0 01417         CAS L(9)          TEST FOR NUMERIC.                    4F11064
D  02651  1 00000 0 02655         TXI SS0017,0      AND IF                               4F11065
   02652  0 76100 0 00012 CTESTX  NOP CTEST-ENDMK   FOUND TO BE NUMERIC,                 4F11066
   02653  3 00000 1 02636         TXH SS0012,1,0    CONTINUE BUILDING SYMBOL. BUT IF     4F11067
D  02654  1 00000 0 02720         TXI STOP49,0      SEVENTH CHAR, GO TO DIAGNOSTIC.      4F11068
   02655  0 07400 1 03242 SS0017  TSX TESTFX+1,1  * GO TEST FOR FIXED POINT VARIABLE.    4F11069
   02656  0 07400 4 03400         TSX DIAG,4      * NOT FIXED POINT --GO TO DIAGNOSTIC.4F11070
   02657 -0 76300 0 00036         LGL 30            RESTORE FIXED POINT VARIABLE         4F11071
   02660  0 60200 0 01365         SLW RESIDU        TO RESIDU, AND                       4F11072
   02661 -0 53400 4 01724         LXD CHCTR,4       RESET CHARACTER COUNTER              4F11073
   02662  1 00001 4 02663         TXI SS0018,4,1    TO BEGIN PROCESSING                  4F11074
   02663 -0 63400 4 01724 SS0018  SXD CHCTR,4       SUBSCRIPT MULTIPLIER.                4F11075
   02664  0 50200 0 02776  SBX    CLS SBC6          TEST FOR                             4F11076
   02665 -0 12000 0 02667         TMI SBX1          PREVIOUS MULTIPLIER.                 4F11077
   02666  0 07400 4 03400         TSX DIAG,4      * DOUBLE MULTIPLIER FOR SUBSCRIPT.     4F11078
   02667  0 60100 0 02776  SBX1   STO SBC6          RESET MULTIPLIER SWITCH.             4F11079
   02670  0 50000 0 01331         CLA FIRSTC        TEST                                 4F11080
   02671  0 40200 0 01373         SUB L(10)         MULTIPLIER                           4F11081
   02672 -0 12000 0 02674         TMI SBX2          FOR CONSTANT.                        4F11082
   02673  0 07400 4 03400         TSX DIAG,4      * SUBS-MULTIPLIER NOT A CONSTANT.      4F11083
   02674 -0 50000 0 01370 SBX2    CAL SYMBOL        ADJUST MULTIPLIER                    4F11084
   02675  0 77100 2 00052         ARS 42,2          TO LOW ORDER POSITION.               4F11085
   02676 -0 53400 4 02726         LXD SBS2,4        GET STORING TAG,                     4F11086
   02677  0 60200 4 01137         SLW E+9,4         AND STORE MULTIPLIER.                4F11087
   02700  0 60000 4 01145         STZ E+15,4        SET ADDEND = 0.                      4F11088
   02701  0 53400 3 01414 SS003   LXA L(6),3        SET FOR 6 CHARS OF VARIABLE/ADDEND.4F11089
   02702  0 60000 0 01370         STZ SYMBOL        CLEAR WORKING STORAGE.               4F11090
   02703  0 07400 4 01707 SS004   TSX C0190,4     * GO GET NEXT NB CHARACTER IN THE AC.4F11091
   02704  0 53400 4 02652 SS0045  LXA CTESTX,4      COMPARE CHARACTER                    4F11092
   02705  0 34000 4 01406 SS005   CAS CTEST,4       TO ALL                               4F11093
D  02706  1 00000 0 02710         TXI SS006,0       PUNCTUATION.                         4F11094
   02707  0 02000 4 02733         TRA SUBTR,4       IF EQUALITY IS FOUND, TRANSFER.      4F11095
   02710  2 00001 4 02705 SS006   TIX SS005,4,1     IF NOT FOUND TO BE PUNCTUATION,      4F11096
   02711 -3 00005 1 02713         TXL SS008,1,5     IF 1ST CHARACTER OF VARIABLE OR      4F11097
   02712  0 60100 0 01331         STO FIRSTC        ADDEND, SAVE FOR LATER TESTS.        4F11098
   02713  0 76700 2 00044 SS008   ALS 36,2          POSITION EACH CHARACTER. BUT         4F11099
   02714 -3 00000 1 02720 SS009   TXL STOP49,1,0  * ON 7TH CHARACTER, GO TO STOP.        4F11100
   02715 -0 60200 0 01370         ORS SYMBOL        BUILD SYMBOL.                        4F11101
   02716  1 00006 2 02717         TXI SS007,2,6     UPDATE EFFECTIVE ADDRESS OF SHIFT.   4F11102
   02717  1 77777 1 02703 SS007   TXI SS004,1,-1    UPDATE FOR ANOTHER CHAR COLLECTED.   4F11103
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      02720   0 07400 4 03400 STOP49 TSX DIAG,4                    * GO TO DIAGNOSTIC ON 7TH CHARACTER.  4F11104
                                     SUBTR/ CONTROL TRANSFERS FOR SUBSCRIPT SCAN=                      4F11105
D     02721   1 00000 0 02722        TXI ISC,0                       EMK (ILLEGAL IN LIST SUBSCRIPT).    4F11106
      02722   0 07400 4 03400  ISC   TSX DIAG,4                    * (   (ILLEGAL IN LIST SUBSCRIPT).    4F11107
D     02723   1 00000 0 02772        TXI SBC,0                       )                                   4F11108
D     02724   1 00000 0 02770        TXI SBR,0                       ,                                   4F11109
D     02725   1 00000 0 02722        TXI ISC,0                       =   (ILLEGAL IN LIST SUBSCRIPT).    4F11110
      02726   1 00000 0 02733 SBS2   TXI SBM,0,**                    - ,,SUBSCRIPT ELEMENT COUNTER.      4F11111
D     02727   1 00000 0 02722        TXI ISC,0                       /   (ILLEGAL IN LIST SUBSCRIPT).    4F11112
      02730   1 00000 0 02722 SXR1   TXI ISC,0,**                    .   (ILLEGAL IN LIST SUBSCRIPT).    4F11113
      02731   1 00000 0 02734 SXR2   TXI SBP,0,**                    +                                   4F11114
      02732   1 00000 0 02664 SXR4   TXI SBX,0,**                    *                                   4F11115
                              02733  SUBTR  BSS 0                     INDEXING ADDRESS FOR ABOVE LIST.    4F11116
      02733  -0 76000 0 00003  SBM   SSM                             MINUS ADDEND.                       4F11117
      02734   0 76000 0 00000  SBP   CLM                             PLUS ADDEND.                        4F11118
      02735  -0 53400 4 02726        LXD SBS2,4                      GET STORING TAG, AND                4F11119
      02736   0 60100 4 01145        STO E+15,4                      STORE SIGN OF ADDEND.               4F11120
      02737   0 50200 0 02777        CLS SBC8                        TEST SWITCH                         4F11121
      02740  -0 12000 0 02742        TMI SBP1                        FOR PREVIOUS ADDEND.                4F11122
      02741   0 07400 4 03400        TSX DIAG,4                    * DOUBLE ADDEND FOR SUBSCRIPT.        4F11123
      02742   0 60100 0 02777  SBP1  STO SBC8                        RESET ADDEND SWITCH.                4F11124
      02743   0 07400 1 03241        TSX TESTFX,1                  * GO TO TEST FOR FIXED POINT.         4F11125
      02744   0 07400 4 03400        TSX DIAG,4                    * NOT FIXED POINT --GO TO DIAGNOSTIC. 4F11126
      02745  -0 53400 4 02726        LXD SBS2,4                      GET STORING TAG, AND                4F11127
      02746   0 50200 0 02776        CLS SBC6                        TEST SWITCH                         4F11128
      02747   0 12000 0 02754        TPL SBP2                        FOR PREVIOUS MULTIPLIER.            4F11129
      02750   0 50000 0 01407        CLA L(1)                        IF NONE,                            4F11130
      02751   0 60100 4 01137        STO E+9,4                       SET MULTIPLIER                      4F11131
D     02752   1 00000 0 02755        TXI SBP4,0                      TO 1, AND CONTINUE.                 4F11132
      02753   0 50200 0 02776  SBC1  CLS SBC6                        RESET MULTIPLIER                    4F11133
      02754   0 60100 0 02776 SBP2   STO SBC6                        OP SWITCH.                          4F11134
      02755  -0 50000 0 01370 SBP4   CAL SYMBOL                      IF VARIABLE SUBSCRIPT,              4F11135
      02756   3 00044 2 02762        TXH SBP41,2,36                  ADD A BLANK                         4F11136
      02757  -0 50000 0 01430        CAL BLANK                       IF LESS                             4F11137
      02760   0 76700 2 00044        ALS 36,2                        THAN 6                              4F11138
      02761  -0 50100 0 01370        ORA SYMBOL                      CHARACTERS, AND                     4F11139
      02762   0 60200 4 01140  SBP41 SLW E+10,4                      PLACE IN E-REGION.                  4F11140
      02763   0 07400 1 03241        TSX TESTFX,1                  * GO TO TEST FOR FIXED POINT.         4F11141
      02764   0 07400 4 03400        TSX DIAG,4                    * NOT FIXED POINT --GO TO DIAGNOSTIC. 4F11142
      02765   0 50000 0 02777        CLA SBC8                        IF THERE IS AN ADDEND,              4F11143
      02766  -0 12000 0 02701        TMI SS003                       GO COLLECT, OTHERWISE               4F11144
D     02767   1 00000 0 03012        TXI SBC7,0                      GO UPDATE STORING TAG.              4F11145
      02770   0 50200 0 03014 SBR    CLS SBC4                        SET SWITCH                          4F11146
      02771   0 60100 0 03014        STO SBC4                        FOR CLOSING PARENTHESIS.            4F11147
      02772  -0 50000 0 01100 SBC    CAL DIMCTR                      UPDATE                              4F11148
      02773   0 40000 0 01407        ADD L(1)                        DIMENSION COUNTER                   4F11149
      02774   0 62100 0 01100        STA DIMCTR                      BY 1.                               4F11150
      02775  -0 53400 4 02726        LXD SBS2,4                      GET STORING TAG.                    4F11151
D     02776   3 00000 0 02753 SBC6   TXH SBC1,0                      SWITCH-IF NO MULTIPLIER, AND        4F11152
D     02777   3 00000 0 03016 SBC8   TXH SBC2,0                      SWITCH-IF NO ADDEND, THEN           4F11153
      03000   0 50000 0 01407        CLA L(1)                        SET                                 4F11154
      03001   0 60100 4 01137        STO E+9,4                       MULTIPLIER = 1.                     4F11155
      03002   0 60000 4 01145        STZ E+15,4                      SET ADDEND = 0.                     4F11156
      03003   0 50000 0 01331        CLA FIRSTC                      TEST FOR                            4F11157
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                03004   0 40200 0 01373          SUB L(10)                        CONSTANT OR VARIABLE.                    4F11158
                03005   0 12000 0 02755          TPL SBP4                         IF CONSTANT, THEN                        4F11159
                03006   0 60000 4 01140          STZ E+10,4                       SET VARIABLE = 0.                        4F11160
                03007  -0 50000 0 01370 SBC9     CAL SYMBOL                       ADJUST                                   4F11161
                03010   0 77100 2 00052          ARS 42,2                         CONSTANT                                 4F11162
                03011  -0 60200 4 01145          ORS E+15,4                       TO LOW ORDER POSITION.                   4F11163
                03012  -2 00002 4 03024 SBC7     TNX SBC3,4,2                     UPDATE STORING TAG                       4F11164
                03013  -0 63400 4 02726          SXD SBS2,4                       BY -2, AND SAVE.                         4F11165
D               03014  -3 00000 0 02627 SBC4     TXL SS001,0                      SWITCH-REPEAT FOR NEXT SUB-COMB.         4F11166
D               03015   1 00000 0 03030          TXI SA000,0                      GO MAKE TABLE ENTRIES AND GET TAG.       4F11167
                03016   0 50200 0 02777  SBC2    CLS SBC8                         RESET ADDEND                             4F11168
                03017   0 60100 0 02777          STO SBC8                         OP SWITCH.                               4F11169
                03020   0 50200 0 01373          CLS L(10)                        TEST                                     4F11170
                03021   0 40000 0 01331          ADD FIRSTC                       ADDEND                                   4F11171
                03022  -0 12000 0 03007          TMI SBC9                         FOR CONSTANT.                            4F11172
                03023   0 07400 4 03400          TSX DIAG,4                     * SUBSCRIPT ADDEND NOT A CONSTANT.         4F11173
                03024   0 50200 0 03014 SBC3     CLS SBC4                         AFTER SCANNING 3 SUBSCRIPTS,             4F11174
                03025  -0 12000 0 03030          TMI SA000                        GO MAKE TABLE ENTRIES AND GET TAG.       4F11175
                03026   0 07400 4 03400          TSX DIAG,4                     * GO TO DIAG - NO ) AFTER 3RD SUBS.        4F11176
                                                                                                                          4F11177
                                                 CSA000= ENTRY POINT USED BY C0200 (GO TO ROUTINE).
                03027  -0 63400 4 02732 CSA000   SXD SXR4,4                       SAVE C(XR4) FOR RETURN TO C0200.         4F11178
                03030   0 50000 0 01100 SA000    CLA DIMCTR                       SAVE                                     4F11179
                03031   0 60100 0 01125          STO DIMSAV                       THE CONTENTS OF DIMCTR.                  4F11180
                03032   0 76700 0 00041          ALS 33                           POSITION AND                             4F11181
                03033   0 60100 0 01126          STO E                            STORE I TAG.                             4F11182
                03034   0 50000 0 01141          CLA E+11                         MOVE SUBSCRIPT ADDENDS                   4F11183
                03035   0 60100 0 01142          STO E+12                         INTO POSITION                            4F11184
                03036   0 50000 0 01137          CLA E+9                          FOR FOLLOWING                            4F11185
                03037   0 60100 0 01141          STO E+11                         PROGRAM.                                 4F11186
                03040   0 50000 0 01410          CLA L(2)                         EXAMINE DIMCTR                           4F11187
                03041   0 34000 0 01100          CAS DIMCTR                       TO DETERMINE                             4F11188
D               03042   1 00000 0 03174          TXI 1D0000,0                     WHETHER DIMENSION OF                     4F11189
D               03043   1 00000 0 03131          TXI 2D0000,0                     VARIABLE IS 1, 2, OR 3.                  4F11190
                03044   0 53400 4 01414 3D0000   LXA L(6),4                       PREPARE TO PICK UP 3 COEFFICIENTS.       4F11191
                03045   0 56000 4 01137 3D0001   LDQ E+9,4                        CONVERT THEM FROM BCD TO BINARY          4F11192
                03046   0 07400 1 02566          TSX SR6DC1,1                   * IN E+3,5,7, AND                          4F11193
                03047   0 60100 4 01137          STO E+9,4                        STORE BACK IN E+3,5,7.                   4F11194
                03050   2 00002 4 03045          TIX 3D0001,4,2                   WHEN DONE, PREPARE                       4F11195
                03051   0 53400 4 01411          LXA L(3),4                       TO PICK UP 3 ADDENDS.                    4F11196
                03052   0 50000 4 01144 3D0002   CLA E+14,4                       CONVERT ADDENDS (BCD TO BINARY)=         4F11197
                03053   0 60200 0 01347          SLW G                            STRIP OFF                                4F11198
                03054   0 56000 0 01347          LDQ G                            SIGN,                                    4F11199
                03055   0 07400 1 02566          TSX SR6DC1,1                   * CONVERT ADDENDS IN E+11,12,13,           4F11200
                03056   0 56000 4 01144          LDQ E+14,4                       PUT SIGN IN S-BIT OF MQ, AND             4F11201
                03057   0 16200 0 03061          TQP 3D0040                       IF PLUS--SKIP NEXT,                      4F11202
                03060  -0 50100 0 01453          ORA 2E17                         IF MINUS--OR SIGN INTO BIT 18,           4F11203
                03061   0 60100 4 01144 3D0040   STO E+14,4                       AND STORE BACK INTO E+11,12,13.          4F11204
                03062   2 00001 4 03052          TIX 3D0002,4,1                   WHEN DONE,                               4F11205
                03063   0 07400 4 02005          TSX DIM3SR,4                   * GO SEARCH DIM3 TABLE.                    4F11206
                03064   0 07400 4 03400          TSX DIAG,4                     * --ERROR...NOT ON DRUM.                   4F11207
                03065   0 50000 0 01131 3D0060   CLA E+3                         REFORMATIZE E-STRING =                   4F11208
                03066   0 76700 0 00022          ALS 18                           PACK TOGETHER COEFFICIENTS 1 AND 2       4F11209
                03067   0 40000 0 01133          ADD E+5                          AND STORE THEM                           4F11210
                03070   0 60100 0 01131          STO E+3                          IN E+3.                                  4F11211
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03071  0 50000 0 01132          CLA E+4
03072  0 60100 0 01133          STO E+5
03073  0 50000 0 01135          CLA E+7
03074  0 76700 0 00022          ALS 18
03075  0 60100 0 01132          STO E+4
03076  0 50000 0 01136          CLA E+8
03077  0 60100 0 01135          STO E+7
03100  0 50000 0 01101          CLA D12
03101  0 60100 0 01136          STO E+8
03102 -0 50000 0 01141          CAL E+11
03103  0 76700 0 00022          ALS 18
03104 -0 50100 0 01142          ORA E+12
03105  0 60200 0 01141          SLW E+11
03106 -0 50000 0 01143          CAL E+13
03107  0 76700 0 00022          ALS 18
03110  0 60200 0 01142          SLW E+12
03111  0 07400 4 00443          TSX TAU3IX,4
03112  0 76700 0 00030          ALS 24
03113 -0 60200 0 01126          ORS E
03114 -0 50000 0 01135          CAL E+7
03115 -0 50100 0 01134          ORA E+6
03116 -0 50100 0 01133 3D0340   ORA E+5
03117  0 10000 0 03216 3D0350   TZE NOTAG
03120 -0 50000 0 00030 FTG000   CAL EIFNO
03121 -0 32000 0 01527          ANA MASK1
03122  0 60200 0 01347          SLW G
03123 -0 50000 0 01126          CAL E
03124  0 77100 0 00030          ARS 24
03125 -0 60200 0 01347          ORS G
03126  0 07400 1 03321          TSX TET00,1
03127  0 00000 0 00004          PZE 4
D 03130  1 00000 0 03220        TXI SAEXIT,0
03131  0 53400 4 01412 2D0000   LXA L(4),4
03132  0 56000 4 01135 2D0001   LDQ E+7,4
03133  0 07400 1 02566          TSX SR6DC1,1
03134  0 60100 4 01135          STO E+7,4
03135  2 00002 4 03132          TIX 2D0001,4,2
03136  0 53400 4 01410          LXA L(2),4
03137  0 50000 4 01143 2D0002   CLA E+13,4
03140  0 60200 0 01347          SLW G
03141  0 56000 0 01347          LDQ G
03142  0 07400 1 02566          TSX SR6DC1,1
03143  0 56000 4 01143          LDQ E+13,4
03144  0 16200 0 03146          TQP 2D0040
03145 -0 50100 0 01453          ORA 2E17
03146  0 60100 4 01143 2D0040   STO E+13,4
03147  2 00001 4 03137          TIX 2D0002,4,1
03150  0 07400 4 01775          TSX DIM2SR,4
03151  0 07400 4 03400          TSX DIAG,4
03152  0 50000 0 01131 2D0060   CLA E+3
03153  0 76700 0 00022          ALS 18
03154  0 40000 0 01133          ADD E+5
03155  0 60100 0 01131          STO E+3
03156  0 50000 0 01134          CLA E+6
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                                MOVE SUBSCRIPT 1                4F11212
                                TO E+5.                         4F11213
                                AND MOVE                        4F11214
                                COEFFICIENT 3                   4F11215
                                INTO E+4.                       4F11216
                                MOVE SUBSCRIPT 3 INTO E+7,      4F11217
                                NEXT TO SUBSCRIPT 2 IN E+6.     4F11218
                                MOVE DIMENSIONS 1 AND 2         4F11219
                                INTO E+8.                       4F11220
                                PACK TOGETHER                   4F11221
                                ADDENDS 1 AND 2                 4F11222
                                AND                             4F11223
                                STORE THEM IN E+11.             4F11224
                                MOVE                            4F11225
                                ADDEND 3                        4F11226
                                INTO E+12.                      4F11227
                            * GO SEARCH TAU3 TABLE.             4F11228
                                POSITION TAU3 TAG, AND          4F11229
                                PLACE TAU3 TAG IN TAG WORD.     4F11230
                                COMBINE                         4F11231
                                SUBSCRIPTS 3,2, AND 1,          4F11232
                                AND IF THEY ARE ALL ZERO,       4F11233
                                --DON,T ENTER FORTAG.           4F11234
                                ENTER FORTAG=                   4F11235
                                BRING UP ALPHA (INTFORMNO)      4F11236
                                AND STORE IN G.                 4F11237
                                BRING UP TAUTAG FOR I,          4F11238
                                ADJUST, AND                     4F11239
                                PLACE IN G WITH ALPHA.  THEN    4F11240
                            * ENTER INTO FORTAG TABLE           4F11241
                                (TET TABLE 4).                  4F11242
                                GO TO EXIT.                     4F11243
                                THEN PICKUP AND                 4F11244
                                CONVERT COEFFICIENTS            4F11245
                            * (BCD TO BINARY),                  4F11246
                                AND STORE BACK IN E+3 AND E+5.  4F11247
                                WHEN DONE,                      4F11248
                                PREPARE TO                      4F11249
                                PICKUP THE TWO ADDENDS.         4F11250
                                STRIP OFF                       4F11251
                                THEIR SIGNS,                    4F11252
                            * CONVERT THEM FROM BCD TO BINARY,  4F11253
                                PUT SIGN IN S-BIT OF MQ, AND    4F11254
                                IF PLUS--SKIP NEXT,             4F11255
                                IF MINUS--OR SIGN INTO BIT 18,  4F11256
                                AND STORE BACK IN E+11 AND E+12. 4F11257
                                WHEN DONE,                      4F11258
                            * GO SEARCH DIM2 TABLE.             4F11259
                            * --ERROR...NOT ON DRUM.            4F11260
                                REFORMATIZE E-STRING =          4F11261
                                PACK TOGETHER                   4F11262
                                COEFFICIENTS 1 AND 2,           4F11263
                                AND STORE THEM IN E+3.          4F11264
                                MOVE SUBSCRIPT 2 INTO E+5       4F11265
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03157   0 60100 0 01133          STO E+5                    (NEXT TO SUBSCRIPT 1 IN E+4).      4F11266
03160   0 50000 0 01101          CLA D12                    OBTAIN                             4F11267
03161  -0 32000 0 01527          ANA MASK1                  DIMENSION 1, AND MOVE IT           4F11268
03162   0 60100 0 01134          STO E+6                    INTO E+6.                          4F11269
03163  -0 50000 0 01141          CAL E+11                   PACK TOGETHER                      4F11270
03164   0 76700 0 00022          ALS 18                     ADDENDS 1 AND 2,                   4F11271
03165  -0 50100 0 01142          ORA E+12                   AND STORE THEM                     4F11272
03166   0 60200 0 01141          SLW E+11                   IN E+11.                           4F11273
03167   0 07400 4 00436          TSX TAU2IX,4             * GO SEARCH TAU2 TABLE.              4F11274
03170   0 76700 0 00030          ALS 24                     POSITION TAU2 TAG, AND             4F11275
03171  -0 60200 0 01126          ORS E                      PLACE TAU2 TAG IN TAG WORD.        4F11276
03172  -0 50000 0 01132          CAL E+4                    COMBINE SUBSCRIPTS 1 AND 2, AND    4F11277
D 03173   1 00000 0 03116          TXI 3D0340,0               GO TO FORTAG SECTION.          4F11278
03174   0 56000 0 01131 1D0000   LDQ E+3                    PICKUP AND CONVERT COEFFICIENTS    4F11279
03175   0 07400 1 02566          TSX SR6DC1,1             * (BCD TO BINARY), AND               4F11280
03176   0 76700 0 00022          ALS 18                     THEN ADJUST THEM,                  4F11281
03177   0 60100 0 01131          STO E+3                    AND STORE THEM BACK IN E+3.        4F11282
03200   0 50000 0 01141          CLA E+11                   PICKUP ADDEND,                     4F11283
03201   0 60200 0 01347          SLW G                      STRIP OFF SIGN,                    4F11284
03202   0 56000 0 01347          LDQ G                      CONVERT ADDEND                     4F11285
03203   0 07400 1 02566          TSX SR6DC1,1             * (BCD TO BINARY), AND THEN          4F11286
03204   0 56000 0 01141          LDQ E+11                   PUT SIGN IN S-BIT OF MQ, AND       4F11287
03205   0 16200 0 03207          TQP 1D0001                 IF PLUS--SKIP NEXT,                4F11288
03206  -0 50100 0 01453          ORA 2E17                   IF MINUS--OR SIGN INTO BIT 18.     4F11289
03207   0 76700 0 00022 1D0001   ALS 18                     THEN ADJUST AND STORE              4F11290
03210   0 60200 0 01141          SLW E+11                   BACK INTO E+11.                    4F11291
03211   0 07400 4 00431          TSX TAU1IX,4             * GO SEARCH TAU1 TABLE.              4F11292
03212   0 76700 0 00030          ALS 24                     POSITION TAU1 TAG, AND             4F11293
03213  -0 60200 0 01126          ORS E                      PLACE TAU1 TAG IN TAG WORD.        4F11294
03214  -0 50000 0 01132          CAL E+4                    TAKE SUBSCRIPT, AND                4F11295
D 03215   1 00000 0 03117          TXI 3D0350,0               GO TO FORTAG SECTION.          4F11296
03216  -0 50000 0 01471 NOTAG   CAL FNIND                  POSITION SIGMA1 TAG, AND           4F11297
03217  -0 60200 0 01126          ORS E                      PLACE SIGMA1 TAG IN TAG WORD.      4F11298
03220  -0 53400 1 02730 SAEXIT  LXD SXR1,1                 RESTORE THE C(XR1),                4F11299
03221  -0 53400 2 02731          LXD SXR2,2                 RESTORE THE C(XR2),                4F11300
03222  -0 53400 4 02732          LXD SXR4,4                 RESTORE THE C(XR4), AND            4F11301
03223   0 02000 4 00001          TRA 1,4                  * EXIT TO MAIN ROUTINE.              4F11302
                                  END OF PROGRAM SS000.                                       4F11303
                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * 4F11304
                                                                                              4F11305
                                  SUBX00,4/ CALLERS=C3000,C3300.                              4F11306
                                  SUBX00 ADDS BLANKS TO THE NAMES OF SUBROUTINES.             4F11307
03224   0 53400 3 01414 SUBX00   LXA L(6),3                 PREPARE TO COUNT CHARS AND SHIFTS. 4F11308
03225   0 56000 0 01112          LDQ 1G                     PICKUP SUBROUTINE NAME.            4F11309
03226  -0 75400 0 00000 SUBX01   PXD ,0                     CLEAR THE AC, AND                  4F11310
03227  -0 76300 0 00006          LGL 6                      SEARCH FOR A BLANK                 4F11311
03230   0 40200 0 01430          SUB BLANK                  CHARACTER IN THIS NAME.            4F11312
03231   0 10000 0 03235          TZE SUBX03                 IF NOT BLANK, THEN                 4F11313
03232   1 00006 1 03233          TXI SUBX02,1,6             UPDATE SHIFT COUNT, AND            4F11314
03233   2 00001 2 03226 SUBX02   TIX SUBX01,2,1             CONTINUE UNTIL 6 CHARS ARE COUNTED.4F11315
03234   0 02000 4 00001          TRA 1,4                  * RETURN TO CALLER AFTER 6TH CHAR.   4F11316
03235   0 56000 0 01526 SUBX03   LDQ BLANKS                 IF LESS THAN 6 CHARACTERS IN NAME, 4F11317
03236  -0 76300 1 00044          LGL 36,1                   SHIFT ENOUGH BLANKS INTO THE AC,   4F11318
03237  -0 60200 0 01112          ORS 1G                     AND FILL OUT NAME WITH BLANKS.     4F11319
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03240   0 02000 4 00001          TRA 1,4                          * RETURN TO CALLER.                    4F11320
                                  END OF PROGRAM SUBX00.                                                  4F11321
                                 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F11322
                                                                                                          4F11323
                                 TESTFX,1/ CALLERS=SS000,C3000,IFFIX.                                     4F11324
                                 TESTFX TESTS FOR FIXED OR FLOATING POINT VARIABLES.                      4F11325
                                                                    COMPARE FIRST CHARACTER               4F11326
03241  -0 50000 0 01331 TESTFX CAL FIRSTC                          WITH H.                                4F11327
03242   0 34000 0 01423         CAS L(H)                            IF GREATER THAN H, COMPARE WITH O.     4F11328
03243   0 34000 0 01425         CAS L(O)                         * IF NOT GREATER THAN H, LESS THAN O,4F11329
03244   0 02000 1 00001         TRA 1,1                          * THEN TAKE FLOATING POINT EXIT.       4F11330
03245   0 02000 1 00001         TRA 1,1                          * OTHERWISE, TAKE FIXED POINT EXIT.    4F11331
03246   0 02000 1 00002         TRA 2,1                                                                 4F11332
                                  END OF PROGRAM TESTFX.                                                  4F11333
                                 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F11334
                                                                                                          4F11335
                                 TEST..,4/ CALLS=DIAG. CALLERS=C0100,C0200,C0300,C0400,C1000,             4F11336
                                 C1100,C1200,C1400,C1500,C1600,C3000,C3100,C3200,C3400,LPR.               4F11337
                                 TEST.. TESTS THE CHARACTER IN THE AC(30-35).                             4F11338
                                 TEST CHARACTER IN THE AC FOR COMMA OR ENDMARK.                           4F11339
03247   0 34000 0 01376 TESTA0 CAS COMMA                                                                 4F11340
03250   0 02000 0 03252         TRA TESTA1                                                               4F11341
03251   0 02000 4 00001         TRA 1,4                          * RETURN TO CALLER.                    4F11342
03252   0 40200 0 01374 TESTA1 SUB ENDMK                                                                 4F11343
03253   0 10000 4 00001         TZE 1,4                          * RETURN TO CALLER.                    4F11344
03254   0 07400 4 03400         TSX DIAG,4                       * ERROR -- GO TO DIAGNOSTIC.           4F11345
                                 TEST CHARACTER IN THE AC FOR COMMA OR CLOSED PARENTHESIS.                4F11346
03255   0 34000 0 01376 TESTB0 CAS COMMA                                                                 4F11347
03256   0 02000 0 03260         TRA TESTB1                                                               4F11348
03257   0 02000 4 00001         TRA 1,4                          * RETURN TO CALLER.                    4F11349
03260   0 40200 0 01377 TESTB1 SUB CLOS                                                                  4F11350
03261   0 10000 4 00001         TZE 1,4                          * RETURN TO CALLER.                    4F11351
03262   0 07400 4 03400         TSX DIAG,4                       * ERROR -- GO TO DIAGNOSTIC.           4F11352
                                 TEST CHARACTER IN THE AC FOR OPEN PARENTHESIS OR ENDMARK.                4F11353
03263   0 34000 0 01375 TESTC0 CAS OPEN                                                                  4F11354
03264   0 02000 0 03266         TRA TESTC1                                                               4F11355
03265   0 02000 4 00001         TRA 1,4                          * RETURN TO CALLER.                    4F11356
03266   0 40200 0 01374 TESTC1 SUB ENDMK                                                                 4F11357
03267   0 10000 4 00001         TZE 1,4                          * RETURN TO CALLER.                    4F11358
03270   0 07400 4 03400         TSX DIAG,4                       * ERROR -- GO TO DIAGNOSTIC.           4F11359
                                 TEST CHARACTER IN THE AC FOR ENDMARK.                                    4F11360
03271   0 34000 0 01374 TES1D0 CAS ENDMK                                                                 4F11361
03272   0 07400 4 03400 ERR77P TSX DIAG,4                       * MACHINE ERROR, GO TO DIAGNOSTIC.     4F11362
03273   0 02000 4 00001         TRA 1,4                          * RETURN TO CALLER.                    4F11363
03274   0 07400 4 03400         TSX DIAG,4                       * ERROR -- GO TO DIAGNOSTIC.           4F11364
                                 TEST CHARACTER IN THE AC FOR OPEN PARENTHESIS.                           4F11365
03275   0 34000 0 01375 TESTE0 CAS OPEN                                                                  4F11366
03276   0 02000 0 03300         TRA TESTE1                                                               4F11367
03277   0 02000 4 00001         TRA 1,4                          * RETURN TO CALLER.                    4F11368
03300   0 07400 4 03400 TESTE1 TSX DIAG,4                       * ERROR -- GO TO DIAGNOSTIC.           4F11369
                                 TEST CHARACTER IN THE AC FOR CLOSED PARENTHESIS.                         4F11370
03301   0 34000 0 01377 TESTF0 CAS CLOS                                                                  4F11371
03302   0 02000 0 03304         TRA TESTF1                                                               4F11372
03303   0 02000 4 00001         TRA 1,4                          * RETURN TO CALLER.                    4F11373
03304   0 07400 4 03400 TESTF1 TSX DIAG,4                       * ERROR -- GO TO DIAGNOSTIC.
```

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                                    TEST CHARACTER IN THE AC FOR COMMA.                                  4F11374
                                                                                                         4F11375
03305   0 34000 0 01376 TESTG0 CAS  COMMA                                                                4F11376
03306   0 02000 0 03310        TRA  TESTG1                                                               4F11377
03307   0 02000 4 00001        TRA  1,4                    * RETURN TO CALLER.                           4F11378
03310   0 07400 4 03400 TESTG1 TSX  DIAG,4                 * ERROR -- GO TO DIAGNOSTIC.                  4F11379
                                    TEST CHARACTER IN THE AC FOR NON-NUMERIC.                            4F11380
03311   0 34000 0 01417 TESTH0 CAS  L(9)                                                                 4F11381
03312   0 02000 4 00001        TRA  1,4                    * RETURN TO CALLER.                           4F11382
03313   0 76100 0 00000        NOP                                                                       4F11383
03314   0 07400 4 03400        TSX  DIAG,4                 * ERROR -- GO TO DIAGNOSTIC.                  4F11384
                                    TEST CHARACTER IN THE AC FOR NUMERIC.                                4F11385
03315   0 34000 0 01417 TESTI0 CAS  L(9)                                                                 4F11386
03316   0 07400 4 03400        TSX  DIAG,4                 * ERROR -- GO TO DIAGNOSTIC.                  4F11387
03317   0 02000 4 00001        TRA  1,4                    * RETURN TO CALLER.                           4F11388
03320   0 02000 4 00001        TRA  1,4                    * RETURN TO CALLER.                           4F11389
                                     END OF PROGRAM TEST...                                              *4F11390
                                    * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * 4F11391
                                                                                                         4F11392
                                    TET00,1/ CALLERS=CA000,CC000,C0100,C0200,C0300,C1300,C1400,          4F11393
                                    C1500,C3000,C3100,SS000,FOR,SPC,CMA,EMK,LIB,VRA(VRD).                4F11394
                                    TET00 MAKES ENTRIES IN THE TAPE TABLES. WHEN A BUFFER IS             4F11395
                                    FULL IT IS WRITTEN AS A RECORD ONTO TAPE 4.                          4F11396
03321  -0 63400 2 01100 TET00  SXD  TETXR2,2                SAVE THE C(XR2),                              4F11397
03322  -0 63400 4 01101        SXD  TETXR4,4                SAVE THE C(XR4), AND                          4F11398
03323  -0 60000 0 01103        STQ  TETMQR                  SAVE THE C(MQR).                              4F11399
03324   0 50000 1 00001        CLA  1,1                     COMPUTE TABLE NUMBER                          4F11400
03325   0 76700 0 00001        ALS  1                       TIMES 3                                       4F11401
03326   0 40000 1 00001        ADD  1,1                     AND                                           4F11402
03327   0 76000 0 00006        COM                          PLACE THE 2S COMPLEMENT                       4F11403
03330   0 40000 0 01407        ADD  L(1)                    OF THIS                                       4F11404
03331   0 73400 2 00000        PAX  ,2                      IN XR2.                                       4F11405
03332   0 50000 2 00322        CLA  INTET,2                 OBTAIN THE CURRENT                            4F11406
03333   0 77100 0 00022        ARS  18                      B (BUFFER CAPACITY),                          4F11407
03334   0 60100 0 01102        STO  TETWRK                  AND SAVE IT. THEN                             4F11408
03335   0 50000 2 00324        CLA  INTET+2,2               GET P (PORTION OF BUFFER FULL),               4F11409
03336   0 77100 0 00022        ARS  18                      AND                                           4F11410
03337   0 40200 0 01102        SUB  TETWRK                  COMPARE TO B.                                 4F11411
03340  -0 10000 0 03356        TNZ  TET03                   IF BUFFER IS FULL,                            4F11412
03341   0 62200 2 00324        STD  INTET+2,2               SET P = 0, AND                                4F11413
03342   0 76600 0 00224 TET01   WRS  TABTAP                 PREPARE TO WRITE BLOCK ON TABTAP.             4F11414
03343   0 53400 4 01102        LXA  TETWRK,4                SET XR4 = BLOCK SIZE (B).                     4F11415
03344   0 50000 0 01102        CLA  TETWRK                  ADD BLOCK SIZE TO                             4F11416
03345   0 40000 2 00322        ADD  INTET,2                 ORIGIN OF CURRENT BLOCK (O),                  4F11417
03346   0 62100 0 03350        STA  TET02                   AND SET ADDRESS OF COPY LOOP (O+B).           4F11418
03347   0 70000 1 00001        CPY  1,1                     COPY TABLE NUM FOR IDENTIFICATION.            4F11419
03350   0 70000 4 00000 TET02   CPY  **,4                   WRITE BLOCK ONTO                              4F11420
03351   2 00001 4 03350        TIX  TET02,4,1               TABLE TAPE, AND                               4F11421
03352   0 76600 0 00333        IOD                          WHEN DONE,                                    4F11422
03353   0 50000 2 00324        CLA  INTET+2,2               INCREASE C (BLOCK COUNT)                      4F11423
03354   0 40000 0 01407        ADD  L(1)                    BY 1 FOR                                      4F11424
03355   0 62100 2 00324        STA  INTET+2,2               BLOCK JUST WRITTEN ON TABLE TAPE.             4F11425
03356   0 50000 2 00324 TET03   CLA  INTET+2,2               ADD P (PORTION OF BUFFER FULL)                4F11426
03357   0 77100 0 00022        ARS  18                      TO O (ORIGIN OF CURRENT TABLE                 4F11427
03360   0 40000 2 00322        ADD  INTET,2                 BUFFER) TO SET
```

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03361  0 62100 0 03371        STA TET05                        ADDRESS OF ENTRY LOOP (P+0).          4F11428
03362  0 50000 2 00323        CLA INTET+1,2                    OBTAIN CURRENT A (ENTRY ADDRESS),     4F11429
03363  0 62100 0 03370        STA TET04                        AND SET ADDRESS OF ENTRY LOOP.        4F11430
03364 -0 73400 4 00000        PDX ,4                           SET XR4 = E (ENTRY LENGTH IN WRDS).4F11431
03365  0 40000 2 00324        ADD INTET+2,2                    INCREASE P BY E TO ACCOUNT            4F11432
03366  0 62200 2 00324        STD INTET+2,2                    FOR FOLLOWING ENTRY.                  4F11433
03367 -0 53400 2 01406        LXD L(0),2                       SET XR2 = 0. THEN                     4F11434
03370  0 50000 2 00000 TET04  CLA **,2                         MOVE THE CURRENT ENTRY                4F11435
03371  0 60100 2 00000 TET05  STO **,2                         INTO THE CURRENT TABLE BUFFER, AND    4F11436
03372  1 77777 2 03373        TXI TET06,2,-1                   WHEN                                  4F11437
03373  2 00001 4 03370 TET06  TIX TET04,4,1                    DONE,                                 4F11438
03374  0 56000 0 01103        LDQ TETMQR                       RESTORE ORIGINAL C(MQR),              4F11439
03375 -0 53400 2 01100        LXD TETXR2,2                     RESTORE ORIGINAL C(XR2),              4F11440
03376 -0 53400 4 01101        LXD TETXR4,4                     RESTORE ORIGINAL C(XR4), AND          4F11441
03377  0 02000 1 00002        TRA 2,1                        * EXIT TO MAIN ROUTINE.                 4F11442
                                END OF PROGRAM TET00.                                                4F11443
                              * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F11444
                                                                                                     4F11445
                              DIAGNOSTIC CALLERS=CD000,CB000,CC000,CA100,C0200,C0300,C0900,4F11446
                              C1000,C1200,C3000,C3100,C3200,C3400,C0150,C0160,C0180,TEST...,4F11447
                              SR6DC1,DRTABS,RDRX,DIM.SR,SS000,ROYCNV,RDC,RSC,LPR,EQS,RPR,  4F11448
                              CMA,EMK,BEG(TYP),VRA(VRD).                                     4F11449
                              (CA000 ALSO CALLS THE DIAGNOSTIC AFTER ALL STATEMENTS HAVE     4F11450
                              BEEN PROCESSED.  IF THERE HAVE BEEN NO PREVIOUS CALLS TO       4F11451
                              THE DIAGNOSTIC DURING SECTION ONE, THEN 1PRIME IS CALLED.)    4F11452
D      03400  1 00000 0 00004 DIAG   TXI 4,0                   * GO GET THE DIAGNOSTIC.      4F11453
                                END OF DIAGNOSTIC CALLERS.                                           4F11454
                              * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F11455
                                                                                                     4F11456
                              ROUTINE TO COMPILE FLOW TRACING INSTRUCTIONS.                          4F11457
03401 -0 63400 4 03437 FLTR00 SXD FLTR05,4           SAVE CALLING TAG.                              4F114571
03402  0 50000 0 00030        CLA EIFNO              GET LAST INTERNAL AND EXTERNAL FORMULA NOS.4F114572
03403  0 62100 0 02067        STA ENT                PLACE LAST EFN IN DEC OF NTR INSTRUCTION.      4F114573
03404  0 77100 0 00022        ARS 18                                                                4F114574
03405  0 62100 0 02070        STA NZE                PLACE LAST IFN IN DEC OF PZE                   4F114575
03406 -0 53400 4 01122        LXD ARGCTR,4                                                          4F114576
03407 -3 00000 4 03413        TXL FLTR01,4,0         IS THIS AN FN FUNCTION, NO SKIP.               4F114577
03410  0 60000 0 01107        STZ 1C+2                                                              4F114578
03411  0 50200 0 01454        CLS 2E18               SET ADDRESS TO -1                              4F114579
03412  0 02000 0 03423        TRA FLTR03                                                            4F11457A
03413  0 50000 0 00365 FLTR01 CLA SBDFCN             IS THIS A MAIN PROGRAM OR SUBPROGRAM.          4F11457B
03414 -0 10000 0 03420        TNZ FLTR02             SKIP ON SUBPROGRAM                             4F11457C
03415  0 60000 0 01107        STZ 1C+2               SET ADDRESS TO 0                               4F11457D
03416  0 60000 0 01110        STZ 1C+3                                                              4F11457E
03417  0 02000 0 03424        TRA FLTR04                                                            4F11457F
03420  0 50000 0 01523 FLTR02 CLA DOLSGN             SET ADDRESS TO $+2                             4F11457G
03421  0 60100 0 01107        STO 1C+2                                                              4F11457H
03422  0 50000 0 01457        CLA D2                                                                4F11457I
03423  0 60100 0 01110 FLTR03 STO 1C+3               SET RELATIVE ADDRESS WORD OF CIT.              4F11457J
03424  0 07400 4 01731 FLTR04 TSX CIT00,4            COMPILE      NTR   **+2,0,EFN                  4F11457K
03425  0 00000 0 01406        PZE L(0)                                                              4F11457L
03426  0 00000 0 02067        PZE ENT                                                               4F11457M
03427  0 00000 0 01510        PZE 15P                                                               4F11457N
03430  0 00000 0 01457        PZE D2                                                                4F11457O
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03431   0 07400 4 01731         TSX CIT00,4                                                    4F11457P
03432   0 00000 0 01406         PZE L(0)              COMPILE    PZE  ALPHA,0,IFN              4F11457Q
03433   0 00000 0 02070         PZE NZE               WHERE ALPHA IS 0 FOR MAIN PROGRAM, $+2 FOR 4F11457R
03434   0 00000 0 01107         PZE 1C+2              SUBPROGRAM, OR -1 FOR FN FUNCTION IN EITHER4F11457S
03435   0 00000 0 01110         PZE 1C+3              MAIN OR SUBPROGRAM.                        4F11457T
03436  -0 53400 4 03437         LXD FLTR05,4                                                   4F11457U
03437   1 00000 0 01731 FLTR05  TXI CIT00,0,**        GO COMPILE    LXD M(,4  OR  7(TYPE=,4      4F11457V
                                                                                               4F11457W
                                                                                               4F11458
                                 END OF THE COMMON PART OF SECTION ONE.                        4F11459
                                                                                               4F11460
                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F11461
                                                                                               4F11462
                                SECTION 1 / INITIALIZATION =                                   4F11463
                  00471         ORG FORSUB                                                     4F11465
                                INITIALIZATION OCCUPIES FORSUB BUFFER AND IS WRITTEN OVER      4F11466
                                BY FORSUB ENTRIES IF THERE ARE ANY FORTRAN FUNCTIONS IN THE    4F11467
                                PROGRAM.                                                       4F11468
                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F11469
                                                                                               4F11470
                                PART 1 / CLEAR DRUMS 1,2,3,4, AND REWIND TAPES 2,3,4 =         4F11471
00471   0 53400 1 00504 CLDR00  LXA CLDR07,1                CLEAR DRUMS 1,2,3,4 TO +0.        4F11472
00472   0 76600 1 00305 CLDR01  WRS 197,1                   X                                 4F11473
00473  -0 53400 2 00504         LXD CLDR07,2                X                                 4F11474
00474   0 70000 0 00505 CLDR03  CPY CLDR08                  X                                 4F11475
00475   2 00001 2 00474         TIX CLDR03,2,1              X                                 4F11476
00476   2 00001 1 00472         TIX CLDR01,1,1              X                                 4F11477
00477   0 77200 0 00222         REW 146                     REWIND WORKING TAPES 2,3,4.       4F11478
00500   0 77200 0 00223         REW 147                     X                                 4F11479
00501   0 77200 0 00224         REW 148                     X                                 4F11480
00502   0 07400 4 05702 DMWR99  TSX CA100,4                * GO TO SUBROUTINE TO LOAD FT REGION.4F11540
00503   0 02000 0 03440         TRA CA010                   * GO BEGIN STATE A OF SECTION ONE.  4F11541
                                 END OF INITIALIZATION / PART 2.                               4F11542
                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F11543
                                                                                               4F11544
                                PART 3 / VARIABLES AND CONSTANTS USED BY INITIALIZATION=       4F11545
00504   0 04000 0 00004 CLDR07  PZE 4,,2048                 CONSTANT FOR CLEARING DRUMS.      4F11548
00505   0 00000 0 00000 CLDR08  PZE 0                       CONSTANT FOR CLEARING DRUMS.      4F11549
                                 END OF INITIALIZATION / PART 3.                               4F11552
                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F11553
                                                                                               4F11554
                                                                                               4F11555
                                SECTION 1 / STATEA =                                           4F11556
                                                                                               4F11558
                                NAME                        FUNCTION                           4F11559
                                PART 1 / ASSEMBLE AND CLASSIFY ALL STATEMENTS=                 4F11560
                                CA000                       ASSEMBLE STATEMENT.                4F11561
                                CD000                       SCAN FOR HOLLERITH AND ILLEGAL CHS.4F11562
                                CB000                       CLASSIFY=ARITHMETIC/NON-ARITHMETIC.4F11563
                                CC000                       CLASSIFY=WHICH NON-ARITHMETIC.     4F11564
                                PART 2 / PROCESS CONTROL AND SPECIFICATION STATEMENTS=         4F11565
                                C0100                       DO.                                4F11566
                                C0200                       GO TO.                             4F11567
                                C0300                       IF.                                4F11568
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C0400                          IF (SENSE SWITCH.                          4F11569
C0500                          IF (SENSE LIGHT.                           4F11570
C0600                          IF DIVIDE CHECK.                           4F11571
C0700                          IF AC OVERFLOW.                            4F11572
C0800                          IF MQ OVERFLOW.                            4F11573
C0900                          PAUSE.                                     4F11574
C1000                          ASSIGN.                                    4F11575
C1100                          SENSE LIGHT.                               4F11576
C1200                          DIMENSION.                                 4F11577
C1300                          STOP.                                      4F11578
C1400                          FREQUENCY.                                 4F11579
C1500                          EQUIVALENCE.                               4F11580
C1600                          CONTINUE.                                  4F11581
C3000(C3500)                   SUBROUTINE / FUNCTION.                     4F11582
C3100                          COMMON.                                    4F11583
C3200                          RETURN.                                    4F11584
C3300                          CALL.                                      4F11585
C3400                          END.                                       4F11586
PART 3 / PROCESS INPUT-OUTPUT STATEMENTS=                                 4F11587
RDC                            READ CARD.                                 4F11588
RIT                            READ INPUT TAPE.                           4F11589
RDP                            PRINT.                                     4F11590
WOT                            WRITE OUTPUT TAPE.                         4F11591
PDC                            PUNCH.                                     4F11592
WBT                            WRITE TAPE.                                4F11593
RBT                            READ TAPE.                                 4F11594
WRD                            WRITE DRUM.                                4F11595
RDD                            READ DRUM.                                 4F11596
EFT                            END FILE.                                  4F11597
RWN                            REWIND.                                    4F11598
BSP                            BACKSPACE.                                 4F11599
FOR                            FORMAT.                                    4F11600
RSC                            RESET AND SCAN.                            4F11601
LISTR                          CONTROL FOR LIST SCAN.                     4F11602
LPR                            LEFT PARENTHESIS IN LIST SCAN.             4F11603
EQS                            EQUAL SIGN IN LIST SCAN.                   4F11604
SPCTR                          CONTROL FOR SPECIFICATION SCAN.            4F11605
SPC                            SUBSCRIPT SPECIFICATIONS.                  4F11606
RPR                            RIGHT PARENTHESIS IN LIST SCAN.            4F11607
CMA                            COMMA IN LIST SCAN.                        4F11608
EMK                            ENDMARK IN LIST SCAN.                      4F11609
PART 4 / SUBROUTINES USED BY STATE A=                                     4F11610
BEG(TYP),4                     BEGINNING SCAN AND TYPE TEST.              4F11611
BEGTR                          CONTROL FOR BEGINNING SCAN.                4F11612
BRW,4                          BINARY READ OR WRITE COMPILER.             4F11613
BSS,2                          COMPILES= IFN BSS 0.                       4F11614
CA100,4                        READ SOURCE PROGRAM TAPE.                  4F11615
CC500,4                        SCAN DICTIONARY.                           4F11616
ETM(LTM)SW,4                   IF SW=NOP, COMPILES ETM(LTM). SL=0.        4F11617
IFFIX,1                        SETS UP FORVAR OR FORVAL ENTRY.            4F11618
IN(OUT)PUT,2                   COMPILES CAL *, AND XIT (LEV).             4F11619
LIB,1                          MAKES CLOSUB ENTRY, COMPILES CIT.          4F11620
VRA(VRD),4                     MAKES FORVAR, FIXCON, CIT ENTRIES.         4F11621
PART 5 / CONSTANTS AND VARIABLES USED BY STATE A.                         4F11622
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                                        DIC                     DICTIONARY.                                     4F11623
                                        T                       TRANSFER TABLE.                                 4F11624
                                                                                                                4F11625
                                        THE FOLLOWING CONVENTIONS ARE USED IN THIS LISTING=                      4F11626
                                                                                                                4F11627
                                        ** IN THE ADDRESS, TAG, OR DECREMENT OF AN INSTRUCTION                  4F11628
                                        INDICATES THAT THIS FIELD WILL BE MODIFIED BY THE PROGRAM.              4F11629
                                        * IN COL/36 INDICATES THE INSTRUCTION IS A TRANSFER OUT OF              4F11630
                                        THIS LOGICAL BLOCK OR SUBROUTINE.                                       4F11631
                                        C IN COL/34 INDICATES THE INSTRUCTION WAS CORRECTED.                    4F11632
                                        P IN COL/32 INDICATES THE INSTRUCTION WAS INSERTED (PATCH).             4F116??
                                                                                                                4F116.
                                        * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *     4F11635
                                                                                                                4F11636
                                        STATEA/1-ASSEMBLE AND CLASSIFY ALL STATEMENTS=                          4F11637
                                                                                                                4F11638
                    03440 ORGA    ORG 1824                                                                      4F11639
                                        * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *     4F11640
                    03440 STATEA  BSS 0                                                                         4F11641
                                        CA000/ CALLS=CA100,SR6DC1,TET00,DIAG.                                   4F11642
                                        CA000 ASSEMBLES STATEMENT IN THE F-REGION AND ASSIGNS AN IFN.           4F11643
                                          IF THE FINAL STATEMENT HAS BEEN                                       4F11644
03440 -0 53400 4 02575 CA010    LXD ENDWRD,4      * PROCESSED, THEN GO CALL DIAGNOSTIC.                       4F11645
03441 -3 00000 4 03400          TXL DIAG,4,0        KEEP INTERNAL FORMULA NUMBER                              4F11646
03442 -0 53400 1 00030          LXD EIFNO,1         (DECR PART OF EIFNO)                                      4F11647
03443  1 00001 1 03444          TXI CA013,1,1       UP TO DATE BY ADDING 1.                                   4F11648
03444 -0 63400 1 00030 CA013    SXD EIFNO,1         OBTAIN HOLLERITH CODED 5-DIGIT                            4F11649
03445 -0 50000 0 01333          CAL FT              EXTERNAL FORMULA NO IN ACC,                               4F11650
03446  0 77100 0 00006          ARS 6               AND RETAIN IN F-01.                                       4F11651
03447  0 60200 0 01151          SLW F-1             INITIALIZE INDEX A TO COMPL OF F.                         4F11652
03450 -0 53400 1 01670          LXD DCF,1           SET UP LOOP FOR 11 CYCLES.                                4F11653
03451  0 53400 2 01400 CA018    LXA L(11),2         MOVE WORD FROM REGION FT                                  4F11654
03452  0 56000 2 01347 CA019    LDQ FT+12,2         TO REGION F.                                              4F11655
03453 -0 60000 1 00000          STQ 0,1             KEEP F-REGION ADDRESS UP-TO-DATE.                         4F11656
03454  2 00001 1 03455          TIX CA020,1,1       TEST END OF LOOP.                                         4F11657
03455  2 00001 2 03452 CA020    TIX CA019,2,1     * GO READ NEXT NON-BLANK CARD.                              4F11658
03456  0 07400 4 05702          TSX CA100,4         TEST RIGHTMOST CHARACTER OF                               4F11659
03457 -0 50000 0 01333          CAL FT              FIRST WORD FOR CONTINUATION MARK,                         4F11660
03460 -0 32000 0 01374          ANA L(63)           IF ZERO OR BLANK,                                         4F11661
03461  0 10000 0 03464          TZE CA021           DISCONTINUE READING,                                      4F11662
03462  0 40200 0 01430          SUB ABLANK          OTHERWISE CONTINUE.                                       4F11663
03463 -0 10000 0 03451          TNZ CA018           BEGIN SCANNING REGION F BACKWARDS                         4F11664
03464  0 50000 0 01526 CA021    CLA BLANKS          TO FIND FIRST NON BLANK WORD.                             4F11665
03465  0 34000 1 77777 CA022    CAS -1,1            NOT BLANK.                                                4F11666
03466  0 02000 0 03470          TRA CA023           BLANK, SO CONTINUE SCAN.                                  4F11667
03467  1 00001 1 03465          TXI CA022,1,1       PLACE BINARY ONES IN FIRST WORD                           4F11668
03470  0 56000 0 01531 CA023    LDQ 36ONES          FOLLOWING RIGHTMOST NONBLANK WORD.                        4F11669
03471 -0 60000 1 00000          STQ 0,1             PICK UP EXTERNAL FORMULA NUMBER AND                       4F11670
03472 -0 50000 0 01151          CAL F-1             COMPARE WITH /0      /.                                   4F11671
03473  0 34000 0 01477          CAS 5BLANS          NOT COMPARE.                                              4F11672
03474  0 02000 0 03476          TRA CA015         * TAKE EXTFORMNO, IF ANY, AND                               4F11673
03475  0 02000 0 03503          TRA CD000           GO TO CONVERSION SUBROUTINE AND                           4F11674
03476  0 76500 0 00043 CA015    LRS 35            * RETURN HERE WITH RESULT IN ACC.                           4F11675
03477  0 07400 1 02566          TSX SR6DC1,1        STORE RESULT IN ADDRESS OF EIFNO.                         4F11676
03500  0 62100 0 00030          STA EIFNO         * GO TO PROGRAM TET TO ENTER EIFNO                          4F11677
03501  0 07400 1 03321          TSX TET00,1
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                03502   0 00000 0 00000          PZE 0                                  INTO TABLE TEIFNO (TABLE 0).          4F11677
                                                   END OF PROGRAM CA000.                                                4F11678
                                                   * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F11679
                                                                                                                        4F11680
                                                   CD000/ CALLS=C0190X,C0190,DIAG.                                      4F11681
                                                   CD000 SCANS FOR HOLLERITH AND ILLEGAL CHARACTERS.                    4F11682
                03503   0 07400 4 01671 CD000    TSX C0190X,4                         * SET SCAN TO PICK UP 1ST CHARACTER. 4F11683
                03504   0 07400 1 03534 CD001    TSX CD900,1                          * IF NOT ENDMARK OR ILLEGAL CHARACTER4F11684
                03505   0 34000 0 01376          CAS COMMA                              SCAN                              4F11685
                03506   1 00000 0 03510          TXI CD002,0                            FOR                               4F11686
D               03507   1 00000 0 03512          TXI CD003,0                            HOLLERITH                         4F11687
                03510   0 40200 0 01375 CD002    SUB OPEN                               SPECIFICATION                     4F11688
                03511  -0 10000 0 03504          TNZ CD001                              WHICH                             4F11689
                03512   0 07400 1 03534 CD003    TSX CD900,1                          * CAN BE=                           4F11690
                03513   0 40200 0 01373          SUB L(10)                              , N H                             4F11691
                03514   0 12000 0 03504          TPL CD001                              OR = ( N H.                       4F11692
                03515   0 07400 1 03534 CD004    TSX CD900,1                          * IF NOT ENDMARK OR ILLEGAL CHARACTER4F11693
                03516   0 34000 0 01417          CAS L(9)                               CONTINUE SCAN.                    4F11694
D               03517   1 00000 0 03522          TXI CD005,0                            N                                 4F11695
D               03520   1 00000 0 03515          TXI CD004,0                            IS                                4F11696
D               03521   1 00000 0 03515          TXI CD004,0                            A                                 4F11697
                03522   0 34000 0 01423 CD005    CAS L(H)                               FIXED                             4F11698
D               03523   1 00000 0 03505          TXI CD001+1,0                          POINT                             4F11699
D               03524   1 00000 0 03526          TXI CD700,0                            INTEGER.                          4F11700
D               03525   1 00000 0 03505          TXI CD001+1,0                          X                                 4F11701
                03526   0 07400 4 01707 CD700    TSX C0190,4                          * GO GET NEXT NONBLANK CHARACTER,   4F11702
                03527   0 34000 0 01374          CAS ENDMK                              AND IF ENDMARK,                   4F11703
D               03530   1 00000 0 03532          TXI CD701,0                            THEN SKIP                         4F11704
D               03531   1 00000 0 03616          TXI CC000,0                          * TO NON-ARITHMETIC CLASSIFICATION. 4F11705
                03532   0 07400 1 03543 CD701    TSX CD600,1                          * SINCE HOLLERITH HAS BEEN FOUND,   4F11706
D               03533   1 00000 0 03526          TXI CD700,0                            THEN $ IS LEGAL IN FORMAT TEXT.   4F11707
                03534   0 07400 4 01707 CD900    TSX C0190,4                          * OBTAIN NEXT NONBLANK CHARACTER,   4F11708
                03535   0 34000 0 01374          CAS ENDMK                              AND IF NOT                        4F11709
D               03536   1 00000 0 03540          TXI CD800,0                            ENDMARK, THEN SKIP                4F11710
D               03537   1 00000 0 03562          TXI CB000,0                          * EXIT TO ARITH/NON-ARITH SCAN.     4F11711
                03540   0 34000 0 01427 CD800    CAS SPECOP                             CHECK FOR $                       4F11712
D               03541   1 00000 0 03546          TXI CD601,0                            WHICH, UNLESS HOLLERITH, IS AN    4F11713
                03542   0 07400 4 03400          TSX DIAG,4                           * ERROR -- GO TO DIAGNOSTIC.        4F11714
                03543   0 34000 0 01435 CD600    CAS PM                                 CHECK FOR RECORD MARK             4F11715
                03544   0 02000 1 00001          TRA 1,1                                WHICH IS AN                       4F11716
                03545   0 07400 4 03400          TSX DIAG,4                           * ERROR -- GO TO DIAGNOSTIC.        4F11717
                03546   0 34000 0 01426 CD601    CAS CHAR3                              CHECK FOR MINUS ZERO              4F11718
                03547   0 02000 1 00001          TRA 1,1                                WHICH IS AN                       4F11719
                03550   0 07400 4 03400          TSX DIAG,4                           * ERROR -- GO TO DIAGNOSTIC.        4F11720
                03551   0 34000 0 01424          CAS CHAR2                              CHECK FOR PLUS ZERO               4F11721
                03552   0 02000 1 00001          TRA 1,1                                WHICH IS AN                       4F11722
                03553   0 07400 4 03400          TSX DIAG,4                           * ERROR -- GO TO DIAGNOSTIC.        4F11723
                03554   0 34000 0 01420          CAS MINUS                              CHECK FOR MINUS SIGN              4F11724
                03555   0 02000 1 00001          TRA 1,1                                WHICH IS AN                       4F11725
                03556   0 07400 4 03400          TSX DIAG,4                           * ERROR -- GO TO DIAGNOSTIC.        4F11726
                03557   0 40200 0 01373          SUB TEN                                CHECK FOR TEN                     4F11727
                03560  -0 10000 1 00001          TNZ 1,1                                WHICH IS AN                       4F11728
                03561   0 07400 4 03400          TSX DIAG,4                           * ERROR -- GO TO DIAGNOSTIC.        4F11729
                                                   END OF PROGRAM CD000.                                                4F11730
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                                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F11731
                                                                                                                  4F11732
                                                CB000/ CALLS=C0190X,C0190,DIAG.                                   4F11733
                                                CB000 CLASSIFIES STATEMENT AS ARITHMETIC OR NON-ARITHMETIC.       4F11734
03562   0 53400 1 01407 CB000   LXA L(1),1        SET XR1 TO COUNT PARENTHESES.                                  4F11735
03563   0 07400 4 01671         TSX C0190X,4     * RESET CHCTR AND FWA TO BEGIN SCAN.                            4F11736
03564   0 07400 4 01707 CB001   TSX C0190,4      * EXAMINE NEXT NON-BLANK CHARACTER.                             4F11737
03565   0 34000 0 01400         CAS AEQUAL         IF AN EQUAL SIGN,                                             4F11738
D 03566 1 00000 0 03570         TXI CB005,0        THEN                                                        4F11739
D 03567 1 00000 0 03601         TXI CB200,0        GO TEST PAREN-COUNT.                                        4F11740
03570   0 34000 0 01375 CB005   CAS ALPAR          IF A LEFT PARENTHESIS,                                        4F11741
D 03571 1 00000 0 03573         TXI CB006,0        THEN                                                        4F11742
03572   1 00001 1 03564         TXI CB001,1,1      UPDATE PAREN-COUNT BY 1.                                    4F11743
03573   0 34000 0 01377 CB006   CAS ARPAR          IF A RIGHT PARENTHESIS,                                       4F11744
D 03574 1 00000 0 03576         TXI CB007,0        THEN                                                        4F11745
D 03575 1 00000 0 03614         TXI CB500,0        GO TEST PAREN-COUNT.                                        4F11746
03576   0 40200 0 01374 CB007   SUB ENDMK          IF NOT ENDMARK, THEN                                          4F11747
03577  -0 10000 0 03564         TNZ CB001          GO EXAMINE NEXT CHARACTER.                                  4F11748
D 03600 1 00000 0 03616         TXI CC000,0      * OTHERWISE, GO TO DIC LOOK-UP.                               4F11749
03601   2 00001 1 03616 CB200   TIX CC000,1,1     * IF EQUAL WAS NOT WITHIN PARENS,                             4F11750
03602   0 07400 4 01707 CB201   TSX C0190,4      * THEN EXAMINE NEXT CHARACTER.                                  4F11751
03603   0 34000 0 01375         CAS ALPAR          IF LEFT PARENTHESIS,                                          4F11752
D 03604 1 00000 0 03606         TXI CB205,0        THEN                                                        4F11753
D 03605 1 00000 0 06323         TXI ARITH,0      * THIS IS AN ARITHMETIC FORMULA.                              4F11754
03606   0 34000 0 01376 CB205   CAS ACOMMA         IF A COMMA,                                                   4F11755
D 03607 1 00000 0 03611         TXI CB206,0        THEN                                                        4F11756
D 03610 1 00000 0 03616         TXI CC000,0      * GO TO NON-ARITHMETIC DIC LOOK-UP.                           4F11757
03611   0 40200 0 01374 CB206   SUB ENDMK           IF NOT ENDMARK, THEN                                        4F11758
03612  -0 10000 0 03602         TNZ CB201          GO EXAMINE NEXT CHARACTER.                                  4F11759
D 03613 1 00000 0 06323         TXI ARITH,0      * THIS IS AN ARITHMETIC FORMULA.                              4F11760
03614   2 00001 1 03564 CB500   TIX CB001,1,1      IF PAREN-COUNT DOES NOT BALANCE,                            4F11761
03615   0 07400 4 03400         TSX DIAG,4       * ERROR-GO TO DIAGNOSTIC ROUTINE.                             4F11762
                                                                                                                  4F11763
                                 END OF PROGRAM CB000.                                                            4F11764
                                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
                                                                                                                  4F11765
                                                CC000/ CALLS=CC500,C0190X,DIAG,C0190,TET00.                       4F11766
                                                CC000 CLASSIFIES STATEMENT AS TO WHICH NON-ARITHMETIC.            4F11767
03616   0 60000 0 01113 CC000   STZ 2G             SET DICTIONARY WORD TAG, AND                                  4F11768
03617   0 53400 3 01406         LXA L(0),3         CHARACTER COUNT AND ENTRY COUNT.                              4F11769
03620   0 07400 4 01671 CC001   TSX C0190X,4      * RESET CHCTR AND FWA TO BEGIN SCAN.                            4F11770
03621   0 07400 4 05743         TSX CC500,4      * EXAMINE NEXT DICTIONARY CHARACTER.                            4F11771
03622   0 34000 0 01374         CAS ENDMK          TEST FOR CONSECUTIVE ENDMARKS.                                4F11772
03623   0 02000 0 03272         TRA ERR77P       * MACHINE ERROR, GO TO DIAGNOSTIC.                              4F11773
03624   0 07400 4 03400         TSX DIAG,4       * ERROR = NOT FOUND IN DICTIONARY.                              4F11774
D 03625 1 00000 0 03632         TXI CC004,0        GO BEGIN COMPARISON.                                        4F11775
03626   0 07400 4 05743 CC002   TSX CC500,4      * EXAMINE NEXT DICTIONARY CHARACTER.                            4F11776
03627   0 34000 0 01374         CAS ENDMK          TEST FOR END OF DIC ENTRY.                                    4F11777
D 03630 1 00000 0 03272         TXI ERR77P,0     * MACHINE ERROR, GO TO DIAGNOSTIC.                              4F11778
D 03631 1 00000 0 03644         TXI CC007,0        IF END OF ENTRY, LOOK NO FURTHER.                           4F11779
03632   0 60100 0 01105 CC004   STO 1C             OTHERWISE, SAVE CHARACTER                                     4F11780
03633  -0 60000 0 01106         STQ 1C+1           AND REMAINDER OF DICTIONARY WORD.                             4F11781
03634   0 07400 4 01707         TSX C0190,4      * GO GET NEXT FORMULA CHARACTER,                                4F11782
03635   0 56000 0 01106         LDQ 1C+1           AND RESTORE DICTIONARY WORD.                                  4F11783
03636   0 40200 0 01105         SUB 1C             IF CHARACTERS ARE EQUAL,                                      4F11784
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03637   0 10000 0 03626         TZE CC002                       THEN GO COMPARE NEXT CHARACTERS.    4F11785
03640   0 07400 4 05743 CC005   TSX CC500,4                   * OTHERWISE, EXAMINE NEXT DIC CHAR.   4F11786
03641   0 40200 0 01374         SUB ENDMK                       CONTINUE UNTIL AN ENDMARK IS        4F11787
03642  -0 10000 0 03640         TNZ CC005                       FOUND, THEN                         4F11788
03643   1 77777 1 03620         TXI CC001,1,-1                  COUNT ENTRY, AND BEGIN AGAIN.       4F11789
03644   0 50000 1 06246 CC007   CLA T,1                         IF THE CURRENT STATEMENT IS         4F11790
03645   0 12000 1 06246         TPL T,1                         OF THE NON-EXECUTABLE TYPE,         4F11791
03646  -0 63400 1 01107         SXD 1C+2,1                      THEN                                4F11792
03647   0 07400 1 03321         TSX TETOO,1                   * GO ENTER EIFNO IN THE               4F11793
03650   0 00000 0 00016         PZE 14                          NONEXC TABLE.                       4F11794
03651  -0 53400 1 01107         LXD 1C+2,1                      AND THEN                            4F11795
03652   0 02000 1 06246 CC008   TRA T,1                       * TAKE INDICATED TRANSFER.            4F11796
                                 END OF PROGRAM CC000.                                             4F11797
                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F11798
                                                                                                    4F11799
                                STATEA/2-PROCESS CONTROL AND SPECIFICATION STATEMENTS=              4F11800
                                                                                                    4F11801
                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F11802
                                                                                                    4F11803
                                C0100/ CALLS=GETIFN,C0190,TEST..,C0180,C0160,C0150,TETOO.           4F11804
                                C0100 PROCESSES DO STATEMENTS.                                      4F11805
03653   0 07400 4 02366 C0100   TSX GETIFN,4                  * GET INTERNAL FORMULA NUMBER IN 1C.  4F11806
03654   0 07400 4 01707         TSX C0190,4                   * OBTAIN 1ST NON-BLANK CHARACTER      4F11807
03655   0 07400 4 03315         TSX TESTI0,4                  * WHICH SHOULD BE NUMERIC.           4F11808
03656   0 07400 2 01655         TSX C0180,2                   * OBTAIN IN 1G THE BIN EQUIV OF BETA.4F11809
03657   0 60100 0 01113         STO 2G                          SAVE THE 1ST CHAR OF SUBSCRIPT.     4F11810
03660   0 50000 0 01112         CLA 1G                          TAKE CONVERTED RESULT FOR BETA      4F11811
03661   0 62100 0 01105         STA 1C                          AND STORE IN ADDR OF 1C.            4F11812
03662   0 50000 0 01113         CLA 2G                          1C IS NOW COMPLETE EXCEPT FOR TAG.  4F11813
03663   0 07400 2 01624         TSX C0160,2                   * OBTAIN IN 1G THE SUBSCRIPT.         4F11814
03664   0 50000 0 01112         CLA 1G                          STORE SUBSCRIPT                     4F11815
03665   0 60100 0 01106         STO 1C+1                        IN 1C+1.                            4F11816
03666   0 07400 2 01604         TSX C0150,2                   * OBTAIN IN 1G THE PROPER N1.         4F11817
03667   0 50000 0 01112         CLA 1G                          STORE N1                            4F11818
03670   0 60100 0 01107         STO 1C+2                        IN 1C+2.                            4F11819
03671  -0 50000 0 01353         CAL I                           OBTAIN I IN LOGICAL ACC AND         4F11820
03672   0 77100 0 00022         ARS 18                          STORE IN POS 18 OF 1C               4F11821
03673  -0 60200 0 01105         ORS 1C                          0 IF NUMERIC, OR 1 IF NON-NUMERIC.  4F11822
03674   0 07400 2 01604         TSX C0150,2                   * OBTAIN IN 1G THE PROPER N2.         4F11823
03675   0 07400 4 03247         TSX TESTA0,4                  * TEST THE AC FOR COMMA OR ENDMARK.   4F11824
03676  -0 10000 0 03701         TNZ C0113                       IF ENDMARK, THEN                    4F11825
03677  -0 77300 0 00037         RQL 31                          CREATE ONE IN MQ FOR N3             4F11826
03700  -0 60000 0 01365         STQ RESIDU                      AND PLACE IN RESIDU.                4F11827
03701   0 50000 0 01112 C0113   CLA 1G                          STORE N2                            4F11828
03702   0 60100 0 01110         STO 1C+3                        IN 1C+3.                            4F11829
03703  -0 50000 0 01353         CAL I                           OBTAIN I IN LOG ACC AND             4F11830
03704   0 77100 0 00023         ARS 19                          STORE IN POS 19 OF 1C               4F11831
03705  -0 60200 0 01105         ORS 1C                          0 IF NUMERIC, OR 1 IF NON-NUMERIC.  4F11832
03706   0 07400 2 01604         TSX C0150,2                   * OBTAIN IN 1G THE PROPER N3.         4F11833
03707   0 07400 4 03271         TSX TESTD0,4                  * THE AC SHOULD CONTAIN AN ENDMARK.   4F11834
03710   0 50000 0 01112         CLA 1G                          STORE N3                            4F11835
03711   0 60100 0 01111         STO 1C+4                        IN 1C+4.                            4F11836
03712  -0 50000 0 01353         CAL I                           OBTAIN I IN LOG ACC AND             4F11837
03713   0 77100 0 00024         ARS 20                          STORE IN POS 20 OF 1C               4F11838
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   03714 -0 60200 0 01105        ORS 1C                 0 IF NUMERIC, OR 1 IF NON-NUMERIC. 4F11839
   03715  0 07400 1 03321        TSX TET00,1          * GO TO TET PROGRAM TO ENTER         4F11840
   03716  0 00000 0 00001        PZE 1                  1C,1C+1,..1C+4 IN TDO TABLE 1.     4F11841
D  03717  1 00000 0 03440        TXI CA010,0          * EXIT TO PROCESS NEXT STATEMENT.    4F11842
                                  END OF PROGRAM C0100.                                     4F11843
                                 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F11844
                                                                                            4F11845
                                 C0200/ CALLS=GETIFN,DIAG,TEST...,C0190,C0180,TET00,C0160,  4F11846
                                 CIT00,SS000(CSA000).                                       4F11847
                                 C0200 PROCESSES GO TO STATEMENTS.                          4F11848
   03720  0 07400 4 02366 C0200  TSX GETIFN,4         * GET INTERNAL FORMULA NUMBER IN 1C  4F11849
   03721  0 60100 0 01107        STO 1C+2               AND IN 1C+2.                       4F11850
   03722  0 07400 4 01707        TSX C0190,4          * OBTAIN IN ACC NEXT NB CHARACTER    4F11851
   03723  0 34000 0 01417        CAS L(9)               AND COMPARE IT WITH 9.             4F11852
D  03724  1 00000 0 03733        TXI C0205,0            IF NON-NUMERIC, GO COMPARE WITH (. 4F11853
   03725  0 76100 0 00000        NOP                    IF NUMERIC, THEN                   4F11854
   03726  0 07400 2 01655        TSX C0180,2          * OBTAIN IN 1G THE BINARY EQUV BETA. 4F11855
   03727  0 07400 4 03271        TSX TESTD0,4         * THE AC SHOULD CONTAIN AN ENDMARK.  4F11856
   03730  0 50000 0 01112        CLA 1G                 STORE BETA IN 1C+1 TO CONSTRUCT    4F11857
   03731  0 60100 0 01106        STO 1C+1               THE 2ND WORD OF TIFGO TABLE ENTRY. 4F11858
D  03732  1 00000 0 04030        TXI C0202,0            GO TO ENTER 1C,1C+1 INTO TIFGO.    4F11859
   03733  0 34000 0 01375 C0205  CAS ALPAR              TEST CHARACTER FOR ALPHABETIC.     4F11860
D  03734  1 00000 0 03736        TXI C0210,0            IF NOT ALPHABETIC, THEN            4F11861
D  03735  1 00000 0 03746        TXI C0212,0            THIS IS TYPE= GO TO ( ), I.        4F11862
   03736  0 07400 2 01624 C0210  TSX C0160,2          * TYPE= GO TO N,(),SO OBTAIN IN 1G N 4F11863
   03737  0 07400 4 03305        TSX TESTG0,4         * WHICH SHOULD BE FOLLOWED BY COMMA. 4F11864
   03740  0 50000 0 01112        CLA 1G                 SAVE THE SYMBOL N IN 1C+3          4F11865
   03741  0 60100 0 01110        STO 1C+3               FOR COMPILED INSTRUCTION.          4F11866
   03742  0 07400 4 01707        TSX C0190,4          * OBTAIN IN ACC NEXT NB CHARACTER,   4F11867
   03743  0 07400 4 03275        TSX TESTE0,4         * WHICH SHOULD BE A LPAREN.          4F11868
   03744  0 50000 0 01407        CLA L(1)               PREPARE TO SET ADDRESS PART OF 1C  4F11869
   03745  0 02000 0 03747        TRA C0213              TO 1 TO INDICATE CLASS OF TRANSFER.4F11870
   03746  0 50000 0 01410 C0212  CLA L(2)               PREPARE TO SET ADDR OF 1C TO 2.    4F11871
   03747  0 62100 0 01105 C0213  STA 1C                 STORE 1 OR 2 IN ADDR OF 1C.        4F11872
   03750 -0 53400 2 04032        LXD CTRAD,2            OBTAIN 250-(NO. TRAD ENTRIES), AND 4F11873
   03751 -0 75400 2 00000        PXD ,2                 PLACE IN THE DECREMENT OF THE AC   4F11874
   03752  0 60100 0 01106        STO 1C+1               AND STORE IN 1C+1.                 4F11875
   03753  0 07400 4 01707 C0215  TSX C0190,4          * OBTAIN IN ACC NEXT NB CHAR.        4F11876
   03754  0 07400 2 01655        TSX C0180,2          * OBTAIN IN 1G THE BIN EQU OF BETA.  4F11877
   03755  0 60100 0 01113        STO 2G                 SAVE CHAR IN ACC.                  4F11878
   03756  0 07400 1 03321        TSX TET00,1          * GO TO ENTER 1G                     4F11879
   03757  0 00000 0 00003        PZE 3                  INTO TRAD TABLE (TABLE 3).         4F11880
   03760 -0 53400 2 04032        LXD CTRAD,2            REDUCE COUNTER                     4F11881
   03761  2 00001 2 03762        TIX C0216,2,1          CTRAD                              4F11882
   03762 -0 63400 2 04032 C0216  SXD CTRAD,2            BY 1.                              4F11883
   03763  0 50000 0 01113        CLA 2G                 RESTORE CHAR TO ACC.               4F11884
   03764  0 07400 4 03255        TSX TESTB0,4         * TEST FOR COMMA OR RPAREN.          4F11885
   03765 -0 10000 0 03753        TNZ C0215              IF RIGHT PARENTHESIS, THEN         4F11886
   03766  0 50000 0 04032        CLA CTRAD              OBTAIN IN ADDR OF ACC 250-NO. OF   4F11887
   03767  0 77100 0 00022        ARS 18                 ENTRIES IN TRAD TABLE,AND STORE    4F11888
   03770  0 62100 0 01106        STA 1C+1               IN ADDR OF 1C+1.                   4F11889
   03771  0 50000 0 01105        CLA 1C                 OBTAIN 1C IN ACC                   4F11890
   03772  0 76000 0 00001        LBT                    AND TEST LOW ORDER BIT.            4F11891
   03773  0 02000 0 04004        TRA C0220              THIS IS A TYPE GO TO (),I FORMULA. 4F11892
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03774   0 07400 4 01707         TSX C0190,4                 * OBTAIN NEXT NB CHAR AND                  4F11893
03775   0 07400 4 03271         TSX TESTD0,4                * TEST FOR ENDMK.                          4F11894
03776   0 07400 4 01731         TSX CIT00,4                 * GO MAKE THE FOLLOWING CIT ENTRY=         4F11895
03777   0 00000 0 01107         PZE 1C+2                      WORD 1--DECR= INTFORMNO (LOCATION)       4F11896
04000   0 00000 0 01601         PZE L(TRA)                    WORD 2--TRA000 (OP AND DECR)             4F11897
04001   0 00000 0 01110         PZE 1C+3                      WORD 3--VARIABLE N (ADDRESS)             4F11898
04002   0 00000 0 01406         PZE L(0)                      WORD 4--000000 (REL ADDR AND TAG).       4F11899
04003   0 02000 0 04030         TRA C0202                     GO TO ENTER 1C,1C+1 INTO TIFGO.          4F11900
04004   0 07400 4 01707 C0220   TSX C0190,4                 * EXAMINE NEXT NB CHARACTER,               4F11901
04005   0 07400 4 03305         TSX TESTG0,4                * WHICH SHOULD BE A COMMA.                 4F11902
04006   0 07400 4 01707         TSX C0190,4                 * OBTAIN IN ACC NEXT NB CHAR, AND          4F11903
04007   0 07400 2 01624         TSX C0160,2                 * OBTAIN IN 1G THE FXD-PT. VARIABLE,       4F11904
04010   0 07400 4 03271         TSX TESTD0,4                * WHICH SHOULD BE FOLLOWED BY ENDMK.       4F11905
04011   0 50000 0 01407         CLA L(1)                      PREPARE PROPER FORM OF SUBSCRIPT         4F11906
04012   0 60100 0 01131         STO E+3                       COMBINATION AS                           4F11907
04013   0 60100 0 01100         STO DIMCTR                    INPUT TO SUBSCRIPT ANALYSIS=             4F11908
04014   0 50000 0 01112         CLA 1G                        E+3 = 1ST COEFFICIENT,                   4F11909
04015   0 60100 0 01132         STO E+4                       E+4 = 1ST SUBSCRIPT VARIABLE,            4F11910
04016   0 60000 0 01137         STZ E+9                       E+9 = ADDEND OF SUBSCRIPT,               4F11911
04017   0 07400 4 03027         TSX CSA000,4                * DIMCTR = DIMENSION OF VARIABLE.          4F11912
04020   0 50000 0 01126         CLA E                         OUTPUT FROM CSA IS FOUND IN              4F11913
04021   0 77100 0 00030         ARS 24                        E = I--TAUTAG (GENERAL TAG) 1-11.        4F11914
04022   0 60100 0 01113         STO 2G                        ADJUST AND SAVE FOR COMP. INSTR.         4F11915
04023   0 07400 4 01731         TSX CIT00,4                 * GO MAKE THE FOLLOWING CIT ENTRY=         4F11916
04024   0 00000 0 01107         PZE 1C+2                      WORD 1--DECR-INTFORMNO(LOCATION)         4F11917
04025   0 00000 0 01601         PZE L(TRA)                    WORD 2--TRA000(OP AND DECR)              4F11918
04026   0 00000 0 01406         PZE L(0)                      WORD 3--000000(ADDRESS)                  4F11919
04027   0 00000 0 01113         PZE 2G                        WORD 4--ADDR = TAUTAG FOR I              4F11920
                                C0200= ENTRY POINT USED BY C0400,C1000.                                4F11921
04030   0 07400 1 03321 C0202   TSX TET00,1                 * GO TO TET TO ENTER 1C AND 1C+1           4F11922
04031   0 00000 0 00002         PZE 2                         INTO TIFGO TABLE (TABLE 2).              4F11923
04032   1 00372 0 03440  CTRAD  TXI CA010,0,250             * EXIT TO PROCESS NEXT STATEMENT.          4F11924
                                 END OF PROGRAM C0200.                                                 4F11925
                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F11926
                                                                                                       4F11927
                                C0300/ CALLS=C0190X,C0190,C0390,TEST..,DIAG,C0180,TET00,               4F11928
                                STATEB.                                                                4F11929
                                C0300 PROCESSES IF STATEMENTS.                                         4F11930
04033 -0 53400 4 00030 C0300    LXD EIFNO,4                   PLACE THE CURRENT INTERNAL FORMULA       4F11931
04034 -0 75400 4 00000          PXD ,4                        NUMBER IN THE DECREMENT OF 1C            4F11932
04035 -0 76000 0 00003          SSM                           WITH SIGN SET TO MINUS                   4F11933
04036   0 60100 0 01105         STO 1C                        FOR FUTURE TIFGO ENTRY.                  4F11934
04037   0 07400 4 01671         TSX C0190X,4                * SET CHCTR AND FWA TO BEGIN SCAN.         4F11935
04040   0 07400 4 01707         TSX C0190,4                 * OBTAIN IN AC THE 1ST NB CHAR (I).        4F11936
04041   0 56000 0 01433         LDQ L(X)                      REPLACE THE CHARACTER I                  4F11937
04042   0 07400 4 01675         TSX C0390,4                 * WITH THE CHARACTER X.                    4F11938
04043   0 56000 0 01373         LDQ L(10)                     REPLACE THE CHARACTER F                  4F11939
04044   0 07400 4 01675         TSX C0390,4                 * WITH THE CHARACTER 001010.               4F11940
04045   0 07400 4 03275         TSX TESTE0,4                * IF NOT LPAREN -- THEN ERROR.             4F11941
04046   0 56000 0 01400         LDQ AEQUAL                    REPLACE THE CHARACTER LPAREN             4F11942
04047   0 07400 4 01675         TSX C0390,4                 * WITH THE CHARACTER EQUAL.                4F11943
04050   0 53400 2 01407         LXA L(1),2                    SET XR2 FOR COUNTING PARENTHESES.        4F11944
04051   0 02000 0 04053         TRA *+2                                                                4F11945
04052   0 07400 4 01707 C0302   TSX C0190,4                 * MAKE SURE THAT NEXT NB CHARACTER         4F11946
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04053  0 34000 0 01374         CAS ENDMK                         IS NOT AN ENDMARK.                 4F11947
04054  0 02000 0 03272         TRA ERR77P                      * MACHINE ERROR, GO TO DIAGNOSTIC.   4F11948
04055  0 07400 4 03400         TSX DIAG,4                      * PROGRAM ERROR, GO TO DIAGNOSTIC.   4F11949
04056  0 34000 0 01375         CAS ALPAR                         IF IT IS A LPAREN,                 4F11950
D   04057  1 00000 0 04061     TXI C0303,0                       THEN ADD 1 TO PAREN COUNT, AND     4F11951
04060  1 00001 2 04052         TXI C0302,2,1                     GO EXAMINE NEXT CHARACTER.         4F11952
04061  0 40200 0 01377 C0303   SUB ARPAR                         IF IT IS A RPAREN,                 4F11953
04062 -0 10000 0 04052         TNZ C0302                         THEN TEST PAREN COUNT, AND IF IT   4F11954
04063  2 00001 2 04052         TIX C0302,2,1                     CAN NOT BE REDUCED,MATE IS FOUND.  4F11955
04064  0 56000 0 01374         LDQ ENDMK                         SO REPLACE THE CHARACTER RPAREN    4F11956
04065  0 07400 4 01675         TSX C0390,4                     * WITH THE CHARACTER ENDMK.          4F11957
04066  0 07400 2 01655         TSX C0180,2                     * BINARY EQUIVALENT OF BETA 1.       4F11958
04067  0 07400 4 03305         TSX TESTG0,4                    * THIS SHOULD BE FOLLOWED BY A COMMA.4F11959
04070  0 50000 0 01112         CLA 1G                            MOVE BETA1                         4F11960
04071  0 62100 0 01105         STA 1C                            TO ADDRESS OF 1C.                  4F11961
04072  0 07400 4 01707         TSX C0190,4                     * AND PROCEED TO FORM                4F11962
04073  0 07400 2 01655         TSX C0180,2                     * THE BINARY EQUIVALENT OF BETA 2.   4F11963
04074  0 07400 4 03305         TSX TESTG0,4                    * THIS SHOULD BE FOLLOWED BY A COMMA.4F11964
04075  0 50000 0 01112         CLA 1G                            MOVE BETA2                         4F11965
04076  0 76700 0 00022         ALS 18                            TO DECR PART                       4F11966
04077  0 60100 0 01106         STO 1C+1                          OF 1C+1.                           4F11967
04100  0 07400 4 01707         TSX C0190,4                     * AND PROCEED TO FORM                4F11968
04101  0 07400 2 01655         TSX C0180,2                     * THE BINARY EQUIVALENT OF BETA 3.   4F11969
04102  0 07400 4 03271         TSX TESTD0,4                    * THIS SHOULD BE FOLLOWED BY ENDMARK.4F11970
04103  0 50000 0 01112         CLA 1G                            MOVE BETA3                         4F11971
04104  0 62100 0 01106         STA 1C+1                          TO ADDRESS OF 1C+1.                4F11972
D   04105  1 00000 0 06323     TXI ARITH,0                     * EXIT TO ARITH FOR FINAL PROCESSING.4F11973
                                 END OF PROGRAM C0300.                                              4F11974
                               * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *        *4F11975
                                                                                                    4F11976
                               C0400/ CALLS=C0190,C0180,TEST...,CIT00,C0200.                        4F11977
                               C0400 PROCESSES IF (SENSE SWITCH STATEMENTS.                         4F11978
04106  0 50000 0 01441 C0400   CLA L(112)                        FOR SENSE SWITCH                   4F11979
04107  0 60100 0 01115         STO 1H                            SET 1H TO 112, AND PREPARE TO      4F11980
04110  0 50000 0 01565         CLA L(PSE)                        SET 2H TO PSE.                     4F11981
                               C0401= ENTRY POINT USED BY C0500.                                    4F11982
04111  0 60100 0 01116 C0401   STO 2H                            SET 2H FOR SENSE SWITCH OR LIGHT.  4F11983
04112  0 07400 4 01707         TSX C0190,4                     * PROCEED TO FORM THE BINARY         4F11984
04113  0 07400 2 01655         TSX C0180,2                     * EQUIVALENT OF SW OR SL NUMBER.     4F11985
04114  0 07400 4 03301         TSX TESTF0,4                    * THIS SHOULD BE FOLLOWED BY RPAREN. 4F11986
04115  0 50000 0 01411         CLA L(3)                          STORE 3                            4F11987
04116  0 60100 0 01105         STO 1C                            IN ADDRESS OF 1C.                  4F11988
04117  0 50000 0 01112         CLA 1G                            ADD THE PROPER INCREMENT TO THE    4F11989
04120  0 40000 0 01115         ADD 1H                            NUMBER OF SENSE SWITCH OR LIGHT,   4F11990
04121  0 76700 0 00022         ALS 18                            AND ADJUST TO THE DECREMENT.       4F11991
                               C0402= ENTRY POINT USED BY C0600.                                    4F11992
04122  0 60100 0 01110 C0402   STO 1C+3                          SET 1C+3 FOR CIT ENTRY.            4F11993
04123 -0 53400 4 00030         LXD EIFNO,4                       PLACE THE CURRENT INTERNAL FORMULA 4F11994
04124 -0 75400 4 00000         PXD ,4                            NUMBER IN THE DECREMENT OF         4F11995
04125  0 62200 0 01105         STD 1C                            1C FOR FUTURE TIFGO ENTRY, AND     4F11996
04126  0 60100 0 01107         STO 1C+2                          1C+2 FOR FUTURE CIT ENTRY.         4F11997
04127  0 07400 4 01707         TSX C0190,4                     * PROCEED TO FORM THE BINARY         4F11998
04130  0 07400 2 01655         TSX C0180,2                     * EQUIVALENT OF BETA 1,              4F11999
04131  0 07400 4 03305         TSX TESTG0,4                    * WHICH SHOULD BE FOLLOWED BY COMMA. 4F12000
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04132   0 50000 0 01112          CLA 1G                        BRING UP,                                  4F12001
04133   0 76700 0 00022          ALS 18                        ADJUST AND                                 4F12002
04134   0 60100 0 01106          STO 1C+1                      STORE BETA1 IN DECR OF 1C+1.               4F12003
04135   0 07400 4 01707          TSX C0190,4                 * PROCEED TO FORM THE BINARY                 4F12004
04136   0 07400 2 01655          TSX C0180,2                 * EQUIVALENT OF BETA 2,                      4F12005
04137   0 07400 4 03271          TSX TESTD0,4                * WHICH SHOULD BE FOLLOWED BY ENDMK.         4F12006
04140   0 50000 0 01112          CLA 1G                        BRING UP AND                               4F12007
04141   0 62100 0 01106          STA 1C+1                      STORE BETA2 IN ADDR OF 1C+1.               4F12008
04142   0 07400 4 01731          TSX CIT00,4                 * GO MAKE THE FOLLOWING CIT ENTRY=           4F12009
04143   0 00000 0 01107          PZE 1C+2                      WORD1--DECR = INTFORMNO (LOCATION)         4F12010
04144   0 00000 0 01116          PZE 2H                        WORD2--PSE,MSE,DCT,TOV,OR TQO.             4F12011
04145   0 00000 0 01406          PZE L(0)                      WORD3--000000 (ADDRESS)                    4F12012
04146   0 00000 0 01110          PZE 1C+3                      WORD4--DECR=SS OR SL NO., OR 0000004F12013
D 04147 1 00000 0 04030          TXI C0202,0                 * MAKE TIFGO ENTRY, AND RETURN TO CA.4F12014
                                  END OF PROGRAM C0400.                                                 4F12015
                                 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12016
                                                                                                        4F12017
                                 C0500/ USES=C0400.                                                     4F12018
                                 C0500 PROCESSES IF (SENSE LIGHT STATEMENTS.                            4F12019
04150   0 50000 0 01440 C0500    CLA L(96)                     STORE 96 IN                                4F12020
04151   0 60100 0 01115          STO 1H                        1H AND                                     4F12021
04152   0 50000 0 01563          CLA L(MSE)                    OBTAIN (MSE000) IN ACC.                    4F12022
04153   0 02000 0 04111          TRA C0401                   * AND CONTINUE BY USING PROGRAM C04.         4F12023
                                  END OF PROGRAM C0500.                                                 4F12024
                                 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12025
                                                                                                        4F12026
                                 C0600/ USES=C0400.                                                     4F12027
                                 C0600 PROCESSES IF DIVIDE CHECK STATEMENTS.                            4F12028
04154   0 50000 0 01545 C0600    CLA L(DCT)                    STORE (DCT000)                             4F12029
04155   0 60100 0 01116          STO 2H                        IN 2H                                      4F12030
04156   0 50000 0 01412          CLA L(4)                      AND PICK UP 4 TO SET 1C.                   4F12031
                                 C0601= ENTRY POINT USED BY C0700.                                      4F12032
04157   0 60100 0 01105 C0601    STO 1C                        SET 1C FOR FUTURE TIFGO ENTRY.             4F12033
04160  -0 75400 0 00000          PXD ,0                        CLEAR THE AC,                              4F12034
04161   0 02000 0 04122          TRA C0402                   * AND CONTINUE BY USING PROGRAM C04.         4F12035
                                  END OF PROGRAM C0600.                                                 4F12036
                                 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12037
                                                                                                        4F12038
                                 C0700/ USES C0600.                                                     4F12039
                                 C0700 PROCESSES IF AC OVERFLOW STATEMENTS.                             4F12040
04162   0 50000 0 01577 C0700    CLA L(TOV)                    PICKUP TOV000 TO SET 2H.                   4F12041
                                 C0701= ENTRY POINT USED BY C0800.                                      4F12042
04163   0 60100 0 01116 C0701    STO 2H                        SET 2H FOR FUTURE CIT ENTRY.               4F12043
04164   0 50000 0 01413          CLA L(5)                      PICKUP 5 TO SET 1C, AND                    4F12044
04165   0 02000 0 04157          TRA C0601                   * CONTINUE BY USING PROGRAM C06.             4F12045
                                  END OF PROGRAM C0700.                                                 4F12046
                                 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12047
                                                                                                        4F12048
                                 C0800/ USES=C0700.                                                     4F12049
                                 C0800 PROCESSES IF MQ OVERFLOW STATEMENTS.                             4F12050
04166   0 50000 0 01600 C0800    CLA L(TQO)                    PICKUP TQO000 TO SET 2H,                   4F12051
04167   0 02000 0 04163          TRA C0701                   * AND CONTINUE BY USING PROGRAM C07.         4F12052
                                  END OF PROGRAM C0800.                                                 4F12053
                                 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12054
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                                C0900/ CALLS=C0190,CIT00,DIAG. CALLER=C1300.
                                C0900 PROCESSES PAUSE STATEMENTS.
04170 -0 53400 2 04175 C0900 LXD C090X,2                    SET XR2 FOR EXIT TO CA000.
                                C0901= ENTRY POINT USED BY C1300.
04171  0 60000 0 01112 C0901 STZ 1G                         CLEAR 1G.
04172  0 07400 4 01707 C0902 TSX C0190,4                  * TEST NEXT NON-BLANK CHARACTER
04173  0 34000 0 01374       CAS ENDMK                      FOR END OF STATEMENT MARK.
04174  0 02000 0 03272       TRA ERR77P                   * MACHINE ERROR, GO TO DIAGNOSTIC.
04175  1 74341 0 04202 C090X TXI C0903,0,-CA010+1           IF NOT END OF STATEMENT, THEN
04176  0 40000 0 01112       ADD 1G                         ADD 1G TO DIGIT,
04177  0 76700 0 00003       ALS 3                          MULTIPLY BY 8,
04200  0 60100 0 01112       STO 1G                         AND STORE BACK IN 1G.
04201  1 00000 0 04172       TXI C0902,0                    CONTINUE UNTIL END OF STATEMENT.
04202  0 50000 0 01112 C0903 CLA 1G                         THEN PLACE OCTAL ALPHA
04203  0 76700 0 00017       ALS 15                         IN THE DECREMENT
04204  0 60100 0 01105       STO 1C                         OF 1C FOR FUTURE CIT ENTRY.
04205 -0 53400 4 00030       LXD EIFNO,4                    PLACE THE CURRENT INTERNAL FORMULA
04206 -0 75400 4 00000       PXD ,4                         NUMBER IN THE DECREMENT
04207  0 60100 0 01106       STO 1C+1                       OF 1C+1,WITH ZEROS ELSEWHERE.
04210  0 07400 4 01731       TSX CIT00,4                  * GO MAKE THE FOLLOWING CIT ENTRY=
04211  0 00000 0 01106       PZE 1C+1                       WORD1--DECR = INTFORMNO (LOCATION)
04212  0 00000 0 01554       PZE L(HPR)                     WORD2--HPR000 (OP AND DECR)
04213  0 00000 0 01406       PZE L(0)                       WORD3--000000 (ADDRESS)
04214  0 00000 0 01105       PZE 1C                         WORD4--DECR = ALPHA, REST ZEROS.
04215  0 02000 2 00001       TRA 1,2                      * EXIT TO CA000, OR TO C1300.
                                 END OF PROGRAM C0900.
                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                                C1000/ USES=C0200. CALLS=GETIFN,C0190,C0180,DIAG,C0160,TEST.
                                CIT00.
                                C1000 PROCESSES ASSIGN STATEMENTS.
04216  0 07400 4 02366 C1000 TSX GETIFN,4                 * GET INTERNAL FORMULA NUMBER IN 1C
04217  0 60100 0 01107       STO 1C+2                       AND 1C+2,WITH ZEROS ELSEWHERE.
04220  0 50000 0 01414       CLA L(6)                       STORE 6 IN
04221  0 62100 0 01105       STA 1C                         ADDRESS OF 1C.
04222  0 07400 2 01654       TSX C0180X,2                 * GO FORM BINARY EQUIV OF ALPHA.
04223  0 40200 0 01432       SUB L(T)                       IF NEXT CHARACTER IS NOT T, THEN
04224  0 10000 0 04226       TZE *+2                        THIS IS AN
04225  0 07400 4 03400       TSX DIAG,4                   * ERROR - GO TO THE DIAGNOSTIC.
04226  0 07400 4 01707       TSX C0190,4                  * EXAMINE NEXT NON-BLANK CHARACTER
04227  0 40200 0 01425       SUB L(O)                       AND IF IT IS NOT O, THEN
04230 -0 10000 0 04225       TNZ *-3                        ERROR, GO TO DIAGNOSTIC.
04231  0 50000 0 01112       CLA 1G                         PUT BIN EQUIV OF ALPHA
04232  0 60100 0 01106       STO 1C+1                       IN ADDRESS OF 1C+1.
04233  0 07400 4 01707       TSX C0190,4                  * PROCEED TO ASSEMBLE IN 1G
04234  0 07400 2 01624       TSX C0160,2                  * THE SYMBOL N.
04235  0 07400 4 03271       TSX TESTDO,4                 * THE NEXT NB CHAR SHOULD BE ENDMK.
04236  0 07400 4 01731       TSX CIT00,4                  * GO MAKE THE FOLLOWING CIT ENTRY=
04237  0 00000 0 01107       PZE 1C+2                       WORD1--DECR = INTFORMNO (LOCATION)
04240  0 00000 0 01541       PZE L(CLA)                     WORD2--CLA000 (OP AND DECR)
04241  0 00000 0 01406       PZE L(0)                       WORD3--000000 (ADDRESS)
04242  0 00000 0 01406       PZE L(0)                       WORD4--000000 (RELADDR AND TAG).
04243  0 07400 4 01731       TSX CIT00,4                  * STORE SECOND COMPILED INSTRUCTION=
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04244  0 00000 0 01406          PZE L(0)                      WORD1--000000  (ALL ZEROS)          4F12110
04245  0 00000 0 01572          PZE L(STO)                    WORD2--STO000 (OP AND DECR)         4F12111
04246  0 00000 0 01112          PZE 1G                        WORD3--SYMBOL N (ADDRESS)           4F12112
04247  0 00000 0 01406          PZE L(0)                      WORD4--000000 (REL ADDR AND TAG).   4F12113
04250  0 02000 0 04030          TRA C0202                   * CONTINUE BY USING PROGRAM C02.      4F12114
                                 END OF PROGRAM C1000.                                           4F12115
                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12116
                                                                                                 4F12117
                                C1100/ CALLS=C0190,C0180,TEST..,GETIFN,CIT00.                    4F12118
                                C1100 PROCESSES SENSE LIGHT STATEMENTS.                          4F12119
04251  0 07400 2 01654 C1100    TSX C0180X,2                * GO FORM BINARY EQUIV OF SL NUMBER.  4F12120
04252  0 07400 4 03271          TSX TESTD0,4                * THE NEXT NB CHARACTER SHD BE ENDMK.4F12122
04253  0 50000 0 01112          CLA 1G                        STORE SENSE LIGHT NUMBER            4F12123
04254  0 40000 0 01440          ADD L(96)                     PLUS 96                             4F12124
04255  0 76700 0 00022          ALS 18                        IN DECR                             4F12125
04256  0 60100 0 01112          STO 1G                        OF 1G.                              4F12126
04257  0 07400 4 02366          TSX GETIFN,4                * GET INTERNAL FORMULA NUMBER IN 1C.  4F12127
04260  0 07400 4 01731          TSX CIT00,4                 * GO MAKE THE FOLLOWING CIT ENTRY=    4F12128
04261  0 00000 0 01105          PZE 1C                        WORD1--DECR = INTFORMNO (LOCATION)  4F12129
04262  0 00000 0 01565          PZE L(PSE)                    WORD2--PSE000 (OP AND DECREMENT)    4F12130
04263  0 00000 0 01406          PZE L(0)                      WORD3--000000 (ADDRESS PART)        4F12131
04264  0 00000 0 01112          PZE 1G                        WORD4--DECR = 96+ALPHA,REST ZEROS.  4F12132
D      04265  1 00000 0 03440    TXI CA010,0                 * EXIT TO PROCESS NEXT STATEMENT.     4F12133
                                 END OF PROGRAM C1100.                                           4F12134
                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12135
                                                                                                 4F12136
                                C1200/ CALLS=C0190,C0160,TEST..,DIM.SR,DIAG,C0180,DRTABS.        4F12137
                                C1200 PROCESSES DIMENSION STATEMENTS.                            4F12138
04266  0 07400 4 01707 C1200    TSX C0190,4                 * PROCEED TO ASSEMBLE IN 1G           4F12139
04267  0 07400 2 01624          TSX C0160,2                 * THE VARIABLE SYMBOL.                4F12140
04270  0 07400 4 03275          TSX TESTE0,4                * NEXT NB CHARACTER SHOULD BE LPAREN.4F12141
04271  0 50000 0 01112          CLA 1G                        PUT VARIABLE SYMBOL                 4F12142
04272  0 60100 0 01105          STO 1C                        IN 1C.                              4F12143
04273  0 60100 0 01130          STO E+2                       ALSO IN E+2. THEN                   4F12144
04274  0 07400 4 01771          TSX DIM1SR,4                * GO SEARCH DIM1 TABLE.               4F12145
04275  0 02000 0 04277          TRA C1280                     THEN IF NOT                         4F12146
04276  0 02000 0 04304          TRA C1299                     FOUND,                              4F12147
04277  0 07400 4 01775 C1280    TSX DIM2SR,4                * GO SEARCH DIM2 TABLE.               4F12148
04300  0 02000 0 04302          TRA C1281                     THEN IF NOT                         4F12149
04301  0 02000 0 04304          TRA C1299                     FOUND,                              4F12150
04302  0 07400 4 02005 C1281    TSX DIM3SR,4                * GO SEARCH DIM3 TABLE.               4F12151
04303  0 02000 0 04305          TRA C1282                     DO NOT CONTINUE IF                  4F12152
04304  0 07400 4 03400 C1299    TSX DIAG,4                  * VARIABLE PREVIOUSLY APPEARED.       4F12153
04305  0 07400 2 01654 C1282    TSX C0180X,2                * GO FORM BINARY EQUIV OF D1.         4F12154
04306  0 40200 0 01377          SUB CLOS                      IF NOT 1 DIMENSION,                 4F12156
04307  0 10000 0 04330          TZE C1210                     THEN                                4F12157
04310  0 50000 0 01112          CLA 1G                        PUT D1                              4F12158
04311  0 76700 0 00022          ALS 18                        IN DECR                             4F12159
04312  0 60100 0 01106          STO 1C+1                      OF 1C+1.                            4F12160
04313  0 07400 2 01654          TSX C0180X,2                * GO FORM BINARY EQUIV OF D2.         4F12161
04314  0 40200 0 01377          SUB CLOS                      IF NOT 2 DIMENSION,                 4F12163
04315  0 10000 0 04334          TZE C1220                     THEN                                4F12164
04316  0 50000 0 01112          CLA 1G                        PUT D2                              4F12165
04317  0 62100 0 01106          STA 1C+1                      IN ADDRESS OF 1C+1.                 4F12166
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      04320  0 07400 2 01654          TSX C0180X,2                * GO FORM BINARY EQUIV OF D3.          4F12168
      04321  0 40200 0 01377          SUB CLOS                      IF MORE THAN 3 DIMENSION,            4F12169
      04322  0 10000 0 04324          TZE *+2                       THIS IS AN                           4F12170
      04323  0 07400 4 03400          TSX DIAG,4                  * ERROR - GO TO THE DIAGNOSTIC.        4F12171
      04324  0 50000 0 01112          CLA 1G                        IF 3 DIMENSION, PUT D3               4F12172
      04325  0 60100 0 01107          STO 1C+2                      IN 1C+2, AND                         4F12173
      04326  0 07400 4 00467          TSX DIM3IX,4                * GO MAKE DIM3 ENTRY.                  4F12174
D     04327  1 00000 0 04337          TXI C1201,0                   GO TO TEST FOR END OF STATEMENT.     4F12175
      04330  0 50000 0 01112 C1210    CLA 1G                        IF 1 DIMENSION, PUT D1               4F12176
      04331  0 60100 0 01106          STO 1C+1                      IN 1C+1, AND                         4F12177
      04332  0 07400 4 00455          TSX DIM1IX,4                * GO MAKE DIM1 ENTRY. THEN             4F12178
D     04333  1 00000 0 04337          TXI C1201,0                   GO TO TEST FOR END OF STATEMENT.     4F12179
      04334  0 50000 0 01112 C1220    CLA 1G                        IF 2 DIMENSION, PUT D2 IN            4F12180
      04335  0 62100 0 01106          STA 1C+1                      ADDRESS PART OF 1C+1. AND            4F12181
      04336  0 07400 4 00462          TSX DIM2IX,4                * GO MAKE DIM2 ENTRY. THEN             4F12182
      04337  0 07400 4 01707 C1201    TSX C0190,4                 * OBTAIN NB CHAR FOLLOWING RPAREN.     4F12183
      04340  0 07400 4 03247          TSX TESTA0,4                * TEST FOR COMMA OR ENDMARK.           4F12184
      04341 -0 10000 0 04266          TNZ C1200                     IF CHARACTER IS ENDMARK, THEN        4F12185
D     04342  1 00000 0 03440          TXI CA010,0                 * EXIT TO PROCESS NEXT STATEMENT.      4F12186
                                       END OF PROGRAM C1200.                                            4F12187
                                      * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12188
                                                                                                        4F12189
                                      C1300/ CALLS=C0901,TET00,CIT00.                                   4F12190
                                      C1300 PROCESSES STOP STATEMENTS.                                  4F12191
      04343  0 07400 1 03321 C1300    TSX TET00,1                 * GO MAKE EIFNO ENTRY                  4F12192
      04344  0 00000 0 00017          PZE 15                        IN TSTOP TABLE.                      4F12193
      04345  0 07400 2 04171          TSX C0901,2                 * USE C0900 TO BEGIN PROCESSING.       4F12194
      04346  0 07400 4 01731          TSX CIT00,4                 * GO MAKE FOLLOWING CIT ENTRY=         4F12195
      04347  0 00000 0 01406          PZE L(0)                      WORD1--ALL ZEROS                     4F12196
      04350  0 00000 0 01601          PZE L(TRA)                    WORD2--TRA000 (OP+DECR)              4F12197
      04351  0 00000 0 01106          PZE 1C+1                      WORD3--DECR = INTFORMNO (SYMBOL)     4F12198
      04352  0 00000 0 01406          PZE L(0)                      WORD4--ZEROS (REL ADDR AND TAG)      4F12199
D     04353  1 00000 0 03440          TXI CA010,0                 * EXIT TO PROCESS NEXT STATEMENT.      4F12200
                                       END OF PROGRAM C1300.                                            4F12201
                                      * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12202
                                                                                                        4F12203
                                      C1400/ CALLS=C0190,C0180,TEST..,TET00.                            4F12204
                                      C1400 PROCESSES FREQUENCY STATEMENTS.                             4F12205
      04354  0 07400 2 01654 C1400    TSX C0180X,2                * GO FORM BINARY EQUIV OF EFN.         4F122006
      04355  0 07400 4 03275          TSX TESTE0,4                * CHARACTER SHOULD BE A LPAREN.        4F12208
      04356  0 50200 0 01112          CLS 1G                        CHANGE SIGN OF SYMBOL                4F12209
      04357  0 60100 0 01112          STO 1G                        TO MINUS.                            4F12210
      04360  0 07400 1 03321          TSX TET00,1                 * GO TO PROGRAM TET TO ENTER           4F12211
      04361  0 00000 0 00007          PZE 7                         SYMBOL INTO FRET (TABLE 7), AND      4F12212
      04362  0 07400 2 01654 C1401    TSX C0180X,2                * GO FORM BINARY EQUIV OF M(1).        4F12213
      04363  0 60100 0 01105          STO 1C                        SAVE CHAR IN ACC.                    4F12215
      04364  0 07400 1 03321          TSX TET00,1                 * GO TO PROGRAM TET TO ENTER M(1)      4F12216
      04365  0 00000 0 00007          PZE 7                         INTO TABLE FRET (TABLE7), AND        4F12217
      04366  0 50000 0 01105          CLA 1C                        RESTORE CHAR IN ACC, AND             4F12218
      04367  0 07400 4 03255          TSX TESTB0,4                * TEST FOR , OR ).                     4F12219
      04370 -0 10000 0 04362          TNZ C1401                     IF RIGHT PARENTHESIS, THEN           4F12220
      04371  0 07400 4 01707          TSX C0190,4                 * OBTAIN IN ACC NEXT NBCHAR, AND       4F12221
      04372  0 07400 4 03247          TSX TESTA0,4                * TEST FOR COMMA OR ENDMARK.           4F12222
      04373 -0 10000 0 04354          TNZ C1400                     IF ENDMARK, THIS STATEMENT IS DONE.  4F12223
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D     04374   1 00000 0 03440         TXI CA010,0                    * EXIT TO PROCESS NEXT STATEMENT.    4F12224
                                        END OF PROGRAM C1400.                                             4F12225
                                       * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12226
                                                                                                          4F12227
                                       C1500/ CALLS=C0190,TEST..,C0160,C0180,TET00.                       4F12228
                                       C1500 PROCESSES EQUIVALENCE STATEMENTS.                            4F12229
      04375   0 07400 4 01707 C1500    TSX C0190,4                    * OBTAIN NEXT NBCHAR IN ACC.         4F12230
      04376   0 07400 4 03275          TSX TESTE0,4                   * CHARACTER SHOULD BE A LPAREN.      4F12231
      04377   0 50000 0 01407 C1501    CLA L(1)                         INITIALIZE 1C                      4F12232
      04400   0 60100 0 01106          STO 1C+1                         TO 1.                              4F12233
      04401   0 07400 4 01707          TSX C0190,4                    * OBTAIN NEXT NBCHAR IN ACC AND      4F12234
      04402   0 07400 2 01624          TSX C0160,2                    * OBTAIN IN 1G THE SYMBOL V.         4F12235
      04403   0 56000 0 01112          LDQ 1G                           MOVE V                             4F12236
      04404  -0 60000 0 01105          STQ 1C                           INTO 1C.                           4F12237
      04405   0 34000 0 01375          CAS ALPAR                        EXAMINE CHARACTER LEFT IN THE AC,  4F12238
                                                                        AND IF                             4F12239
D     04406   1 00000 0 04416          TXI C1503,0                      CHARACTER IS A LEFT PARENTHESIS,   4F12240
D     04407   1 00000 0 04411          TXI C1502,0                      THEN                               4F12241
D     04410   1 00000 0 04416          TXI C1503,0                    * GO FORM BINARY EQUIV OF N.         4F12242
      04411   0 07400 2 01654 C1502    TSX C0180X,2                   * 1ST NON-NUMERIC SHOULD BE A RPAREN.4F12244
      04412   0 07400 4 03301          TSX TESTF0,4                     PUT BIN EQUIV OF N                 4F12245
      04413   0 50000 0 01112          CLA 1G                           IN 1C+1.                           4F12246
      04414   0 60100 0 01106          STO 1C+1                       * OBTAIN NEXT NBCHAR IN AC, AND      4F12247
      04415   0 07400 4 01707          TSX C0190,4                    * TEST FOR COMMA OR RPAREN.          4F12248
      04416   0 07400 4 03255 C1503    TSX TESTB0,4                     IF COMMA, THEN                     4F12249
      04417   0 10000 0 04423          TZE C1504                      * GO TO PROGRAM TET TO ENTER SYMBOL  4F12250
      04420   0 07400 1 03321          TSX TET00,1                      AND N IN EQUIT (TABLE 8), AND      4F12251
      04421   0 00000 0 00010          PZE 8                            RETURN TO CONTINUE PROCESSING X.   4F12252
D     04422   1 00000 0 04377          TXI C1501,0                      MAKE SIGN OF N MINUS SINCE         4F12253
      04423   0 50200 0 01106 C1504    CLS 1C+1                         THIS IS LAST ITEM.                 4F12254
      04424   0 60100 0 01106          STO 1C+1                       * GO TO PROGRAM TET TO ENTER SYMBOL  4F12255
      04425   0 07400 1 03321          TSX TET00,1                      AND N IN EQUIT (TABLE 8), AND      4F12256
      04426   0 00000 0 00010          PZE 8                          * OBTAIN NEXT NBCHAR IN ACC, AND     4F12257
      04427   0 07400 4 01707          TSX C0190,4                    * TEST FOR COMMA OR ENDMARK.         4F12258
      04430   0 07400 4 03247          TSX TESTA0,4                     IF ENDMARK, THEN                   4F12259
      04431  -0 10000 0 04375          TNZ C1500                      * EXIT TO PROCESS NEXT STATEMENT.    4F12260
D     04432   1 00000 0 03440          TXI CA010,0                                                       4F12261
                                        END OF PROGRAM C1500.                                             4F12262
                                       * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12263
                                                                                                          4F12264
                                       C1600/ CALLS=C0190,TEST..,GIF,BSS.                                 4F12265
                                       C1600 PROCESSES CONTINUE STATEMENTS.                               4F12266
      04433   0 07400 4 01707 C1600    TSX C0190,4                    * OBTAIN NEXT NBCHAR IN ACC.         4F12267
      04434   0 07400 4 03271          TSX TESTD0,4                   * CHARACTER SHOULD BE AN ENDMARK.    4F12268
      04435   0 07400 4 02375          TSX GIF,4                      * GET INTERNAL FORMULA NUMBER, AND   4F12269
      04436   0 07400 2 05674          TSX BSS,2                      * GO COMPILE= IFN BSS 0.             4F12270
D     04437   1 00000 0 03440          TXI CA010,0                    * EXIT TO PROCESS NEXT STATEMENT.    4F12271
                                        END OF PROGRAM C1600.                                             4F12272
                                       * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12273
                                                                                                          4F12274
                                       C3000/ CALLS=DIAG,C0190,C0160,TEST..,SUBX00,TET00,TESTFX.          4F12275
                                       C3000 PROCESSES SUBROUTINE AND FUNCTION STATEMENTS.                4F12276
                                                                                                          4F12277
      04440  -0 50000 0 00422 C3500    CAL TXHOP                                                         4F12278
      04441   0 63000 0 04454          STP C3003
      04442  -0 53400 4 00030 C3000    LXD EIFNO,4                      EXAMINE INTERNAL FORMULA NO., AND
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                                                           IF NOT THE 1ST STATEMENT, THEN      4F12279
  04443 -3 00001 4 04445          TXL *+2,4,1            * ERROR - GO TO THE DIAGNOSTIC.       4F12280
  04444  0 07400 4 03400          TSX DIAG,4               SET ARGCNT TO INDICATE TO LATER     4F12281
  04445  0 50000 0 01121          CLA ARGCNT               RETURN THAT THERE WAS A PRECEEDING  4F12282
  04446  0 76000 0 00003          SSP                      SUBROUTINE OR FUNCTION STATEMENT.   4F12283
  04447  0 60100 0 01121          STO ARGCNT             * IF 1ST CHARACTER OF NAME IS         4F12284
  04450  0 07400 4 01707          TSX C0190,4            * NUMERIC, THEN GO TO THE DIAGNOSTIC.4F12285
  04451  0 07400 4 03311          TSX TESTH0,4           * ASSEMBLE NAME IN 1G.                4F12286
  04452  0 07400 2 01624          TSX C0160,2            * NEXT CHAR SHD BE LPAREN OR ENDMARK.4F12287
  04453  0 07400 4 03263          TSX TESTC0,4                                                 4F12288
D 04454 -3 00000 0 04457 C3003    TXL *+3,0                                                    4F12289
  04455  0 50000 0 01112          CLA 1G                                                       4F12290
  04456  0 60100 0 01332          STO FSNAME             * FILL OUT NAME WITH BLANKS.          4F12291
  04457  0 07400 4 03224          TSX SUBX00,4           * GO ENTER NAME                       4F12292
  04460  0 07400 1 03321          TSX TET00,1              IN SUBDEF TABLE.                    4F12293
  04461  0 00000 0 00013          PZE 11                   PLACE                               4F12294
  04462 -0 53400 4 00030          LXD EIFNO,4              INTERNAL FORMULA NUMBER             4F12295
  04463 -0 75400 4 00000          PXD ,4                   IN G.                               4F12296
  04464  0 60100 0 01347          STO G                    GO TEST FOR END OF STATEMENT.       4F12297
D 04465  1 00000 0 04506          TXI C3002,0              IF NOT ENDMARK, RESTORE CHARACTER   4F12298
  04466  0 40000 0 01374 C3001    ADD ENDMK              * WHICH SHOULD BE NON-NUMERIC         4F12299
  04467  0 07400 4 03311          TSX TESTH0,4             1ST CHARACTER OF ARGUMENT.          4F12300
  04470  0 60100 0 01331          STO FIRSTC             * ASSEMBLE ARGUMENT IN 1G.            4F12301
  04471  0 07400 2 01624          TSX C0160,2            * NEXT CHAR SHD BE COMMA OR RPAREN.   4F12302
  04472  0 07400 4 03255          TSX TESTB0,4             MOVE ARGUMENT                       4F12303
  04473  0 50000 0 01112          CLA 1G                   INTO G+1.                           4F12304
  04474  0 60100 0 01350          STO G+1                * GO TEST FOR FIXED OR FLOATING PT.   4F12305
  04475  0 07400 1 03241          TSX TESTFX,1             IF FLOATING PT., SKIP FORVAL ENTRY.4F12306
D 04476  1 00000 0 04501          TXI C3004,0            * IF FIXED POINT, GO MAKE ENTRY       4F12307
  04477  0 07400 1 03321          TSX TET00,1              IN FORVAL TABLE.                    4F12308
  04500  0 00000 0 00006          PZE 6                  * IN BOTH CASES, MAKE ENTRIES IN      4F12309
  04501  0 07400 1 03321 C3004    TSX TET00,1              SUBDEF TABLE.                       4F12310
  04502  0 00000 0 00013          PZE 11                   UPDATE                              4F12311
  04503  0 50000 0 01121          CLA ARGCNT               ARGUMENT COUNT                      4F12312
  04504  0 40000 0 01454          ADD D1                   BY 1.  AND                          4F12313
  04505  0 60100 0 01121          STO ARGCNT             * EXAMINE NEXT NON-BLANK CHARACTER.   4F12314
  04506  0 07400 4 01707 C3002    TSX C0190,4              IF NOT ENDMARK, THEN                4F12315
  04507  0 40200 0 01374          SUB ENDMK                GO PROCESS NEXT ARGUMENT.           4F12316
  04510 -0 10000 0 04466          TNZ C3001              * OTHERWISE, EXIT TO CA000.           4F12317
D 04511  1 00000 0 03440          TXI CA010,0                                                  4F12318
                                     END OF PROGRAM C3000.                                     4F12319
                                  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12320
                                                                                               4F12321
                                  C3100/ CALLS=C0190,DIAG,TEST..,C0160,TET00.                  4F12322
                                  C3100 PROCESSES COMMON STATEMENTS.                           4F12323
  04512  0 07400 4 01707 C3100    TSX C0190,4            * GET FIRST NON-BLANK CHAR OF SYMBOL 4F12324
  04513  0 07400 4 03311          TSX TESTH0,4           * WHICH SHOULD BE NON-NUMERIC.        4F12325
  04514  0 07400 2 01624          TSX C0160,2            * ASSEMBLE SYMBOL IN 1G, AND TEST     4F12326
  04515  0 07400 4 03247          TSX TESTA0,4           * NEXT CHARACTER FOR COMMA OR ENDMK.  4F12327
  04516  0 73400 4 00000          PAX ,4                   SAVE RESULT OF TEST IN XR4, AND     4F12328
  04517  0 07400 1 03321          TSX TET00,1            * GO ENTER THIS SYMBOL                4F12329
  04520  0 00000 0 00014          PZE 12                   IN COMMON TABLE.                    4F123291
  04521  0 50000 0 00365          CLA SBDFCN               ANY ENTRIES IN SUBDEF               4F123292
  04522  0 10000 0 04534          TZE C3101                INDICATE THIS IS NOT A              4F123293
  04523  0 50000 0 01454          CLA 2E18                 MAIN PROGRAM. SINCE THIS
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04524   0 60100 0 01347          STO G                          IS A COMMON                                4F123294
04525  -0 50000 0 01112          CAL 1G                         STATEMENT WHICH                            4F123296
04526   0 60200 0 01350          SLW G+1                        APPEARS IN A SUBPROGRAM                    4F123297
04527   0 77100 0 00036          ARS 30                         ENTER ANY                                  4F123298
04530   0 07400 1 03242          TSX TESTFX+1,1               * FIXED POINT                              4F123299
04531   0 02000 0 04534          TRA C3101                      VARIABLES                                  4F12330
04532   0 07400 1 03321          TSX TET00,1                  * IN                                       4F123301
04533   0 00000 0 00006          PZE 6                          FORVAL TABLE.                              4F123302
04534   3 00000 4 04512  C3101   TXH C3100,4,0                  IF CHARACTER WAS COMMA, REPEAT.            4F123303
D       1 00000 0 03440          TXI CA010,0                  * IF ENDMK, EXIT TO CA000.                 4F12331
                                  END OF PROGRAM C3100.                                                   4F12332
                                 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12333
                                                                                                          4F12334
                                 C3200/ CALLS=C0190,TEST..,GETIFN,DIAG,CIT00,JIF(GIF).                    4F12335
                                 C3200 PROCESSES RETURN STATEMENTS.                                       4F12336
04536   0 07400 4 01707  C3200   TSX C0190,4                  * EXAMINE NEXT NON-BLANK CHARACTER,         4F12337
04537   0 07400 4 03271          TSX TESTD0,4                  * WHICH SHOULD BE AN ENDMARK.               4F12338
04540   0 07400 4 02366          TSX GETIFN,4                  * GET INTERNAL FORMULA NUMBER IN 1C.        4F12339
04541   0 07400 4 02372          TSX JIF,4                     * SET SL TO ALPHA+1.                        4F12340
04542   0 50000 0 01121          CLA ARGCNT                     TEST ARGCNT FOR PRECEEDING                 4F12341
04543   0 12000 0 04545          TPL *+2                        SUBROUTINE - IF NONE, THEN                 4F12342
04544   0 07400 4 03400          TSX DIAG,4                   * ERROR - GO TO THE DIAGNOSTIC.              4F12343
04545   0 50000 0 01332          CLA FSNAME                                                                4F12344
04546   0 10000 0 04555          TZE *+7                                                                   4F12345
04547   0 07400 4 01731          TSX CIT00,4                  * GO MAKE THE FOLLOWING CIT ENTRY=           4F12346
04550   0 00000 0 01105          PZE 1C                         WORD1--0(IFN)000                           4F12347
04551   0 00000 0 01541          PZE L(CLA)                     WORD2--CLA000                              4F12348
04552   0 00000 0 01332          PZE FSNAME                     WORD3--NAME OF FUNCTION                    4F12349
04553   0 00000 0 01406          PZE L(0)                       WORD4--000000                              4F12350
04554   0 60000 0 01105          STZ 1C                         CLEAR 1C.                                  4F12351
04555   0 07400 4 01731          TSX CIT00,4                  * GO MAKE THE FOLLOWING CIT ENTRY=           4F12352
04556   0 00000 0 01105          PZE 1C                         WORD1--0(IFN)000                           4F12353
04557   0 00000 0 01561          PZE L(LXD)                     WORD2--LXD000                              4F12354
04560   0 00000 0 01523          PZE DOLSGN                     WORD3--$                                   4F12355
04561   0 00000 0 01407          PZE L(1)                       WORD4--000001                              4F12356
04562   0 07400 4 01731          TSX CIT00,4                  * GO MAKE THE FOLLOWING CIT ENTRY=           4F12357
04563   0 00000 0 01406          PZE L(0)                       WORD1--000000                              4F12358
04564   0 00000 0 01561          PZE L(LXD)                     WORD2--LXD000                              4F12359
04565   0 00000 0 01523          PZE DOLSGN                     WORD3--$                                   4F12360
04566   0 00000 0 01456          PZE ABTAG2                     WORD4--001002                              4F12361
04567   0 07400 4 01731          TSX CIT00,4                  * GO MAKE THE FOLLOWING CIT ENTRY=           4F12362
04570   0 00000 0 01406          PZE L(0)                       WORD1--000000                              4F12363
04571   0 00000 0 01570          PZE L(QXD)                     WORD2--QXD000                              4F12364
04572   0 00000 0 01523          PZE DOLSGN                     WORD3--$                                   4F12365
04573   0 00000 0 01460          PZE ABTAG3                     WORD4--002000                              4F12366
04574   0 07400 4 01731          TSX CIT00,4                  * GO MAKE THE FOLLOWING CIT ENTRY=           4F12367
04575   0 00000 0 01367          PZE SL                         WORD1--0(IFN+1)000                         4F12368
04576   0 00000 0 01567          PZE L(QPR)                     WORD2--QPR000                              4F12369
04577   0 00000 0 01406          PZE L(0)                       WORD3--000000                              4F12370
04600   0 00000 0 01121          PZE ARGCNT                     WORD4--0(N+1)004                           4F12371
04601   0 07400 4 01731          TSX CIT00,4                  * GO MAKE THE FOLLOWING CIT ENTRY=           4F12372
04602   0 00000 0 01406          PZE L(0)                       WORD1--000000                              4F12373
04603   0 00000 0 01601          PZE L(TRA)                     WORD2--TRA000                              4F12374
04604   0 00000 0 01367          PZE SL                         WORD3--0(IFN+1)000                         4F12375
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     04605  0 00000 0 01406        PZE L(0)                          WORD4--000000                                  4F12376
D    04606  1 00000 0 03440        TXI CA010,0                     * EXIT TO PROCESS NEXT STATEMENT.                4F12377
                                    END OF PROGRAM C3200.                                                          4F12378
                                   * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12379
                                                                                                                   4F12380
                                   C3300/ CALLS=C0390,C0190X,C0190,TEST..,ARITH,SUBX00.                            4F12381
                                   C3300 PROCESSES CALL STATEMENTS.                                                4F12382
     04607  0 07400 4 01707 C3300  TSX C0190,4                     * IF 1ST CHARACTER OF NAME IS                   4F12383
     04610  0 07400 4 03311        TSX TESTH0,4                    * NUMERIC, THEN GO TO THE DIAGNOSTIC.           4F12384
     04611  0 07400 2 01624        TSX C0160,2                     * COLLECT THE REST OF THE NAME, WHICH           4F12385
     04612  0 07400 4 03263        TSX TESTC0,4                    * SHD BE FOLLOWED BY LPAREN OR ENDMK.           4F12386
     04613  0 10000 0 04632        TZE C3301                         IF LPAREN, THEN CHANGE CALL TO A              4F12387
     04614  0 07400 4 01671        TSX C0190X,4                    * PSEUDO-ARITHMETIC FORMULA (Z10=).             4F12388
     04615  0 07400 4 01707        TSX C0190,4                     * PICKUP THE CHARACTER C,                       4F12389
     04616  0 56000 0 01434        LDQ L(Z)                          AND                                           4F12390
     04617  0 07400 4 01675        TSX C0390,4                     * REPLACE C WITH Z.                             4F12391
     04620  0 56000 0 01373        LDQ L(10)                         AND                                           4F12392
     04621  0 07400 4 01675        TSX C0390,4                     * REPLACE A WITH TEN.                           4F12393
     04622  0 56000 0 01400        LDQ EQUAL                         AND                                           4F12394
     04623  0 07400 4 01675        TSX C0390,4                     * REPLACE FIRST L WITH =.                       4F12395
     04624  0 56000 0 01430        LDQ BLANK                         AND                                           4F12396
     04625  0 07400 4 01675        TSX C0390,4                     * REPLACE SECOND L WITH BLANK.                  4F12397
     04626  0 50000 0 00030        CLA EIFNO                         PUT 1ST IFN OF THIS CALL IN CALLNM            4F12398
     04627  0 77100 0 00022        ARS 18                            FOR LATER TABLE ENTRY OF                      4F12399
     04630  0 62100 0 01123        STA CALLNM                        FIRST / LAST NUMBERS OF CALLS.                4F12400
D    04631  1 00000 0 06323        TXI ARITH,0                     * THEN EXIT TO ARITH TO PROCESS.                4F12401
     04632  0 07400 4 03224 C3301  TSX SUBX00,4                    * IF THERE ARE NO ARGUMENTS, THEN               4F12402
     04633  0 50000 0 01112        CLA 1G                            AFTER COMPLETING NAME WITH BLANKS,            4F12403
     04634  0 60100 0 01347        STO G                             MOVE IT INTO G, AND                           4F12404
     04635  0 07400 1 03321        TSX TET00,1                     * GO ENTER NAME                                 4F12405
     04636  0 00000 0 00011        PZE 9                             IN CLOSUB TABLE.                              4F12406
     04637  0 07400 4 02366        TSX GETIFN,4                    * PUT INTERNAL FORMULA NUMBER IN 1C.            4F12407
     04640  0 07400 4 01731        TSX CIT00,4                     * GO MAKE THE FOLLOWING CIT ENTRY=              4F12408
     04641  0 00000 0 01105        PZE 1C                            WORD1--0(IFN)000                              4F12409
     04642  0 00000 0 01575        PZE L(SXD)                        WORD2--SXD000                                 4F12410
     04643  0 00000 0 01505        PZE X(                            WORD3--700000                                 4F12411
     04644  0 00000 0 01412        PZE L(4)                          WORD4--000004                                 4F12412
     04645  0 07400 4 01731        TSX CIT00,4                     * GO MAKE THE FOLLOWING CIT ENTRY=              4F12413
     04646  0 00000 0 01406        PZE L(0)                          WORD1--000000                                 4F12414
     04647  0 00000 0 01602        PZE L(TSX)                        WORD2--TSX000                                 4F12415
     04650  0 00000 0 01112        PZE 1G                            WORD3--(NAME)                                 4F12416
     04651  0 00000 0 01412        PZE L(4)                          WORD4--000004                                 4F12417
     04652  0 07400 4 03401        TSX FLTR00,4                    * GO MAKE FLOW TRACING INSTRUCTIONS.            4F12418
     04653  0 00000 0 01406        PZE L(0)                          WORD1--000000                                 4F12419
     04654  0 00000 0 01561        PZE L(LXD)                        WORD2--LXD000                                 4F12420
     04655  0 00000 0 01505        PZE X(                            WORD3--700000                                 4F12421
     04656  0 00000 0 01412        PZE L(4)                          WORD4--000004                                 4F12422
D    04657  1 00000 0 03440        TXI CA010,0                     * EXIT TO PROCESS NEXT STATEMENT.               4F12423
                                    END OF PROGRAM C3300.                                                          4F12424
                                   * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12425
                                                                                                                   4F12426
                                   C3400/ CALLS=C0190,DIAG,TEST...                                                 4F12427
                                   C3400 PROCESSES END STATEMENTS.                                                 4F12428
     04660  0 53400 2 01413 C3400  LXA L(5),2                        PREPARE TO SET 5 SS SIMULATORS.               4F12429
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                04661   0 07400 4 01707 C3405   TSX C0190,4                     * PICKUP CONSTANT,                                  4F12430
                04662   0 34000 0 01410         CAS L(2)                          WHICH SHOULD BE 0,1, OR 2.                        4F12431
                04663   0 07400 4 03400         TSX DIAG,4                      * OTHERWISE, GO TO THE DIAGNOSTIC.                  4F12432
                04664   1 00000 0 04666         TXI C3410,0                       SIMULATOR IS PRESET TO 2.                         4F12433
D               04665   0 60100 2 00036         STO END11+5,2                     IF 0 OR 1, SET PROPER SIMULATOR.                  4F12434
                04666   0 07400 4 01707 C3410   TSX C0190,4                     * SKIP NEXT NON-BLANK CHARACTER, AND                4F12435
                04667   2 00001 2 04661         TIX C3405,2,1                     REPEAT PROCESS FOR 5 CONSTANTS.                   4F12436
                04670   0 07400 4 01707         TSX C0190,4                     * EXAMINE NEXT NON-BLANK CHARACTER,                 4F12437
                04671   0 07400 4 03271         TSX TESTD0,4                    * WHICH SHOULD BE AN ENDMK.                         4F12438
D               04672   1 00000 0 03440         TXI CA010,0                     * EXIT TO PROCESS NEXT STATEMENT.                   4F12439
                                                 END OF PROGRAM C3400.                                                           4F12440
                                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12441
                                                                                                                                 4F12442
                                                STATEA/3-PROCESS INPUT-OUTPUT STATEMENTS=                                        4F12443
                                                                                                                                 4F12444
                                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12445
                                                                                                                                 4F12446
                                                RDC/ CALLS=INPUT,BEG,DIAG,ETMSW,LIB,CIT,JIF.                                     4F12447
                                                RDC PROCESSES READ STATEMENTS.                                                   4F12448
                04673   0 50000 0 01437 RDC     CLA A81                           SET THE ADDRESS FIELD OF                       4F12449
                04674   0 62100 0 02067         STA ENT                           ENT (NTR000) TO 81.                            4F12450
                04675   0 07400 2 06002         TSX INPUT,2                     * GO COMPILE CAL *, AND XIT (LEV).                4F12451
                04676   0 50000 0 06127         CLA CSH                           PICKUP (CSH) TO                                4F12452
                                                TSC= ENTRY POINT USED BY RIT.                                                    4F12453
                04677   0 60100 0 06143 TSC     STO TSA                           SET TSA.                                       4F12454
                04700  -0 50000 0 06133         CAL RTN                           MOVE (RTN)                                     4F12455
                04701   0 60200 0 06141         SLW END                           INTO END.                                      4F12456
                04702   0 50000 0 06130         CLA DBC                           PICKUP (DBC) TO                                4F12457
                                                TTC= ENTRY POINT USED BY RDP.                                                    4F12458
                                                                                  SET TTA.                                       4F12459
                04703   0 60100 0 06144 TTC     STO TTA                         * CONVERT CONSTANT FORMAT NUMBER.                  4F12460
                04704   0 07400 4 05603         TSX BEG,4                       * ATTEMPT TO USE VARIABLE FORMAT NO.               4F12461
                04705   0 07400 4 03400         TSX DIAG,4                        GO TO THE DIAGNOSTIC, IF THERE WAS               4F12462
                04706  -0 10000 4 00004         TNZ 4,4                         * NO FORMAT NUMBER GIVEN.                          4F12463
                04707   0 07400 4 03400         TSX DIAG,4                        MOVE BINARY FORMAT NUMBER INTO SET.              4F12464
                04710   0 62100 0 01366         STA SET                           MOVE NTR000                                    4F12465
                04711  -0 50000 0 06114         CAL NTR                           INTO OP.                                       4F12466
                04712   0 60200 0 17401         SLW OP                            SET OP-SWITCHES,                               4F12467
                04713   0 50000 0 00415         CLA TXLOP                         ETMSW AND LTMSW,                               4F12468
                04714   0 63000 0 05754         STP ETMSW                         TO NO TRANSFER CASE.                           4F12469
                04715   0 63000 0 05757         STP LTMSW                       * GO COMPILE ETM.                                  4F12470
                04716   0 07400 4 05754         TSX ETMSW,4                     * MAKE CLOSUB ENTRY, AND COMPILE=                  4F12471
                04717   0 07400 4 06023         TSX LIB,4                         WORD1--000000                                  4F12472
                04720   0 00000 0 01406         PZE L(0)                          WORD2--CAL000                                  4F12473
                04721   0 00000 0 01537         PZE CAL                           WORD3--(DBC) OR (BDC)                          4F12474
                04722   0 00000 0 06144         PZE TTA                           WORD4--000000                                  4F12475
                04723   0 00000 0 01406         PZE L(0)                        * GO MAKE THE FOLLOWING CIT ENTRY=                 4F12476
                04724   0 07400 4 01731         TSX CIT,4                         WORD1--000000                                  4F12477
                04725   0 00000 0 01406         PZE L(0)                          WORD2--SLW000                                  4F12478
                04726   0 00000 0 06120         PZE SLW                           WORD3--000000                                  4F12479
                04727   0 00000 0 01406         PZE L(0)                          WORD4--001000                                  4F12480
                04730   0 00000 0 01454         PZE D1                          * MAKE CLOSUB ENTRY, AND COMPILE=                  4F12481
                04731   0 07400 4 06023         TSX LIB,4                         WORD1--000000                                  4F12482
                04732   0 00000 0 01406         PZE L(0)                          WORD2--CAL000                                  4F12483
                04733   0 00000 0 01537         PZE CAL
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04734   0 00000 0 06143          PZE TSA                        WORD3--(CSH) OR (TSH)                4F12484
04735   0 00000 0 01406          PZE L(0)                       WORD4--000000                        4F12485
04736   0 07400 4 01731          TSX CIT,4                    * GO MAKE THE FOLLOWING CIT ENTRY=     4F12486
04737   0 00000 0 01371          PZE TL                         WORD1--0(IFN)0(248)                  4F12487
04740   0 00000 0 02067          PZE ENT                        WORD2--NTR0(81, OR UNIT, OR 00)      4F12488
04741   0 00000 0 01366          PZE SET                        WORD3--800(FORMAT NUMBER)            4F12489
04742   0 00000 0 01406          PZE L(0)                       WORD4--000000                        4F12490
04743   0 07400 4 02372          TSX JIF,4                    * GO JUMP IFN, AND SET SL AND TL.      4F12491
                                  BXT = EXIT SWITCH TO RSC OR LAST, USED BY WBT,RBT,WRD.           4F12492
D  04744   1 00000 0 05141 BXT   TXI RSC,0                    * EXIT TO SCAN LIST, IF THERE IS ONE.4F12493
                                   END OF PROGRAM RDC.                                             4F12494
                                  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12495
                                                                                                   4F12496
                                  RIT/ CALLS=INPUT,BEG,VRD. USES=RDC.                              4F12497
                                  RIT PROCESSES READ INPUT TAPE STATEMENTS.                        4F12498
04745   0 07400 2 06002 RIT      TSX INPUT,2                  * GO COMPILE CAL *, AND XIT (LEV).     4F12499
04746   0 07400 4 05603          TSX BEG,4                    * SCAN AND TEST TYPE OF UNIT SYMBOL.   4F12500
04747   0 07400 4 06036          TSX VRD,4                    * IF VARIABLE, ENTER FORVAR AND CITS.4F12501
04750   0 62100 0 02067          STA ENT                        IF CONSTANT, SET ENT= NTR0(UNIT).    4F12502
04751   0 50000 0 06137          CLA TSH                        PICKUP (TSH) TO SET TSA, AND         4F12503
D  04752   1 00000 0 04677        TXI TSC,0                    * CONTINUE BY USING PROGRAM RDC.       4F12504
                                   END OF PROGRAM RIT.                                             4F12505
                                  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12506
                                                                                                   4F12507
                                  RDP/ CALLS=OUTPUT. USES=RDC.                                     4F12508
                                  RDP PROCESSES PRINT STATEMENTS.                                  4F12509
04753  -0 75400 0 00000 RDP      PXD ,0                         RESET ENT                            4F12510
04754   0 62100 0 02067          STA ENT                        TO NTR000.                           4F12511
04755   0 07400 2 06004          TSX OUTPUT,2                 * GO COMPILE CAL *, AND XIT (LEV).     4F12512
04756   0 50000 0 06135          CLA SPH                        PICKUP (SPH), AND                    4F12513
                                  TSD= ENTRY POINT USED BY WOT, PDC.                               4F12514
04757   0 60100 0 06143 TSD      STO TSA                        SET TSA.                             4F12515
04760  -0 50000 0 06131          CAL FIL                        MOVE (FIL)                           4F12516
04761   0 60200 0 06141          SLW END                        INTO END.                            4F12517
04762   0 50000 0 06126          CLA BDC                        PICKUP (BDC) TO SET TTA, AND         4F12518
D  04763   1 00000 0 04703        TXI TTC,0                    * CONTINUE BY USING PROGRAM RDC.       4F12519
                                   END OF PROGRAM RDP.                                             4F12520
                                  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12521
                                                                                                   4F12522
                                  WOT/ CALLS=OUTPUT,BEG,VRD. USES=RDP.                             4F12523
                                  WOT PROCESSES WRITE OUTPUT TAPE STATEMENTS.                      4F12524
04764   0 07400 2 06004 WOT      TSX OUTPUT,2                 * GO COMPILE CAL *, AND XIT (LEV).     4F12525
04765   0 07400 4 05603          TSX BEG,4                    * SCAN AND TEST TYPE OF UNIT SYMBOL.   4F12526
04766   0 07400 4 06036          TSX VRD,4                    * IF VARIABLE, ENTER FORVAR AND CITS.4F12527
04767   0 62100 0 02067          STA ENT                        IF CONSTANT, SET ENT= NTR0(UNIT).    4F12528
04770   0 50000 0 06136          CLA STH                        PICKUP (STH) TO SET TSA, AND         4F12529
D  04771   1 00000 0 04757        TXI TSD,0                    * CONTINUE BY USING PROGRAM RDP.       4F12530
                                   END OF PROGRAM WOT.                                             4F12531
                                  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12532
                                                                                                   4F12533
                                  PDC/ CALLS=OUTPUT. USES=RDP.                                     4F12534
                                  PDC PROCESSES PUNCH STATEMENTS.                                  4F12535
04772  -0 75400 0 00000 PDC      PXD ,0                         RESET ENT                            4F12536
04773   0 62100 0 02067          STA ENT                        TO NTR000.                           4F12537
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04774   0 07400 2 06004          TSX OUTPUT,2                 * GO COMPILE CAL *, AND XIT (LEV).    4F12538
04775   0 50000 0 06134          CLA SCH                        PICKUP (SCH) TO SET TSA, AND        4F12539
D 04776   1 00000 0 04757        TXI TSD,0                    * CONTINUE BY USING PROGRAM RDP.      4F12540
                                  END OF PROGRAM PDC.                                              4F12541
                                 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12542
                                                                                                   4F12543
                                 WBT/ CALLS=OUTPUT,BRW,CIT.                                        4F12544
                                 WBT PROCESSES WRITE TAPE STATEMENTS.                              4F12545
                                                                                                   4F12546
04777  -0 50000 0 06124 WBT      CAL WTB                        MOVE WTB000                        4F12547
05000   0 60200 0 17401          SLW OP                         INTO OP.                           4F12548
05001   0 07400 2 06004          TSX OUTPUT,2                 * GO COMPILE CAL *, AND XIT (LEV).    4F12549
05002  -0 50000 0 01475          CAL BTA                        PICKUP BINARY TAPE ADDRESS, AND     4F12550
05003   0 07400 4 05646          TSX BRW,4                    * COMPILE INSTRS TO SET UNIT DESIG.   4F12551
05004   0 07400 4 01731          TSX CIT,4                    * GO MAKE THE FOLLOWING CIT ENTRY=    4F12552
05005   0 00000 0 01406          PZE L(0)                       WORD1--000000                       4F12553
05006   0 00000 0 01544          PZE CPY                        WORD2--CPY000                       4F12554
05007   0 00000 0 01504          PZE ZER                        WORD3--600000                       4F12555
05010   0 00000 0 01457          PZE D2                         WORD4--002000                       4F12556
D 05011   1 00000 0 04744        TXI BXT,0                    * EXIT TO SCAN LIST, IF THERE IS ONE.4F12557
                                  END OF PROGRAM WBT.                                              4F12558
                                 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12559
                                                                                                   4F12560
                                 RBT/ CALLS=INPUT,BRW,CIT.                                         4F12561
                                 RBT PROCESSES READ TAPE STATEMENTS.                               4F12562
                                                                                                   4F12563
05012  -0 50000 0 06117 RBT      CAL RTB                        MOVE RTB000                        4F12564
05013   0 60200 0 17401          SLW OP                         INTO OP.                           4F12565
05014   0 07400 2 06002          TSX INPUT,2                  * GO COMPILE CAL *, AND XIT (LEV).    4F12566
05015  -0 50000 0 01475          CAL BTA                        PICKUP BINARY TAPE ADDRESS, AND     4F12567
05016   0 07400 4 05646          TSX BRW,4                    * COMPILE INSTRS TO SET UNIT DESIG.   4F12568
05017   0 07400 4 01731          TSX CIT,4                    * GO MAKE THE FOLLOWING CIT ENTRY=    4F12569
05020   0 00000 0 01406          PZE L(0)                       WORD1--000000                       4F12570
05021   0 00000 0 01544          PZE CPY                        WORD2--CPY000                       4F12571
05022   0 00000 0 01500          PZE DMP                        WORD3--100000                       4F12572
05023   0 00000 0 01406          PZE L(0)                       WORD4--000000                       4F12573
05024   0 07400 4 01731          TSX CIT,4                    * GO MAKE THE FOLLOWING CIT ENTRY=    4F12574
05025   0 00000 0 01406          PZE L(0)                       WORD1--000000                       4F12575
05026   0 00000 0 06125          PZE XIT                        WORD2--XIT000                       4F12576
05027   0 00000 0 01510          PZE 15P                        WORD3--*00000                       4F12577
05030   0 00000 0 01461          PZE D3CN                       WORD4--003000                       4F12578
05031   0 07400 4 01731          TSX CIT,4                    * GO MAKE THE FOLLOWING CIT ENTRY=    4F12579
05032   0 00000 0 01406          PZE L(0)                       WORD1--000000                       4F12580
05033   0 00000 0 01554          PZE HPR                        WORD2--HPR000                       4F12581
05034   0 00000 0 01406          PZE L(0)                       WORD3--000000                       4F12582
05035   0 00000 0 01406          PZE L(0)                       WORD4--0000C0                       4F12583
05036   0 07400 4 01731          TSX CIT,4                    * GO MAKE THE FOLLOWING CIT ENTRY=    4F12584
05037   0 00000 0 01406          PZE L(0)                       WORD1--000000                       4F12585
05040   0 00000 0 06125          PZE XIT                        WORD2--XIT000                       4F12586
05041   0 00000 0 01371          PZE TL                         WORD3--0(IFN)0(248)                 4F12587
05042   0 00000 0 01406          PZE L(0)                       WORD4--000000                       4F12588
D 05043   1 00000 0 04744        TXI BXT,0                    * EXIT TO SCAN LIST, IF THERE IS ONE.4F12589
                                  END OF PROGRAM RBT.                                              4F12590
                                 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12591

                                 WRD/ CALLS=OUTPUT,BRW,CIT.
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                                    WRD PROCESSES WRITE DRUM STATEMENTS.                                  4F12592
05044  0 07400 2 06004 WRD     TSX OUTPUT,2                * GO COMPILE CAL *, AND XIT (LEV).           4F12593
05045 -0 50000 0 06122           CAL WDR                       PICKUP WDR000, AND                        4F12594
                                    XDR= ENTRY POINT USED BY RDD.                                         4F12595
05046  0 60200 0 17401  XDR     SLW OP                        SET OP.                                     4F12596
05047 -0 50000 0 01476           CAL BDA                       PICKUP BINARY DRUM ADDRESS, AND             4F12597
05050  0 07400 4 05646           TSX BRW,4                   * COMPILE INSTRS TO SET UNIT DESIG.           4F12598
05051 -0 50000 0 01566           CAL PXD                       MOVE PXD000                                 4F12599
05052  0 60200 0 17401           SLW OP                        INTO OP.                                    4F12600
05053 -0 75400 0 00000           PXD ,0                        CLEAR THE AC, AND                           4F12601
05054  0 07400 4 05646           TSX BRW,4                   * COMPILE INSTRS TO SET DRUM LOC.             4F12602
05055  0 07400 4 01731           TSX CIT,4                   * GO MAKE THE FOLLOWING CIT ENTRY=            4F12603
05056  0 00000 0 01406           PZE L(0)                      WORD1--000000                               4F12604
05057  0 00000 0 01555           PZE LDA                       WORD2--LDA000                               4F12605
05060  0 00000 0 01371           PZE TL                        WORD3--0(IFN)0(248)                         4F12606
05061  0 00000 0 01406           PZE L(0)                      WORD4--000000                               4F12607
D  05062  1 00000 0 04744        TXI BXT,0                   * EXIT TO SCAN LIST, IF THERE IS ONE.         4F12608
                                     END OF PROGRAM WRD.                                                  4F12609
                                    * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *   4F12610
                                                                                                          4F12611
                                    RDD/ CALLS=INPUT. USES=WRD.                                           4F12612
                                    RDD PROCESSES READ DRUM STATEMENTS.                                   4F12613
05063  0 07400 2 06002 RDD     TSX INPUT,2                 * GO COMPILE CAL *, AND XIT (LEV).            4F12614
05064 -0 50000 0 06115           CAL RDR                       PICKUP RDR000 TO SET OP, AND                4F12615
D  05065  1 00000 0 05046        TXI XDR,0                   * CONTINUE BY USING PROGRAM WRD.              4F12616
                                     END OF PROGRAM RDD.                                                  4F12617
                                    * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *   4F12618
                                                                                                          4F12619
                                    EFT/ CALLS=GIF,BEG,VRAX,CIT.                                          4F12620
                                    EFT PROCESSES WRITE END OF FILE STATEMENTS.                           4F12621
05066 -0 50000 0 06123 EFT       CAL WEF                       PICKUP WEF000, AND                        4F12622
                                    TPO= ENTRY POINT USED BY RWN, BSP.                                    4F12623
05067  0 60200 0 17401 TPO       SLW OP                        SET OP.                                     4F12624
05070 -0 50000 0 01475           CAL BTA                       MOVE BINARY TAPE ADDRESS                    4F12625
05071  0 60200 0 06140           SLW CON                       INTO CON.                                   4F12626
05072  0 07400 4 02375           TSX GIF,4                   * GET IFN INTO SL AND TL.                     4F12627
05073  0 50000 0 02377           CLA L(SL)                     RESET TPOA ADDRESS                          4F12628
05074  0 62100 0 05102           STA TPOA                      TO SL.                                      4F12629
05075  0 07400 4 05603           TSX BEG,4                   * SCAN AND TEST TYPE OF UNIT SYMBOL.          4F12630
05076  0 07400 4 06032           TSX VRA,4                   * IF VARIABLE, ENTER FORVAR AND CITS.         4F12631
05077  0 76700 0 00022           ALS 18                        IF CONSTANT, ADJUST AND                     4F12632
05100  0 60100 0 17402           STO RA                        PLACE IN THE DECREMENT OF RA.               4F12633
05101  0 07400 4 01731           TSX CIT,4                   * GO MAKE THE FOLLOWING CIT ENTRY=            4F12634
05102  0 00000 0 01367 TPOA      PZE SL                        WORD1--0(IFN)000 OR 0(IFN)0(248)            4F12635
05103  0 00000 0 17401           PZE OP                        WORD2--(WEF,REW,OR BSP)000                  4F12636
05104  0 00000 0 01406           PZE L(0)                      WORD3--000000                               4F12637
05105  0 00000 0 17402           PZE RA                        WORD4--0(CON)000 OR 000000                  4F12638
D  05106  1 00000 0 05567        TXI FINI,0                  * GO RESET BXT, AND TEST FOR EFN.             4F12639
                                     END OF PROGRAM EFT.                                                  4F12640
                                    * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *   4F12641
                                                                                                          4F12642
                                    RWN/ USES=EFT.                                                        4F12643
                                    RWN PROCESSES REWIND TAPE STATEMENTS.                                 4F12644
05107 -0 50000 0 06116 RWN       CAL REW                       PICKUP REW000 TO SET OP, AND                4F12645
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D     05110  1 00000 0 05067          TXI TPO,0                      * CONTINUE BY USING PROGRAM EFT.      4F12646
                                        END OF PROGRAM RWN.                                               4F12647
                                      * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12648
                                                                                                          4F12649
                                                                                                          4F12650
                                      BSP/ USES=EFT.                                                      4F12651
                                      BSP PROCESSES BACKSPACE TAPE STATEMENTS.                            4F12652
      05111 -0 50000 0 06111 BSP      CAL BST                          PICKUP BST000 TO SET OP, AND       4F12653
D     05112  1 00000 0 05067          TXI TPO,0                      * CONTINUE BY USING PROGRAM EFT.      4F12654
                                        END OF PROGRAM BSP.                                               4F12655
                                      * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12656
                                                                                                          4F12657
                                      FOR/ CALLS=TET00.                                                   4F12658
                                      FOR PROCESSES FORMAT STATEMENTS.                                    4F12659
      05113 -0 50000 0 00030 FOR      CAL EIFNO                        MOVE EXTERNAL FORMULA NUMBER       4F12660
      05114  0 62100 0 01366          STA SET                          INTO THE ADDRESS OF SET,           4F12661
      05115 -0 50000 0 01366          CAL SET                          AND MOVE SET (8000(EFN))           4F12662
      05116  0 60200 0 01347          SLW G                            INTO G.                            4F12663
      05117 -0 53400 1 01724          LXD CHCTR,1                      SET XR1 = CHARACTER COUNT.         4F12664
      05120 -0 53400 2 01614          LXD FWA,2                        SET XR2 = -(CURRENT F-WORD ADDR).  4F12665
      05121 -3 00001 1 05137          TXL NFFW,1,1                     UNLESS POSITIONED AT THE           4F12666
      05122  1 77777 1 05123          TXI *+1,1,-1                     BEGINNING OF A FORMAT WORD,        4F12667
      05123  0 56000 0 01365          LDQ RESIDU                       THEN PICKUP AND                    4F12668
      05124 -0 50000 0 01526          CAL BLANKS                       PRECEED WITH BLANKS ANY            4F12669
      05125 -0 76300 0 00006  NFC     LGL 6                            CHARACTERS                         4F12670
      05126  2 00001 1 05125          TIX NFC,1,1                      REMAINING IN THE MQ, AND           4F12671
      05127  0 60200 0 01350  NFW     SLW G+1                          MOVE FORMAT WORDS INTO G+1.        4F12672
      05130  0 07400 1 03321          TSX TET00,1                    * GO ENTER THEN IN                   4F12673
      05131  0 00000 0 00012          PZE 10                           THE FORMAT TABLE.                  4F12674
      05132 -0 50000 0 01350          CAL G+1                          WHEN THE                           4F12675
      05133 -0 32000 0 01374          ANA ENDMK                        END OF STATEMENT MARK              4F12676
      05134  0 40200 0 01374          SUB ENDMK                        HAS BEEN ENTERED,                  4F12677
      05135  0 10000 0 03440          TZE CA010                      * EXIT TO PROCESS NEXT STATEMENT.    4F12678
      05136  0 60000 0 01347          STZ G                            PRECEED ALL BUT 1ST ENTRY WITH 0.  4F12679
      05137 -0 50000 2 00000  NFFW    CAL 0,2                          PICKUP NEXT FORMAT WORD,           4F12680
      05140  1 77777 2 05127          TXI NFW,2,-1                     UPDATE SCAN INDEX, AND CONTINUE.   4F12681
                                        END OF PROGRAM FOR.                                               4F12682
                                      * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12683
                                                                                                          4F12684
                                      RSC/ CALLS=C0190,DIAG.                                              4F12685
                                      RSC SCANS EACH CHARACTER IN A STATEMENT UNTIL EQUALITY IS           4F12686
                                      FOUND ON ONE OF THE PUNCTUATION MARKS IN THE CTEST BLOCK IN         4F12687
                                      COMMON. THEN A TAGGED EXIT IS MADE THROUGH THE BLOCK OF             4F12688
                                      CONTROL TRANSFERS INDICATED BY THE ADDRESS STORED IN CEXIT.         4F12689
                                      RSC = ENTRY POINT FROM THE BXT SWITCH IN RDC, AND FROM SPC.         4F12690
      05141 -0 50000 0 05361 RSC      CAL FLINE                        RESET TEMPORARY                    4F12691
      05142  0 62100 0 01372          STA TLINE                        TABLE LINE COUNTER.                4F12692
      05143  0 60000 0 17400          STZ DOLEV                        CLEAR DO LEVEL COUNTER.            4F12693
      05144  0 60000 0 01351          STZ GTAG                         CLEAR GENERALIZED TAG.             4F12694
                                      LSC = ENTRY POINT FROM SPC.                                         4F12695
      05145 -0 50000 0 05204 LSC      CAL LISTR                        SET CONTROL TRANSFER               4F12696
                                      CXS = ENTRY POINT FROM EQS, BEG.                                    4F12697
      05146  0 62100 0 05156 CXS     STA CEXIT                        FOR LIST SCAN.                     4F12698
                                      NXS = ENTRY POINT FROM LPR, SPC, CMA.                               4F12699
      05147  0 53400 2 01414 NXS     LXA L(6),2                       RESET SYMBOL CHARACTER COUNT
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05150 -0 63400 2 05637        SXD CSJ,2                    AND SHIFT COUNT.                    4F12700
05151  0 60000 0 17404        STZ SYM                      CLEAR SYMBOL WORKING STORAGE.       4F12701
                              NXC = ENTRY POINT FROM CMA.                                      4F12702
05152  0 07400 4 01707 NXC    TSX C0190,4                * OBTAIN NEXT NB CHARACTER IN THE AC.4F12703
05153  0 53400 4 02652 CLOAD  LXA CTESTX,4                 SET XR4 TO PICK CONTROL CHARACTERS.4F12704
05154  0 34000 4 01406 CCOMP  CAS CTEST,4                  COMPARE CHARACTER WITH CONSTANTS.   4F12705
D    05155 -3 00000 0 05160   TXL BUILD,0                 IF EQUALITY IS FOUND ON SOME        4F12706
05156  0 02000 4 00000 CEXIT  TRA **,4                   * CONTROL CHAR, EXIT TO TRA LIST.     4F12707
05157  2 00001 4 05154        TIX CCOMP,4,1                CONTINUE THROUGH PUNCTUATION.       4F12708
05160 -0 53400 4 05637  BUILD LXD CSJ,4                    BUILD A                             4F12709
05161  0 60100 4 17316        STO CHR,4                    SYMBOL                              4F12710
05162 -2 00001 4 05167        TNX LCT,4,1                  COMPOSED OF                         4F12711
05163  0 76700 2 00044        ALS 36,2                     SIX OR LESS CHARACTERS.             4F12712
05164 -0 63400 4 05637  CSZ    SXD CSJ,4                    SAVE SYMBOL CHARACTER COUNT.        4F12713
05165 -0 60200 0 17404        ORS SYM                      ALSO, SAVE EACH                     4F12714
05166  1 00006 2 05152        TXI NXC,2,6                  CHARACTER SEPARATELY.               4F12715
05167 -3 00044 2 05171 LCT    TXL LCS,2,36                 GO TO DIAGNOSTIC IF                 4F12716
05170  0 07400 4 03400        TSX DIAG,4                 * MORE THAN 6 CHARACTERS IN SYMBOL.   4F12717
05171  1 77777 4 05164 LCS    TXI CSZ,4,-1                 ADJUST COUNT, AND CONTINUE SCAN.    4F12718
                               END OF PROGRAM RSC.                                            4F12719
                              * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12720
                                                                                               4F12721
                              LISTR/ CONTROL TRANSFERS FOR LIST SCAN=                          4F12722
D    05172  1 00000 0 05547   TXI EMK,0                  * ENDMARK                             4F12723
D    05173  1 00000 0 05205   TXI LPR,0                  * (                                   4F12724
D    05174  1 00000 0 05413   TXI CMA,0                  * ,                                   4F12725
D    05175  1 00000 0 05377   TXI RPR,0                  * )                                   4F12726
D    05176  1 00000 0 05261   TXI EQS,0                  * =                                   4F12727
D    05177  1 00000 0 05200   TXI ILC,0                    - (ILLEGAL CHARACTER IN I/O LIST).  4F12728
05200  0 07400 4 03400 ILC    TSX DIAG,4                 * / (ILLEGAL CHARACTER IN I/O LIST).  4F12729
D    05201  1 00000 0 05200   TXI ILC,0                    . (ILLEGAL CHARACTER IN I/O LIST).  4F12730
D    05202  1 00000 0 05200   TXI ILC,0                    + (ILLEGAL CHARACTER IN I/O LIST).  4F12731
D    05203  1 00000 0 05200   TXI ILC,0                    * (ILLEGAL CHARACTER IN I/O LIST).  4F12732
05204  0 00000 0 05204  LISTR PZE LISTR                    INDEXING ADDRESS FOR ABOVE LIST.    4F12733
                              * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12734
                                                                                               4F12735
                              LPR/ CALLS=TYP,SS000,RA000,C0190,TEST..,LTMSW,CIT,JIF,DIAG,      4F12736
                              BSS. USES=CMA,RSC.                                               4F12737
                              LPR = ENTRY POINT TAKEN WHEN LPAREN IS MET IN LIST SCAN.         4F12738
05205 -0 50000 0 17404 LPR    CAL SYM                      TEST FOR SUBSCRIPT OR DO NEST.      4F12739
05206  0 10000 0 05230        TZE LPRD                     IF SUBSCRIPT, THEN                  4F12740
05207  0 07400 4 05624        TSX TYP,4                  * IF VARIABLE SYMBOL CONTAINS LESS    4F12741
05210  0 02000 4 00003        TRA 3,4                      THAN 6 CHARACTERS, ADD A BLANK.     4F12742
D    05211  1 00000 0 05416   TXI ERRC,0                * ON CONSTANT RETURN, GO TO DIAG.     4F12743
05212 -0 50000 0 17404        CAL SYM                      MOVE SYMBOL                         4F12744
05213  0 60200 0 01130        SLW E+2                      INTO E+2, AND                       4F12745
05214  0 60200 0 17403        SLW SA                       COMPILE SYMBOLIC ADDRESS.           4F12746
05215  0 07400 4 02614        TSX SS000,4                * GO SCAN AND PROCESS SUBSCRIPT.      4F12747
05216  0 07400 4 02437        TSX RA000,4                * THEN GO COMPUTE RELATIVE ADDRESS.   4F12748
05217  0 07400 4 01707        TSX C0190,4                * EXAMINE NEXT NON-BLANK CHARACTER    4F12749
05220  0 34000 0 01377        CAS CLOS                                                         4F12750
05221  0 02000 0 05226        TRA *+5                                                          4F12751
05222  0 02000 0 05224        TRA *+2                                                          4F12752
05223  0 02000 0 05226        TRA *+3                                                          4F12753
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                                                                                                                4F12754
                                                                                                                4F12755
05224   0 60000 0 17400          STZ DOLEV                                                                      4F12756
05225   0 07400 4 01707          TSX C0190,4                  * FOR EITHER COMMA OR ENDMARK.                    4F12757
05226   0 07400 4 03247          TSX TESTA0,4                 * AND CONTINUE BY USING PROGRAM CMA.              4F12758
D 05227   1 00000 0 05421          TXI CMA7,0                   IF THE BEGINNING OF A DO NEST,                    4F12759
05230  -0 50000 0 17400 LPRD     CAL DOLEV                    AND DOLEV IS NOT ZERO, THEN                       4F12760
05231   0 10000 0 05242          TZE LPR3                     TEST FOR NULL FORMULA.                            4F12761
05232   0 53400 4 17400          LXA DOLEV,4                  IF NULL, GO ESTABLISH POSITION.                   4F12762
05233  -3 00000 4 05236          TXL LPRE,4,0                 * OTHERWISE, COMPILE LTM, AND                     4F12763
05234   0 07400 4 05757          TSX LTMSW,4                  AND GO JUMP IFN.                                  4F12764
D 05235   1 00000 0 05241          TXI LPR4,0                   IF C(SL) DO NOT = 0,                              4F12765
05236  -0 50000 0 01367  LPRE    CAL SL                       THEN                                              4F12766
05237   0 10000 0 05241          TZE *+2                      * GO COMPILE= IFN BSS 0.                          4F12767
05240   0 07400 2 05674          TSX BSS,2                    * GO JUMP IFN, AND SET SL AND TL.                 4F12768
05241   0 07400 4 02372 LPR4     TSX JIF,4                    INCREASE THE C(DOLEV D)                           4F12769
05242  -0 53400 4 17400 LPR3     LXD DOLEV,4                  BY 1, AND                                         4F12770
05243   1 00001 4 05244          TXI LPR1,4,1                 SET THE C(DOLEV A)                                4F12771
05244  -0 75400 4 00000 LPR1     PXD ,4                       TO ZERO.                                          4F12772
05245   0 60200 0 17400          SLW DOLEV                    NOTE AT                                           4F12773
05246  -0 50000 0 01372          CAL TLINE                    THIS LEVEL                                        4F12774
05247   0 62100 0 05254          STA LPR2                     THE LOCATION IN TLDO                              4F12775
05250   0 60100 4 17400          STO DOLEV,4                  OF THIS DO FORMULA                                4F12776
05251   0 40000 0 01413          ADD L(5)                     AND INCREASE LINE IN TLINE.                       4F12777
05252   0 62100 0 01372          STA TLINE                    MOVE -(0(IFN)0(248)) INTO THE                     4F12778
05253   0 50200 0 01371          CLS TL                       LOCATION WORD OF CURRENT TEMP DO.                 4F12779
05254   0 60100 0 00000 LPR2     STO **                       * GO JUMP IFN, AND SET SL AND TL.                 4F12780
05255   0 07400 4 02372          TSX JIF,4                    IF 3 OR FEWER LEVELS IN LIST DO,                  4F12781
05256  -0 53400 4 17400          LXD DOLEV,4                  * RETURN TO LIST SCAN.                            4F12782
05257  -3 00003 4 05147          TXL NXS,4,3                  * OTHERWISE, GO TO DIAGNOSTIC.                    4F12783
05260   0 07400 4 03400          TSX DIAG,4                                                                     4F12784
                                   END OF PROGRAM LPR.                                                         4F12785
                                   * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *  4F12786
                                                                                                                4F12787
                                   EQS/ CALLS=DIAG. USES=RSC.                                                   4F12788
                                   EQS = ENTRY POINT WHEN EQUAL SIGN IS MET IN LIST CAN.                        4F12789
                                                                TEST THE LEGALITY OF EQUAL SIGN,                4F12790
                                                                AND GO TO DIAG ON THE ATTEMPT TO                4F12791
                                                              * SPECIFY SUBSCRIPT RANGE WITHOUT (.              4F12792
                                                                INITIALIZE SPECIFICATION                        4F12793
                                                                OF GENERATED DO FORMULA                         4F12794
                                                                AT CURRENT LEVEL.                               4F12795
                                                                PREPARE TO ENTER FORMULA NUMBERS                4F12796
                                                                IN LOCATION WORD,SUBSCRIPT IN                   4F12797
                                                                SYMBOL WORD, AND SUBSCRIPT SPECS                4F12798
                                                                IN TEMPDO ENTRY.                                4F12799
                                                                PREPARE TO COUNT THE                            4F12800
                                                                NUMBER OF SPECIFICATIONS.                       4F12801
                                                                OBTAIN SUBSCRIPT                                4F12802
                                                                FOR THIS DO, AND                                4F12803
                                                                STORE IN PROPER                                 4F12804
                                                                LINE OF TEMPORARY                               4F12805
                                                                LIST DO TABLE.                                  4F12806
                                                                (SUBSCRIPT SYMBOL WORD)                         4F12807
                                                                SET CONTROL LOOP FOR
                                                              * EXIT TO SPECIFICATION.
05261  -0 53400 4 17400 EQS      LXD DOLEV,4
05262   3 00000 4 05264          TXH EQS2,4,0
05263   0 07400 4 03400          TSX DIAG,4
05264  -0 50000 4 17400 EQS2     CAL DOLEV,4
05265   0 62100 0 05331          STA SPC2
05266   0 62100 0 05345          STA SPC5
05267   0 40000 0 01407          ADD L(1)
05270   0 62100 0 05302          STA EQS1
05271   0 40000 0 01412          ADD L(4)
05272   0 62100 0 05333          STA SPC3
05273   0 53400 4 01411          LXA L(3),4
05274  -0 63400 4 05304          SXD NSJ,4
05275  -0 50000 0 17404          CAL SYM
05276   3 00044 2 05302          TXH EQS1,2,36
05277  -0 50000 0 01430          CAL BLANK
05300   0 76700 2 00044          ALS 36,2
05301  -0 50100 0 17404          ORA SYM
05302   0 60200 0 00000 EQS1     SLW **
05303  -0 50000 0 05317          CAL SPCTR
05304   1 00000 0 05146 NSJ      TXI CXS,0,**
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                                        END OF PROGRAM EQS.                                                    4F12808
                                       * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12809
                                                                                                               4F12810
                                       SPCTR/ CONTROL TRANSFERS FOR SPECIFICATION SCAN=                        4F12811
     05305  0 07400 4 03400          TSX DIAG,4                  * E (ILLEGAL IN CONTROL FOR LIST DO).       4F12812
     05306  0 07400 4 03400 ICC      TSX DIAG,4                  * ( (ILLEGAL IN CONTROL FOR LIST DO).       4F12813
D    05307  1 00000 0 05322          TXI SPC,0                   * ,                                         4F12814
D    05310  1 00000 0 05320          TXI SPCX,0                  * )                                         4F12815
D    05311  1 00000 0 05306          TXI ICC,0                     = (ILLEGAL IN CONTROL FOR LIST DO).       4F12816
D    05312  1 00000 0 05306          TXI ICC,0                     - (ILLEGAL IN CONTROL FOR LIST DO).       4F12817
D    05313  1 00000 0 05306          TXI ICC,0                     / (ILLEGAL IN CONTROL FOR LIST DO).       4F12818
D    05314  1 00000 0 05306          TXI ICC,0                     . (ILLEGAL IN CONTROL FOR LIST DO).       4F12819
D    05315  1 00000 0 05306          TXI ICC,0                     + (ILLEGAL IN CONTROL FOR LIST DO).       4F12820
D    05316  1 00000 0 05306          TXI ICC,0                     * (ILLEGAL IN CONTROL FOR LIST DO).       4F12821
     05317  0 00000 0 05317  SPCTR PZE SPCTR                       INDEXING ADDRESS FOR ABOVE LIST.          4F12822
                                       * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12823
                                                                                                               4F12824
                                       SPC/ CALLS=TYP,LTMSW,JIF,TETOO. USES=RSC.                               4F12825
                                       SPCX = ENTRY POINT WHEN RPAREN IS MET IN SPECIFICATION SCAN.            4F12826
     05320 -0 50000 0 05336 SPCX   CAL SPC1                        PREPARE FOR END OF SPECIFICATION.         4F12827
     05321  0 60100 0 05336         STO SPC1                      SET SPC1 OP-SWITCH TO NOP CASE.           4F12828
                                       SPC = ENTRY POINT WHEN COMMA IS MET IN SPECIFICATION SCAN.           4F12829
     05322  0 07400 4 05624   SPC   TSX TYP,4                    * GO TEST TYPE OF SUBSCRIPT SPEC.         4F12830
D    05323  1 00000 0 05326          TXI SPCS,0                    IF FIXED POINT CONSTANT,                  4F12831
     05324 -0 53400 4 05304          LXD NSJ,4                     SET C(XR4) = SPECIFICATION COUNT,         4F12832
D    05325  1 00000 0 05333          TXI SPC3,0                    AND GO ENTER CONSTANT IN TABLE.           4F12833
     05326 -0 53400 4 05304   SPCS   LXD NSJ,4                     OTHERWISE, SET SPEC COUNT AND             4F12834
     05327 -0 50000 0 01453          CAL TAG4                      IF VARIABLE, NOTE BY                      4F12835
     05330  0 77100 4 00003          ARS 3,4                       PLACING BIT IN TAG FIELD                  4F12836
     05331 -0 60200 0 00000   SPC2   ORS **                        OF TABLE ENTRY.                           4F12837
     05332 -0 50000 0 17404          CAL SYM                       PICKUP VARIABLE SYMBOL AND                4F12838
     05333  0 60200 4 00000 SPC3     SLW **,4                      ENTER N SUB J IN TABLE.                   4F12839
     05334 -2 00001 4 05341          TNX SPC4,4,1                  REDUCE J.                                 4F12840
     05335 -0 63400 4 05304          SXD NSJ,4                     SAVE SPEC COUNT, AND                      4F12841
D    05336 -3 00000 0 05147 SPC1     TXL NXS,0                   * EXIT TO SCAN, IF SWITCH IS TXL.           4F12842
     05337 -0 50000 0 01407          CAL L(1)                      SET N SUB 3 = 1 IF NOT                    4F12843
D    05340  1 00000 0 05333          TXI SPC3,0                    OTHERWISE SPECIFIED.                      4F12844
     05341  0 50200 0 05336 SPC4     CLS SPC1                      RESTORE SPC1 EXIT.                        4F12845
     05342  0 60100 0 05336          STO SPC1                      (3 SPECS HAVE BEEN TREATED)               4F12846
     05343 -0 50000 0 00030          CAL EIFNO                     ALSO RESTORE INTERNAL FORMULA NO.         4F12847
     05344  0 77100 0 00022          ARS 18                        (PUT BETA IN TEMPDO TABLE)                4F12848
                                       SPC5 = ENTRY POINT USED BY RPR.                                      4F12849
     05345  0 62100 0 00000 SPC5     STA **                        SET BETA EQUAL TO IFNO.                   4F12850
     05346  0 53400 4 17400          LXA DOLEV,4                   EXAMINE DOLEV ADDRESS FOR ZERO TO         4F12851
     05347 -3 00000 4 05352          TXL SPCR,4,0                  TEST NEED FOR LTM, JIF AFTER ).           4F12852
     05350  0 07400 4 05757          TSX LTMSW,4                 * GO COMPILE LTM.                           4F12853
     05351  0 07400 4 02372          TSX JIF,4                   * GO JUMP IFN, AND SET SL AND TL.           4F12854
     05352 -0 53400 4 17400 SPCR     LXD DOLEV,4                   DECREASE DOLEV D                          4F12855
     05353  1 77777 4 05354          TXI SPC6,4,-1                 BY 1, AND INDICATE A TREATED LEVEL.       4F12856
     05354 -0 75400 4 00000   SPC6   PXD ,4                        IF NOT ZERO,                              4F12857
     05355  0 60200 0 17400          SLW DOLEV                     THEN ALL LEVELS ARE NOT TREATED.          4F12858
     05356  3 00000 4 05145          TXH LSC,4,0                 * RETURN TO SCAN NEXT LEVEL.                4F12859
     05357  0 50000 0 01372          CLA TLINE                     IF LEVEL IS ZERO                          4F12860
     05360  0 62100 0 05364          STA SPC7                      ENTER GENERATED                           4F12861
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05361  0 73400 2 17405 FLINE  PAX TLDOS,2                DO FORMULAS IN TDO BY                4F12862
05362  1 60373 2 05363        TXI *+1,2,-TLDOS            SUBROUTINE TET.                      4F12863
05363  0 53400 4 01413 SPC9   LXA L(5),4                  (MOVE EACH                           4F12864
05364  0 50000 2 00000 SPC7   CLA **,2                    TEMPDO TABLE ENTRY                   4F12865
05365  0 60100 4 01112        STO 1C+5,4                  INTO 1C...1C+4,                      4F12866
05366 -2 00001 2 05370        TNX SPC8,2,1                AND THEN                             4F12867
05367  2 00001 4 05364        TIX SPC7,4,1                WHEN DONE,                           4F12868
05370  0 53400 4 01105 SPC8   LXA 1C,4                    TEST TO SKIP                         4F12869
05371 -3 00000 4 05374        TXL SPCT,4,0                NULL DO.                             4F12870
05372  0 07400 1 03321        TSX TET00,1               * GO MAKE AN ENTRY                     4F12871
05373  0 00000 0 00001        PZE 1                       IN TDO TABLE.)AND WHEN THE WHOLE     4F12872
05374  3 00001 2 05363 SPCT   TXH SPC9,2,1                DO NEST HAS BEEN ENTERED,            4F12873
05375  0 07400 4 02372        TSX JIF,4                 * GO JUMP IFN, AND SET SL AND TL.      4F12874
D 05376  1 00000 0 05141 RESET TXI RSC,0                 * THEN EXIT TO CONTINUE LIST SCAN.   4F12875
                                END OF PROGRAM SPC.                                          4F12876
                               * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12877
                                                                                             4F12878
                               RPR/ CALLS=DIAG. USES=CMA,SPC.                                4F12879
                               RPR = ENTRY POINT WHEN RPAREN IS MET IN LIST SCAN.            4F12880
05377 -0 53400 4 17400 RPR     LXD DOLEV,4                 TEST LEGALITY OF ).              4F12881
05400  3 00000 4 05402        TXH RPS,4,0                 IF THERE ARE TOO MANY ) IN LIST,     4F12882
05401  0 07400 4 03400        TSX DIAG,4                * GO TO THE DIAGNOSTIC.                4F12883
05402 -0 50000 4 17400 RPS     CAL DOLEV,4                 NULLIFY DO AT CURRENT LEVEL.     4F12884
05403  0 62100 0 05345        STA SPC5                    SET SPC5 ADDRESS,                    4F12885
05404  0 50000 0 05411        CLA RPA                     SET CMA3 SWITCH TO RETURN TO         4F12886
05405  0 62100 0 05546        STA CMA3                    RPT, AND IF ANY CHARACTERS           4F12887
05406  3 00006 2 05414        TXH CMA1,2,6              * WERE COLLECTED, EXIT TO CMA.         4F12888
                               RPT = REENTRY POINT USED BY CMA.                              4F12889
05407  0 50000 0 05336 RPT     CLA SPC1                    RESET CMA3 SWITCH                    4F12890
05410  0 62100 0 05546        STA CMA3                    TO NXS,                              4F12891
05411 -0 75400 0 05407 RPA     PXD RPT,0                   CLEAR THE AC, AND                    4F12892
D 05412  1 00000 0 05345        TXI SPC5,0                * CONTINUE BY USING PROGRAM SPC.     4F12893
                                END OF PROGRAM RPR.                                          4F12894
                               * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12895
                                                                                             4F12896
                               CMA/ CALLS=TYP,DIAG,ETMSW,DIM.SR,IFFIX,TET00,DRTABS,JIF,CIT,  4F12897
                               LTMSW. USES=RSC.                                              4F12898
                               CMA = ENTRY POINT WHEN COMMA IS MET IN LIST SCAN.             4F12899
05413 -3 00006 2 05152 CMA     TXL NXC,2,6               * IF NOTHING COLLECTED, RETURN -SCAN.4F12900
                               CMA1 = ENTRY POINT USED BY EMK.                               4F12901
05414  0 07400 4 05624 CMA1    TSX TYP,4                 * TYPE TEST FOR NON-SUBSCR. VAR.       4F12902
05415  0 02000 4 00003        TRA 3,4                     ILLEGAL USE OF CONSTANT IN LIST,     4F12903
05416  0 07400 4 03400 ERRC    TSX DIAG,4                * GO TO THE DIAGNOSTIC.                4F12904
05417 -0 50000 0 17404        CAL SYM                     MOVE VARIABLE SYMBOL                 4F12905
05420  0 60200 0 17403 CMA4    SLW SA                      INTO SA. AND                         4F12906
                               CMA7 = ENTRY POINT USED BY LPR.                               4F12907
05421  0 53400 4 17400 CMA7    LXA DOLEV,4                 IF DOLEV ADDRESS = 0, AND IF         4F12908
05422  3 00000 4 05424        TXH CMA6,4,0                ETMSW IS SET TO TXH (NOP CASE),      4F12909
05423  0 07400 4 05754        TSX ETMSW,4               * GO COMPILE ETM, AND CLEAR SL.        4F12910
05424 -0 50000 0 17400 CMA6    CAL DOLEV                   IN ANY CASE,                         4F12911
05425  0 40000 0 01407        ADD L(1)                    UPDATE DOLEV ADDRESS                 4F12912
05426  0 60100 0 17400        STO DOLEV                   BY 1, AND THEN                       4F12913
05427  0 50000 0 01351        CLA GTAG                    SET GENERALIZED TAG.                 4F12914
05430  0 60100 0 17402        STO RA                      (RELATIVE ADDRESS)                   4F12915
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     05431   0 10000 0 05436         TZE DIMSR
     05432   0 50000 0 01147         CLA EPS
     05433  -0 10000 0 05537         TNZ CMA5
     05434   0 62100 0 17402         STA RA
D    05435   1 00000 0 05537         TXI CMA5,0
     05436  -0 50000 0 17403 DIMSR   CAL SA
     05437   0 60200 0 01130         SLW E+2
     05440   0 07400 4 01771 RD1     TSX DIM1SR,4
D    05441   1 00000 0 05444         TXI RD2,0
     05442   0 50000 0 01101 CS1     CLA D12
D    05443   1 00000 0 05467         TXI DVS,0
     05444   0 07400 4 01775 RD2     TSX DIM2SR,4
D    05445   1 00000 0 05455         TXI RD3,0
     05446   0 56000 0 01101 CS2     LDQ D12
     05447   0 60000 0 01361         STZ N2
     05450  -0 62000 0 01361         SLQ N2
     05451  -0 76300 0 00022         LGL 18
     05452   0 20000 0 01361         MPY N2
     05453   0 77100 0 00001         ARS 1
D    05454   1 00000 0 05467         TXI DVS,0
     05455   0 07400 4 02005 RD3     TSX DIM3SR,4
D    05456   1 00000 0 05533         TXI NODIM,0
     05457   0 56000 0 01101 CS3     LDQ D12
     05460   0 60000 0 01361         STZ N2
     05461  -0 62000 0 01361         SLQ N2
     05462  -0 76300 0 00022         LGL 18
     05463   0 20000 0 01361         MPY N2
     05464   0 76500 0 00022         LRS 18
     05465   0 20000 0 01102         MPY D3
     05466   0 76300 0 00021         LLS 17
     05467   0 40200 0 01407  DVS    SUB L(1)
     05470   0 10000 0 05533         TZE NODIM
     05471   0 76700 0 00022         ALS 18
     05472   0 60100 0 01347         STO G
     05473   0 07400 4 00417         TSX FXCNIX,4
     05474   0 76700 0 00022         ALS 18
     05475   0 62200 0 01364         STD RAT
     05476   0 07400 4 02372         TSX JIF,4
     05477   0 07400 4 01731         TSX CIT,4
     05500   0 00000 0 01367         PZE SL
     05501   0 00000 0 01561         PZE LXD
     05502   0 00000 0 01501         PZE 2P
     05503   0 00000 0 01364         PZE RAT
     05504   0 07400 4 02372         TSX JIF,4
     05505   0 07400 4 05754         TSX ETMSW,4
     05506   0 07400 4 01731         TSX CIT,4
     05507   0 00000 0 01367         PZE SL
     05510   0 00000 0 17401         PZE OP
     05511   0 00000 0 17403         PZE SA
     05512   0 00000 0 01416         PZE ST
     05513   0 60000 0 01367         STZ SL
     05514   0 07400 4 05757         TSX LTMSW,4
     05515   0 07400 4 02375         TSX GIF,4
     05516   0 07400 4 01731         TSX CIT,4
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      IF THIS VARIABLE HAS A SUBSCRIPT,  4F12916
      AND IF SUBSCRIPT                   4F12917
      IS A CONSTANT,                     4F12918
      THEN CLEAR THE ADDRESS OF RA.      4F12919
      THEN GO MAKE CIT ENTRY.            4F12920
      IF THIS VARIABLE                   4F12921
      DOES NOT HAVE A SUBSCRIPT, THEN    4F12922
*     GO SEARCH DIM1 TABLE.              4F12923
      IF FOUND, THEN                     4F12924
      PICKUP DIMENSION 1                 4F12925
      AND GO TEST SIZE. OTHERWISE,       4F12926
*     GO SEARCH DIM2 TABLE.              4F12927
      AND IF FOUND,                      4F12928
      PICKUP                             4F12929
      DIMENSION 1 AND                    4F12930
      DIMENSION 2                        4F12931
      AND MULTIPLY                       4F12932
      THEM TOGETHER.                     4F12933
      THEN                               4F12934
      GO TEST THE PRODUCT. OTHERWISE,    4F12935
*     GO SEARCH DIM3 TABLE.              4F12936
      AND IF FOUND,                      4F12937
      PICKUP                             4F12938
      DIMENSION 1,                       4F12939
      DIMENSION 2,                       4F12940
      AND DIMENSION 3.                   4F12941
      MULTIPLY                           4F12942
      THEM TOGETHER,                     4F12943
      AND IF                             4F12944
      THEIR                              4F12945
      PRODUCT IS                         4F12946
      GREATER THAN 1, THEN               4F12947
      PLACE DIMENSION-1 IN THE           4F12948
      DECREMENT OF G, AND                4F12949
*     GO ENTER IN FIXCON, AND GET TAG.   4F12950
      ADJUST, AND STORE TAG IN THE       4F12951
      DECREMENT OF RAT. THEN             4F12952
*     GO JUMP IFN, AND SET SL AND TL.    4F12953
*     GO MAKE THE FOLLOWING CIT ENTRY=   4F12954
      WORD1--0(IFN)000                   4F12955
      WORD2--LXD000                      4F12956
      WORD3--200000                      4F12957
      WORD4--0(FIXCON TAG)008            4F12958
*     GO JUMP IFN, AND SET SL AND TL.    4F12959
*     IF ETMSW = NOP, COMPILE ETM, SL=0. 4F12960
*     GO MAKE THE FOLLOWING CIT ENTRY=   4F12961
      WORD1--0(IFN)000 OR 000000         4F12962
      WORD2--(OPERATION CODE)            4F12963
      WORD3--(SYMBOLIC ADDRESS)          4F12964
      WORD4--000008                      4F12965
      CLEAR SL, AND                      4F12966
*     IF LTMSW = NOP, COMPILE LTM. SL=0. 4F12967
*     GET IFN IN SL AND TL.              4F12968
*     GO MAKE THE FOLLOWING CIT ENTRY=   4F12969
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05517  0 00000 0 01406        PZE L(0)                  WORD1--000000                   4F12970
05520  0 00000 0 01576        PZE TIX                   WORD2--TIX001                   4F12971
05521  0 00000 0 01367        PZE SL                    WORD3--0(IFN)000                4F12972
05522  0 00000 0 01416        PZE ST                    WORD4--000008                   4F12973
05523  0 60000 0 01367        STZ SL                    CLEAR SL, AND                   4F12974
05524  0 07400 4 05754        TSX ETMSW,4             * IF ETMSW = NOP, COMPILE ETM, SL=0. 4F12975
05525  0 07400 4 01731        TSX CIT,4               * GO MAKE THE FOLLOWING CIT ENTRY=   4F12976
05526  0 00000 0 01406        PZE L(0)                  WORD1--000000                   4F12977
05527  0 00000 0 01546        PZE DED                   WORD2--DED000                   4F12978
05530  0 00000 0 01406        PZE L(0)                  WORD3--000000                   4F12979
05531  0 00000 0 01416        PZE ST                    WORD4--000008                   4F12980
D  05532  1 00000 0 05537        TXI CMA5,0                IF THE PRODUCT OF DIMENSIONS IS 4F12981
05533  0 07400 1 05773  NODIM TSX IFFIX,1             * LESS THAN 2, TEST TYPE OF VARIABLE,4F12982
D  05534  1 00000 0 05537        TXI CMA5,0                AND IF FIXED POINT,             4F12983
05535  0 07400 1 03321        TSX TET00,1             * GO ENTER VARIABLE IN            4F12984
05536  0 00000 0 00000  INOUT PZE **                    EITHER FORVAL OR FORVAR TABLE.  4F12985
05537  0 07400 4 01731  CMA5  TSX CIT,4               * GO MAKE THE FOLLOWING CIT ENTRY=   4F12986
05540  0 00000 0 01367        PZE SL                    WORD1--0(IFN)000 OR 000000      4F12987
05541  0 00000 0 17401        PZE OP                    WORD2--NTR000 OR CPY000         4F12988
05542  0 00000 0 17403        PZE SA                    WORD3--(SYMBOL)                 4F12989
05543  0 00000 0 17402        PZE RA                    WORD4--(RELATIVE ADDRESS)       4F12990
05544  0 60000 0 01367        STZ SL                    CLEAR SL, AND                   4F12991
05545  0 60000 0 01351        STZ GTAG                  CLEAR GTAG. THEN TAKE EXIT      4F12992
D  05546  1 00000 0 05147  CMA3  TXI MXS,0               * SWITCH TO RPT OR NXS.           4F12993
                                 END OF PROGRAM CMA.                                     4F12994
                              * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F12995
                                                                                         4F12996
                              EMK/ CALLS=DIAG,LTMSW,JIF,CIT,LIB,TET00. USES=CMA.         4F12997
                              EMK = ENTRY POINT WHEN AN ENDMARK IS MET IN LIST SCAN.     4F12998
05547  3 00006 2 05414  EMK   TXH CMA1,2,6            * IF NO CHARACTERS REMAIN, THEN   4F12999
05550 -0 53400 4 17400        LXD DOLEV,4               CHECK THE NUMBER OF PARENTHESES. 4F13000
05551 -3 00000 4 05553        TXL FIN,4,0               IF THERE ARE TOO MANY LPARENS,  4F13001
05552  0 07400 4 03400        TSX DIAG,4              * GO TO THE DIAGNOSTIC. OTHERWISE, 4F13002
05553  0 07400 4 05757  FIN   TSX LTMSW,4             * IF LTMSW = NOP, COMPILE LTM. SL=0. 4F13003
05554  0 07400 4 02372        TSX JIF,4               * GO JUMP IFN, AND SET SL AND TL. 4F13004
                              LAST = ENTRY POINT SET BY BXT SWITCH.                      4F13005
05555  0 07400 4 01731  LAST  TSX CIT,4               * GO MAKE THE FOLLOWING CIT ENTRY=   4F13006
05556  0 00000 0 01367        PZE SL                    WORD1--0(IFN)000                4F13007
05557  0 00000 0 01537        PZE CAL                   WORD2--CAL000                   4F13008
05560  0 00000 0 01510        PZE 15P                   WORD3--*00000                   4F13009
05561  0 00000 0 01406        PZE L(0)                  WORD4--000000                   4F13010
05562  0 07400 4 06023        TSX LIB,4               * MAKE CLOSUB ENTRY, AND COMPILE= 4F13011
05563  0 00000 0 01406        PZE L(0)                  WORD1--000000                   4F13012
05564  0 00000 0 06125        PZE XIT                   WORD2--XIT000                   4F13013
05565  0 00000 0 06141        PZE END                   WORD3--(RTN) OR (FIL)           4F13014
05566  0 00000 0 01406        PZE L(0)                  WORD4--000000                   4F13015
                              FINI = ENTRY POINT USED BY EFT.                            4F13016
05567  0 50000 0 05376  FINI  CLA RESET                 RESET BXT SWITCH                4F13017
05570  0 62100 0 04744        STA BXT                   TO RSC.                         4F13018
05571  0 50000 0 01151        CLA F-1                   TEST FOR AN EXTERNAL            4F13019
05572  0 40200 0 01477        SUB 5BLANS                STATEMENT NUMBER, AND IF NONE,  4F13020
05573  0 10000 0 03440        TZE CA010               * EXIT TO PROCESS NEXT STATEMENT. 4F13021
05574 -0 50000 0 01520        CAL MINUSO                OTHERWISE, SET THE SIGN         4F13022
05575 -0 60200 0 00030        ORS EIFNO                 OF EIFNO TO MINUS, AND          4F13023
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      05576  0 07400 1 03321          TSX TET00,1                 * GO ENTER -(EIFNO)                    4F13024
      05577  0 00000 0 00000          PZE 0                         IN THE TEIFNO TABLE.                 4F13025
      05600 -0 50000 0 00030          CAL EIFNO                     THEN RESTORE                         4F13026
      05601  0 60100 0 00030          STO EIFNO                     EIFNO, AND                           4F13027
D     05602  1 00000 0 03440          TXI CA010,0                 * EXIT TO PROCESS NEXT STATEMENT.      4F13028
                                        END OF PROGRAM EMK.                                              4F13029
                                      * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F13030
                                                                                                         4F13031
                                      STATEA/4-SUBROUTINES USED BY STATE A=                              4F13032

                                      * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
                                                                                                         4F13033
                                      BEG(TYP),4/ CALLS=DIAG. USES RSC.                                  4F13034
                                      BEG = ENTRY POINT USED BY RDC,RIT,WOT,EFT.                         4F13035
      05603 -0 63400 4 05605 BEG      SXD BEX,4                     SAVE C(XR4) FOR RETURN,              4F13036
      05604 -0 50000 0 05620          CAL BEGTR                     SET CONTROL TRANSFER                 4F13037
      05605  1 00000 0 05146 BEX      TXI CXS,0,**                * AND GO EXECUTE BEGINNING SCAN.       4F13038
                                      * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F13039
                                                                                                         4F13040
                                      BEGTR/ CONTROL TRANSFERS FOR BEGINNING SCAN=                       4F13041
D     05606  1 00000 0 05621          TXI NLS,0                   * ENDMARK (NO LIST SCAN)               4F13042
      05607  0 07400 4 03400 IBC      TSX DIAG,4                  * ( (ILLEGAL CHARACTER IN I/O SETUP).4F13043
D     05610  1 00000 0 05623          TXI CMB,0                   * ,                                    4F13044
D     05611  1 00000 0 05607          TXI IBC,0                     ) (ILLEGAL CHARACTER IN I/O SETUP).4F13045
D     05612  1 00000 0 05607          TXI IBC,0                     = (ILLEGAL CHARACTER IN I/O SETUP).4F13046
D     05613  1 00000 0 05607          TXI IBC,0                     - (ILLEGAL CHARACTER IN I/O SETUP).4F13047
D     05614  1 00000 0 05607          TXI IBC,0                     / (ILLEGAL CHARACTER IN I/O SETUP).4F13048
D     05615  1 00000 0 05607          TXI IBC,0                     . (ILLEGAL CHARACTER IN I/O SETUP).4F13049
D     05616  1 00000 0 05607          TXI IBC,0                     + (ILLEGAL CHARACTER IN I/O SETUP).4F13050
D     05617  1 00000 0 05607          TXI IBC,0                     * (ILLEGAL CHARACTER IN I/O SETUP).4F13051
      05620  0 00000 0 05620  BEGTR    PZE BEGTR                     INDEXING ADDRESS FOR ABOVE LIST.     4F13052
                                      * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F13053
                                                                                                         4F13054
                                      NLS = ENTRY POINT WHEN AN ENDMARK IS MET IN BEGINNING SCAN.        4F13055
      05621  0 50000 0 06105  NLS      CLA NLA                       IF ENDMARK IS MET,                   4F13056
      05622  0 62100 0 04744          STA BXT                       SET BXT SWITCH TO LAST.              4F13057
                                      CMB = ENTRY POINT WHEN A COMMA IS MET IN BEGINNING SCAN.           4F13058
      05623 -0 53400 4 05605  CMB      LXD BEX,4                     RESTORE THE C(XR4), AND              4F13059
                                      TYP = ENTRY POINT USED BY LPR,SPC,CMA.                             4F13060
      05624  0 50000 0 17310 TYP      CLA CHR-6                     TEST FIRST CHARACTER                 4F13061
      05625  0 40200 0 01404          SUB PLUS                      FOR VARIABLE                         4F13062
      05626 -0 12000 0 05634          TMI ABS                       OR CONSTANT.                         4F13063
      05627  3 00044 2 05633          TXH SMB,2,36                  IF VARIABLE,                         4F13064
      05630 -0 50000 0 01430          CAL BLANK                     ADD A BLANK                          4F13065
      05631  0 76700 2 00044          ALS 36,2                      IF SYMBOL CONTAINS                   4F13066
      05632 -0 60200 0 17404          ORS SYM                       LESS THAN 6 CHARACTERS, AND          4F13067
      05633  0 02000 4 00001 SMB      TRA 1,4                     * TAKE VARIABLE EXIT TO CALLER.        4F13068
      05634  0 53400 2 01413 ABS      LXA L(5),2                    IF CONSTANT,                         4F13069
      05635  0 50000 2 17315          CLA CHR-1,2                   THEN                                 4F13070
      05636  0 60100 0 17307          STO BIN                       CONVERT                              4F13071
      05637 -3 00000 2 05645 CSJ      TXL INT,2,**                  BCD                                  4F13072
      05640  0 76700 0 00002          ALS 2                         DIGITS                               4F13073
      05641  0 40000 0 17307          ADD BIN                       TO THEIR                             4F13074
      05642  0 76700 0 00001          ALS 1                         BINARY                               4F13075
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05643   0 40000 2 17316          ADD CHR,2                      EQUIVALENT.                          4F13076
05644   1 77777 2 05636          TXI CSJ-1,2,-1                 AND WHEN DONE,                       4F13077
05645   0 02000 4 00002  INT     TRA 2,4                      * TAKE CONSTANT EXIT TO CALLER.        4F13078
                                  END OF PROGRAM BEG(TYP).                                          4F13079
                                 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F13080
                                                                                                    4F13081
                                 BRW,4/ CALLS=JIF,BEG,VRA,CIT. CALLERS=WBT,RBT,WRD.                 4F13082
05646  -0 63400 4 06054 BRW      SXD XRW,4                      SAVE THE C(XR4), AND                 4F13083
05647   0 60200 0 06140          SLW CON                        SET CON = 0 OR ,,144 OR ,,192.       4F13084
05650   0 07400 4 02372          TSX JIF,4                    * GO JUMP IFN, AND SET SL AND TL.      4F13085
05651   0 07400 4 05603          TSX BEG,4                    * GO SCAN AND TEST TYPE OF SYMBOL.     4F13086
05652   0 07400 4 06032          TSX VRA,4                    * IF VARIABLE, ENTER FORVAR AND CITS.  4F13087
05653   0 76700 0 00022          ALS 18                         IF CONSTANT, ADJUST CONVERTED        4F13088
05654   0 60100 0 17402          STO RA                         NUMBER, AND SET RA.                  4F13089
05655   0 07400 4 01731          TSX CIT,4                    * GO MAKE THE FOLLOWING CIT ENTRY=     4F13090
05656   0 00000 0 01371          PZE TL                         WORD1--0(IFN)0(248)                  4F13091
05657   0 00000 0 17401          PZE OP                         WORD2--(WTB,RBT,WRD,RDD)000          4F13092
05660   0 00000 0 01406          PZE L(0)                       WORD3--000000                        4F13093
05661   0 00000 0 17402          PZE RA                         WORD4--000000 OR 0(UNIT)000          4F13094
05662  -0 50000 0 01544          CAL CPY                        MOVE CPY000                          4F13095
05663   0 60200 0 17401          SLW OP                         INTO OP.                             4F13096
05664  -0 50000 0 00415          CAL TXLOP                      SET OP-SWITCHES,                     4F13097
05665   0 63000 0 05754          STP ETMSW                      ETMSW AND LTMSW,                     4F13098
05666   0 63000 0 05757          STP LTMSW                      TO THE TRA CASE.                     4F13099
05667  -0 50000 0 06133          CAL RTN                        MOVE (RTN)                           4F13100
05670   0 60200 0 06141          SLW END                        INTO END.                            4F13101
05671   0 60000 0 01367          STZ SL                         CLEAR SL,                            4F13102
05672  -0 53400 4 06054          LXD XRW,4                      RESTORE THE C(XR4), AND              4F13103
05673   0 02000 4 00001          TRA 1,4                      * EXIT TO CALLER.                      4F13104
                                  END OF PROGRAM BRW.                                               4F13105
                                 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F13106
                                                                                                    4F13107
                                 BSS,2/ CALLS=CIT00. CALLERS=LPR,C1600.                             4F13108
                                 BSS COMPILES= IFN BSS 0.                                           4F13109
05674   0 07400 4 01731  BSS     TSX CIT00,4                  * GO MAKE FOLLOWING CIT ENTRY=         4F13110
05675   0 00000 0 01367          PZE SL                         WORD1--0(IFN)000                     4F13111
05676   0 00000 0 01536          PZE L(BSS)                     WORD2--BSS000                        4F13112
05677   0 00000 0 01406          PZE L(0)                       WORD3--000000                        4F13113
05700   0 00000 0 01406          PZE L(0)                       WORD4--000000                        4F13114
05701   0 02000 2 00001          TRA 1,2                      * EXIT TO CALLER+1.                    4F13115
                                  END OF PROGRAM BSS.                                               4F13116
                                 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F13117
                                                                                                    4F13118
                                 CA100,4/ CALLS=DIAG. CALLER=CA000.                                 4F13119
                                 CA100 READS NEXT SOURCE PROGRAM CARD (1 TAPE RECORD).              4F13120
05702   0 53400 2 01413 CA100    LXA TERC,2                     PREPARE TO COUNT                     4F13121
05703  -0 63400 2 01112          SXD 1G,2                       TAPE READING ERRORS.                 4F13122
05704  -0 76000 0 00012          RTT                            TURN OFF TAPE CHECK INDICATOR.       4F13123
05705   0 76100 0 00000          NOP                            PROCEED TO NEXT INSTRUCTION.         4F13124
05706   0 76200 0 00202 CA101    RDS 130                        SELECT SOURCE TAPE FOR READING.      4F13125
05707   0 53400 2 01420          LXA L(12),2                    INITIALIZE INDEX B FOR 12 CYCLES OF4F13126
                                                                COPY LOOP.                           4F13127
05710   0 70000 2 01347 CA102    CPY FT+12,2                    COPY INTO FT REGION                  4F13128
05711   0 02000 0 05721          TRA CA103                      NEXT SOURCE PROGRAM CARD.            4F13129
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05712  0 02000 0 05740        TRA CA120                    END OF FILE, GO FINISH LAST STATEM.4F13130
05713 -0 53400 2 01112 CA130  LXD 1G,2                     TEST TAPE ERROR COUNTER            4F13131
05714  2 00001 2 05716        TIX CA131,2,1                BY TRYING TO REDUCE BY 1.          4F13132
05715  0 07400 4 03400        TSX DIAG,4                 * FAILED 5 TIMES IN READING TAPE 2.  4F13133
05716 -0 63400 2 01112 CA131  SXD 1G,2                     SAVE REDUCED VALUE IN COUNTER.     4F13134
05717  0 76400 0 00202        BST 130                      BACKSPACE FORMULA TAPE,            4F13135
05720  0 02000 0 05706        TRA CA101                    AND GO BACK TO READ AGAIN.         4F13136
05721  2 00001 2 05710 CA103  TIX CA102,2,1                TEST EXIT FROM LOOP.               4F13137
05722  0 76600 0 00333        IOD                          DELAY UNTIL TAPE DISCONNECTS.      4F13138
05723 -0 76000 0 00012        RTT                          CHECK READING OF TAPE.             4F13139
D 05724  1 00000 0 05713      TXI CA130,0                  IF INCORRECT, GO CHECK ERROR COUNT.4F13140
05725  0 53400 2 01420        LXA L(12),2                  PREPARE TO SCAN 12 WORDS OF CARD.  4F13141
05726  0 50000 0 01526 CA112  CLA BLANKS                   TEST                               4F13142
05727  0 40200 2 01347        SUB FT+12,2                  FOR                                4F13143
05730 -0 10000 0 05733        TNZ CA113                    BLANK                              4F13144
05731  2 00001 2 05726        TIX CA112,2,1                CARD.                              4F13145
05732  0 02000 0 05702        TRA CA100                    IF BLANK, GO TO READ NEXT CARD.    4F13146
05733 -0 50000 0 01333 CA113  CAL FT                       IF NOT BLANK,                      4F13147
05734  0 77100 0 00036        ARS 30                       EXAMINE FIRST                      4F13148
05735  0 40200 0 01421        SUB L(C)                     CHARACTER TO                       4F13149
05736  0 10000 0 05702        TZE CA100                    TEST FOR COMMENT CARD.             4F13150
05737  0 02000 4 00001        TRA 1,4                    * EXIT IF NEITHER BLANK NOR COMMENT. 4F13151
05740  0 60000 0 01333 CA120  STZ FT                       INDICATE THAT FINAL                4F13152
05741 -0 63400 0 02575        SXD ENDWRD,0                 STATEMENT HAS BEEN READ IN.        4F13153
05742  0 02000 4 00001        TRA 1,4                    * EXIT TO MAIN ROUTINE TO FINISH.    4F13154
                               END OF PROGRAM CA100.                                         4F13155
                              * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F13156
                                                                                            4F13157
                              CC500,4/ CALLER=CC000.                                        4F13158
                              CC500 BRINGS NEXT CHARACTER OF DICTIONARY INTO AC(30-35).     4F13159
05743 -0 75400 0 00000 CC500  PXD ,0                       CLEAR THE AC.                      4F13160
05744  2 00001 2 05752        TIX CC502,2,1                IF NO DICTIONARY CHARACTERS        4F13161
05745 -0 53400 2 01113        LXD 2G,2                     REMAIN IN THE MQ, THEN             4F13162
05746  0 56000 2 06145        LDQ DIC,2                    REFILL WITH NEXT DICTIONARY WORD.  4F13163
05747  1 77777 2 05750        TXI CC501,2,-1               RESET THE                          4F13164
05750 -0 63400 2 01113 CC501  SXD 2G,2                     DICTIONARY WORD TAG, AND           4F13165
05751  0 53400 2 01414        LXA L(6),2                   SET THE CHARACTER COUNT = 6.       4F13166
05752 -0 76300 0 00006 CC502  LGL 6                        SHIFT CHAR INTO AC(30-35),         4F13167
05753  0 02000 4 00001        TRA 1,4                    * AND RETURN TO CALLER.              4F13168
                               END OF PROGRAM CC500.                                         4F13169
                              * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F13170
                                                                                            4F13171
                              ETMSW(LTMSW),4/ CALLS=CIT. CALLERS=RDC,LPR,SPC,CMA,EMK.       4F13172
                              ETMSW = ENTRY POINT USED BY RDC,CMA.                          4F13173
D 05754 -3 00000 0 05772 ETMSW  TXL NOTTM,0                SWITCH (TXL=TRA, TXH=NOP).         4F13174
05755 -0 50000 0 06112        CAL ETM                      PICKUP ETM000, AND                 4F13175
05756  1 00000 0 05761 XR4X   TXI SETOP,0,**               GO SET OP.                         4F13176
                              LTMSW = ENTRY POINT USED BY LPR,SPC,CMA,EMK.                  4F13177
D 05757 -3 00000 0 05772 LTMSW  TXL NOTTM,0                SWITCH (TXL=TRA, TXH=NOP).         4F13178
05760 -0 50000 0 06113        CAL LTM                      PICKUP LTM000, AND                 4F13179
05761  0 60200 0 06142 SETOP  SLW TOP                      SET TOP.                           4F13180
05762 -0 63400 4 05756        SXD XR4X,4                   SAVE THE C(XR4), AND               4F13181
05763  0 07400 4 01731        TSX CIT,4                  * GO MAKE THE FOLLOWING CIT ENTRY=   4F13182
05764  0 00000 0 01367        PZE SL                       WORD1--0(IFN)000                   4F13183
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     05765   0 00000 0 06142          PZE TOP                          WORD2--ETM000 OR LTM000            4F13184
     05766   0 00000 0 01406          PZE L(0)                         WORD3--000000                      4F13185
     05767   0 00000 0 01406          PZE L(0)                         WORD4--000000                      4F13186
     05770   0 60000 0 01367          STZ SL                           CLEAR SL,                          4F13187
     05771  -0 53400 4 05756          LXD XR4X,4                       RESTORE THE C(XR4), AND            4F13188
     05772   0 02000 4 00001 NOTTM    TRA 1,4                        * EXIT TO CALLER.                    4F13189
                                       END OF PROGRAM ETMSW(LTMSW).                                        4F13190
                                      * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F13191
                                                                                                          4F13192
                                      IFFIX,1/ USES=TESTFX. CALLERS=CMA,VRA(VRD).                         4F13193
     05773  -0 50000 0 00030 IFFIX    CAL EIFNO                        SET                                4F13194
     05774   0 60000 0 01347          STZ G                            G TO                               4F13195
     05775   0 62200 0 01347          STD G                            (0(IFN)000).                       4F13196
     05776  -0 50000 0 17404          CAL SYM                          MOVE SYMBOL                        4F13197
     05777   0 60200 0 01350          SLW G+1                          INTO G+1.                          4F13198
     06000  -0 50000 0 17310          CAL CHR-6                        PICKUP 1ST CHARACTER OF SYMBOL, AND4F13199
D    06001   1 00000 0 03242          TXI TESTFX+1,0                 * GO TEST FOR FIXED OR FLOATING PT.  4F13200
                                       END OF PROGRAM IFFIX.                                              4F13201
                                      * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F13202
                                                                                                          4F13203
                                      INPUT(OUTPUT),2/ CALLS=GIF,CIT,LIB.                                 4F13204
                                      CALLERS=RDC,RIT,RDP,WOT,PDC,WBT,RBT,WRD,RDD.                        4F13205
                                      INPUT = ENTRY POINT USED BY RDC,RIT,RBT,RDD.                        4F13206
     06002   0 50000 0 01414 INPUT    CLA L(6)                         PICKUP 6 TO                        4F13207
TD   06003   1 00000 0 06005          TXI OUTPUT+1                     GO SET INOUT FOR FORVAL ENTRY.     4F13208
                                      OUTPUT = ENTRY POINT USED BY RDP,WOT,PDC,WBT,WRD.                   4F13209
     06004   0 50000 0 01413 OUTPUT   CLA L(5)                         PICKUP 5 TO                        4F13210
     06005   0 60100 0 05536          STO INOUT                        SET INOUT FOR FORVAR ENTRY.        4F13211
     06006   0 07400 4 02375          TSX GIF,4                      * SET SL = IFN,000.                  4F13212
     06007   0 07400 4 01731          TSX CIT,4                      * GO MAKE THE FOLLOWING CIT ENTRY=   4F13213
     06010   0 00000 0 01367          PZE SL                           WORD1--0(IFN)000                   4F13214
     06011   0 00000 0 01537          PZE CAL                          WORD2--CAL000                      4F13215
     06012   0 00000 0 01510          PZE 15P                          WORD3--*00000                      4F13216
     06013   0 00000 0 01406          PZE L(0)                         WORD4--000000                      4F13217
     06014   0 07400 4 06023          TSX LIB,4                      * MAKE CLOSUB ENTRY, AND COMPILE=    4F13218
     06015   0 00000 0 01406          PZE L(0)                         WORD1--000000                      4F13219
     06016   0 00000 0 06125          PZE XIT                          WORD2--XIT000                      4F13220
     06017   0 00000 0 06132          PZE LEV                          WORD3--(LEV)                       4F13221
     06020   0 00000 0 01406          PZE L(0)                         WORD4--000000                      4F13222
     06021   0 60000 0 01367          STZ SL                           CLEAR SL, AND                      4F13223
     06022   0 02000 2 00001          TRA 1,2                        * EXIT TO CALLER.                    4F13224
                                       END OF PROGRAM INPUT(OUTPUT).                                      4F13225
                                      * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F13226
                                                                                                          4F13227
                                      LIB,1/ CALLS=TET00,CIT. CALLERS=RDC,EMK,INPUT(OUTPUT).              4F13228
     06023  -0 50000 4 00003 LIB      CAL 3,4                          MOVE NAME OF SUBROUTINE,           4F13229
     06024   0 62100 0 06025          STA LIC                          ADDRESS OF WHICH                   4F13230
     06025  -0 50000 0 00000 LIC      CAL **                           IS IN WORD3 OF CALLING SEQ,        4F13231
     06026   0 60200 0 01347          SLW G                            INTO G, AND                        4F13232
     06027   0 07400 1 03321          TSX TET00,1                    * GO ENTER IN THE                    4F13233
     06030   0 00000 0 00011          PZE 9                            CLOSUB TABLE.                      4F13234
D    06031   1 00000 0 01731          TXI CIT,0                      * MAKE CIT ENTRY, AND EXIT TO CALLER.4F13235
                                       END OF PROGRAM LIB.                                                4F13236
                                      * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F13237
```

```
                                          VRA(VRD),4/ CALLS=IFFIX,DIAG,TET00,CIT,DRTABS,JIF.
                                          CALLERS=RIT,WOT,EFT.
                                          VRA = ENTRY POINT USED BY EFT.
06032  0 50000 0 02400 VRA    CLA L(TL)                  RESET TPOA ADDRESS
06033  0 62100 0 05102        STA TPOA                   TO TL.
06034 -0 50000 0 00415        CAL TXLOP                  PREPARE TO SET OP-SWITCH TO TRA.
06035  1 77777 4 06037        TXI VRD1,4,-1              SET RETURN TO TSX+2, AND GO SET OP.
                                          VRD = ENTRY POINT USED BY RIT,WOT.
06036  0 50000 0 00415 VRD    CLA TXLOP                  PREPARE TO SET OP-SWITCH TO NOP.
06037  0 63000 0 06052 VRD1   STP VRX                    SET VRX OP-SWITCH.
06040 -0 63400 4 06052        SXD VRX,4                  SAVE THE C(XR4) FOR RETURN.
06041  0 07400 1 05773        TSX IFFIX,1              * SET UP IFN AND SYMBOL FOR FORVAR.
06042  0 07400 4 03400        TSX DIAG,4               * ILLEGAL USE OF FLOATING VARIABLE.
06043  0 07400 1 03321        TSX TET00,1              * IF SYMBOL IS FXD-PT, GO MAKE
06044  0 00000 0 00005        PZE 5                      ENTRY IN FORVAR TABLE.
06045  0 07400 4 01731        TSX CIT,4                * GO MAKE THE FOLLOWING CIT ENTRY=
06046  0 00000 0 01367        PZE SL                     WORD1--0(IFN)000
06047  0 00000 0 01537        PZE CAL                    WORD2--CAL000
06050  0 00000 0 17404        PZE SYM                    WORD3--(FXD-PT SYMBOL)
06051  0 00000 0 01406        PZE L(0)                   WORD4--000000
06052  3 00000 0 06055 VRX    TXH VDA,0,**               SWITCH (TXL=TRA, TXH=NOP).
06053 -0 50000 0 06121        CAL STD                    PICKUP STD000, AND
06054  1 00000 0 06076 XRW    TXI RVX,0,**               GO SET TOP.
06055  0 50000 0 06140 VDA    CLA CON                    IF CON
06056  0 10000 0 06070        TZE SDA                    IS NOT ZERO,
06057  0 60100 0 01347        STO G                      THEN
06060  0 07400 4 00417        TSX FXCNIX,4             * ENTER CON IN FIXCON,AND GET TAG.
06061  0 76700 0 00022        ALS 18                     ADJUST TAG, AND
06062  0 60100 0 17402        STO RA                     SET RA.
06063  0 07400 4 01731        TSX CIT,4                * GO MAKE THE FOLLOWING CIT ENTRY.
06064  0 00000 0 01406        PZE L(0)                   WORD1--000000
06065  0 00000 0 01532        PZE ADD                    WORD2--ADD000
06066  0 00000 0 01501        PZE 2P                     WORD3--200000
06067  0 00000 0 17402        PZE RA                     WORD4--(FIXCON TAG)
06070  0 07400 4 01731 SDA    TSX CIT,4                * GO MAKE THE FOLLOWING CIT ENTRY=
06071  0 00000 0 01406        PZE L(0)                   WORD1--000000
06072  0 00000 0 01535        PZE ARS                    WORD2--ARS000
06073  0 00000 0 01406        PZE L(0)                   WORD3--000000
06074  0 00000 0 01466        PZE D18                    WORD4--0(18)000
06075 -0 50000 0 01571        CAL STA                    PICKUP STA000, AND
06076  0 60200 0 06142 RVX    SLW TOP                    SET TOP TO STA OR STD.
06077  0 07400 4 02372        TSX JIF,4                * GO JUMP IFN, AND SET SL AND TL.
06100  0 07400 4 01731        TSX CIT,4                * GO MAKE THE FOLLOWING CIT ENTRY=
06101  0 00000 0 01406        PZE L(0)                   WORD1--000000
06102  0 00000 0 06142        PZE TOP                    WORD2--STA000 OR STD000
06103  0 00000 0 01371        PZE TL                     WORD3--0(IFN)000
06104  0 00000 0 01406        PZE L(0)                   WORD4--000000
06105 -0 75400 0 05555 NLA    PXD LAST,0                 CLEAR THE AC,
06106 -0 53400 4 06052        LXD VRX,4                  RESTORE THE C(XR4), AND
06107  0 02000 4 00001        TRA 1,4                  * EXIT TO CALLER.
                                            END OF PROGRAM VRA(VRD).
                                          * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
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                                    STATEA/5-CONSTANTS AND VARIABLES USED BY STATE A=                4F13292
                                                                                                     4F13293
06110  222324000000      BCD    BCD 1BCD000                 CONSTANT USED BY IOT.                    4F13294
06111  226263000000      BST    BCD 1BST000                 CONSTANT USED BY IOT.                    4F13295
06112  256344000000      ETM    BCD 1ETM000                 CONSTANT USED BY IOT.                    4F13296
06113  436344000000      LTM    BCD 1LTM000                 CONSTANT USED BY IOT.                    4F13297
06114  456351000000      NTR    BCD 1NTR000                 CONSTANT USED BY IOT.                    4F13298
06115  512451000000      RDR    BCD 1RDR000                 CONSTANT USED BY IOT.                    4F13299
06116  512566000000      REW    BCD 1REW000                 CONSTANT USED BY IOT.                    4F13300
06117  516322000000      RTB    BCD 1RTB000                 CONSTANT USED BY IOT.                    4F13301
06120  624366000000      SLW    BCD 1SLW000                 CONSTANT USED BY IOT.                    4F13302
06121  626324000000      STD    BCD 1STD000                 CONSTANT USED BY IOT.                    4F13303
06122  662451000000      WDR    BCD 1WDR000                 CONSTANT USED BY IOT.                    4F13304
06123  662526000000      WEF    BCD 1WEF000                 CONSTANT USED BY IOT.                    4F13305
06124  666322000000      WTB    BCD 1WTB000                 CONSTANT USED BY IOT.                    4F13306
06125  673163000000      XIT    BCD 1XIT000                 CONSTANT USED BY IOT.                    4F13307
06126  742224233460      BDC    BCD 1(BDC)                  CONSTANT USED BY IOT.                    4F13308
06127  742362303460      CSH    BCD 1(CSH)                  CONSTANT USED BY IOT.                    4F13309
06130  742422233460      DBC    BCD 1(DBC)                  CONSTANT USED BY IOT.                    4F13310
06131  742631433460      FIL    BCD 1(FIL)                  CONSTANT USED BY IOT.                    4F13311
06132  744325653460      LEV    BCD 1(LEV)                  CONSTANT USED BY IOT.                    4F13312
06133  745163453460      RTN    BCD 1(RTN)                  CONSTANT USED BY IOT.                    4F13313
06134  746223303460      SCH    BCD 1(SCH)                  CONSTANT USED BY IOT.                    4F13314
06135  746247303460      SPH    BCD 1(SPH)                  CONSTANT USED BY IOT.                    4F13315
06136  746263303460      STH    BCD 1(STH)                  CONSTANT USED BY IOT.                    4F13316
06137  746362303460      TSH    BCD 1(TSH)                  CONSTANT USED BY IOT.                    4F13317
                                                                                                     4F13318
                  06140  CON    BSS 1                       VARIABLE USED BY IOT.                    4F13319
06141  0 00000 0 00000   END    PZE **                      VARIABLE USED BY IOT.                    4F13320
                  06142  TOP    BSS 1                       VARIABLE USED BY IOT.                    4F13322
06143  0 00000 0 00000   TSA    PZE **                      VARIABLE USED BY IOT.                    4F13323
06144  0 00000 0 00000   TTA    PZE **                      VARIABLE USED BY IOT.                    4F13324
                                                                                                     4F13325
                                    DIC/ DICTIONARY OF NON-ARITHMETIC STATEMENTS (USED BY CC500).    4F13326
06145 +244677274663      DIC    OCT 244677274663            DO-GOT                                   4F13327
06146 -067731267462             OCT -67731267462            O-IF(S                                   4F13328
06147 +254562256266             OCT 254562256266            ENSESW                                   4F13329
06150 +316323307731             OCT 316323307731            ITCH-I                                   4F13330
06151 +267462254562             OCT 267462254562            F(SENS                                   4F13331
06152 +254331273063             OCT 254331273063            ELIGHT                                   4F13332
06153 -373126243165             OCT -373126243165           -IFDIV                                   4F13333
06154 +312425233025             OCT 312425233025            IDECHE                                   4F13334
06155 +234277312621             OCT 234277312621            CK-IFA                                   4F13335
06156 +232364446443             OCT 232364446443            CCUMUL                                   4F13336
06157 +216346514665             OCT 216346514665            ATOROV                                   4F13337
06160 +255126434666             OCT 255126434666            ERFLOW                                   4F13338
06161 -373126506446             OCT -373126506446           -IFQUO                                   4F13339
06162 -233125456346             OCT -233125456346           TIENTO                                   4F13340
06163 -252551264346             OCT -252551264346           VERFLO                                   4F13341
06164 -267731267721             OCT -267731267721           W-IF-A                                   4F13342
06165 -226231274577             OCT -226231274577           SSIGN-                                   4F13343
06166 -226346477747             OCT -226346477747           STOP-P                                   4F13344
06167 +216462257762             OCT 216462257762            AUSE-S                                   4F13345
06170 +254562254331             OCT 254562254331            ENSELI                                   4F13346
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06171 +273063772431          OCT 273063772431          GHT-DI                    4F13347
06172 -042545623146          OCT -42545623146          MENSIO                    4F13348
06173 -057725506431          OCT -57725506431          N-EQUI                    4F13349
06174 -252143254523          OCT -252143254523         VALENC                    4F13350
06175 +257726512550          OCT 257726512550          E-FREQ                    4F13351
06176 -242545237077          OCT -242545237077         UENCY-                    4F13352
06177 +234645633145          OCT 234645633145          CONTIN                    4F13353
06200 -242577512521          OCT -242577512521         UE-REA                    4F13354
06201 +246321472577          OCT 246321472577          DTAPE-                    4F13355
06202 -112521243145          OCT -112521243145         READIN                    4F13356
06203 -076463632147          OCT -76463632147          PUTTAP                    4F13357
06204 +257751252124          OCT 257751252124          E-READ                    4F13358
06205 +245164447751          OCT 245164447751          DRUM-R                    4F13359
06206 +252124776651          OCT 252124776651          EAD-WR                    4F13360
06207 +316325632147          OCT 316325632147          ITETAP                    4F13361
06210 +257766513163          OCT 257766513163          E-WRIT                    4F13362
06211 +254664634764          OCT 254664634764          EQUTPU                    4F13363
06212 -236321472577          OCT -236321472577         TTAPE-                    4F13364
06213 -265131632524          OCT -265131632524         WRITED                    4F13365
06214 -116444774751          OCT -116444774751         RUM-PR                    4F13366
06215 +314563774764          OCT 314563774764          INT-PU                    4F13367
06216 -052330775125          OCT -52330775125          NCH-RE                    4F13368
06217 -263145247722          OCT -263145247722         WIND-B                    4F13369
06220 +212342624721          OCT 212342624721          ACKSPA                    4F13370
06221 +232577254524          OCT 232577254524          CE-END                    4F13371
06222 +263143257726          OCT 263143257726          FILE-F                    4F13372
06223 -065144216377          OCT -65144216377          ORMAT-                    4F13373
06224 -226422514664          OCT -226422514664         SUBROU                    4F13374
06225 -233145257723          OCT -233145257723         TINE-C                    4F13375
06226 -064444464577          OCT -064444464577         OMMON-                    4F13376
06227 -112563645145          OCT -112563645145         RETURN                    4F13377
06230 -372321434377          OCT -372321434377         -CALL-                    4F13378
06231 +254524747726          OCT 254524747726          END(-F                    4F13379
06232 -244523633146          OCT -244523633146         UNCTIO                    4F13380
06233 -057777777777          OCT -057777777777         N-----                    4F13381
                                                                                 4F133815
                06234        BSS 10                                              4F13382
                               END OF DICTIONARY.                                *4F13383
                             * * * * * * * * * * * * * * * * * * * * * * * * * * * 4F13384
                                                                                 4F13385
                             T/ TRANSFER TABLE (USED BY CC000).                  4F13386
D    06246  1 00000 0 03653 T  TXI C0100,0                DO.                    4F13387
D    06247  1 00000 0 03720    TXI C0200,0                GO TO.                 4F13388
D    06250  1 00000 0 04106    TXI C0400,0                IF (SENSE SWITCH.      4F13389
D    06251  1 00000 0 04150    TXI C0500,0                IF (SENSE LIGHT.       4F13390
D    06252  1 00000 0 04154    TXI C0600,0                IF DIVIDE CHECK.       4F13391
D    06253  1 00000 0 04162    TXI C0700,0                IF AC OVERFLOW.        4F13392
D    06254  1 00000 0 04166    TXI C0800,0                IF MQ OVERFLOW.        4F13393
D    06255  1 00000 0 04033    TXI C0300,0                IF.                    4F13394
D    06256  1 00000 0 04216    TXI C1000,0                ASSIGN.                4F13395
D    06257  1 00000 0 04343    TXI C1300,0                STOP.                  4F13396
D    06260  1 00000 0 04170    TXI C0900,0                PAUSE.                 4F13397
D    06261  1 00000 0 04251    TXI C1100,0                SENSE LIGHT.           4F13398
D    06262 -3 00000 0 04266    TXL C1200,0                DIMENSION.             4F13399
D    06263 -3 00000 0 04375    TXL C1500,0                EQUIVALENCE.
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D      06264 -3 00000 0 04354          TXL C1400,0                    FREQUENCY.                          4F13400
D      06265  1 00000 0 04433          TXI C1600,0                    CONTINUE.                           4F13401
D      06266  1 00000 0 05012          TXI RBT,0                      READ TAPE.                          4F13402
D      06267  1 00000 0 04745          TXI RIT,0                      READ INPUT TAPE.                    4F13403
D      06270  1 00000 0 05063          TXI RDD,0                      READ DRUM.                          4F13404
D      06271  1 00000 0 04673          TXI RDC,0                      READ CARD.                          4F13405
D      06272  1 00000 0 04777          TXI WBT,0                      WRITE TAPE.                         4F13406
D      06273  1 00000 0 04764          TXI WOT,0                      WRITE OUTPUT TAPE.                  4F13407
D      06274  1 00000 0 05044          TXI WRD,0                      WRITE DRUM.                         4F13408
D      06275  1 00000 0 04753          TXI RDP,0                      PRINT.                              4F13409
D      06276  1 00000 0 04772          TXI PDC,0                      PUNCH.                              4F13410
D      06277  1 00000 0 05107          TXI RWN,0                      REWIND.                             4F13411
D      06300  1 00000 0 05111          TXI BSP,0                      BACKSPACE.                          4F13412
D      06301  1 00000 0 05066          TXI EFT,0                      END FILE.                           4F13413
D      06302 -3 00000 0 05113          TXL FOR,0                      FORMAT.                             4F13414
D      06303 -3 0000U 0 04442          TXL C3000,0                    SUBROUTINE.                         4F13415
D      06304 -3 00000 0 04512          TXL C3100,0                    COMMON.                             4F13416
D      06305  1 00000 0 04536          TXI C3200,0                    RETURN.                             4F13417
D      06306  1 00000 0 04607          TXI C3300,0                    CALL.                               4F13418
D      06307 -3 00000 0 04660          TXL C3400,0                    END.                                4F13419
D      06310 -3 00000 0 04440          TXL C3500,0                    FUNCTION.                           4F13420
                       06311          BSS 10                                                             4F134205
                                       END OF TRANSFER TABLE.                                            4F13421
                       06323 STATEB   BSS 0                                                              4F134215
                                      * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F13422
                                                                                                         4F13423
                       17307          ORG 3783+4096                                                      4F13424
                       17307  BIN     BSS 1                          VARIABLE USED BY IOT.               4F13425
                       17316  CHR     BES 6                          VARIABLE USED BY IOT.               4F13426
                       17316          BSS 50                         PARAMETERS FOR TLDOS TABLE -IOT.    4F13427
                       17400  DOLEV   BSS 1                          PARAMETERS FOR TLDOS TABLE -IOT.    4F13428
                       17401  OP      BSS 1                          VARIABLE USED BY IOT.               4F13429
                       17402  RA      BSS 1                          VARIABLE USED BY IOT.               4F13430
                       17403  SA      BSS 1                          VARIABLE USED BY IOT.               4F13431
                       17404  SYM     BSS 1                          VARIABLE USED BY IOT.               4F13432
                       17405  TLDOS   BSS 250                        DO TABLE USED BY IOT.               4F13433
                                       END OF WORKING STORAGE USED BY STATEA.                            4F13434
                                      * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F13435
                                                                                                         4F13436
                                      END OF THE NON-ARITHMETIC PART OF SECTION ONE.                     4F13437
                                                                                                         4F13438
                                      * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F13439
                                                                                                         4F13440
                                      ARITHMETIC / STATE B=                                              4F13441
                       00000          ORG 0                                                              4F13442
00000   0 00471 0 06323               PZE STATEB,,FORSUB                                                 4F13443
00001   0 00000 0 12764               PZE ENDD                                                           4F13444
                       06323          ORG STATEB                                                         4F134441
                                                                                                         4F13445
                                      THIS IS A RECODED VERSION OF STATE B OF SECTION ONE, 704           4F13446
                                      FORTRAN II. THE SCAN HAS BEEN COMPLETELY RECODED AND LEVEL         4F13447
                                      ANALYSIS HAS BEEN FOLDED OVER.                                     4F13448
                                                                                                         4F13449
                                      STATE B CONSISTS OF TWO PARTS....SCAN AND LEVEL ANALYSIS.          4F13450
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                                THE SCAN IS LEFT TO RIGHT OVER THE SOURCE STATEMENT WHICH IS 4F13451
                                IN THE F REGION OF COMMON AND IS IN BCD.                      4F13452
                                EACH FIXED POINT CONSTANT, FLOATING POINT CONSTANT, AND BCD   4F13453
                                ( HOLLERITH) ARGUMENT IN CALL NAME, STATEMENTS ARE ENTERED IN 4F13454
                                TABLES AND GIVEN AN INTERNAL VARIABLE NAME.                   4F13455
                                LEVEL ANALYSIS IS PREFORMED FOR EACH ELEMENT OF THE STATEMENT4F13456
                                WHERE AN ELEMENT IS DEFINED AS A VARIABLE, FUNCTION NAME OR (4F13457
                                AND THE OPERATOR WHICH PRECEDES IT.                           4F13458
                                                                                              4F13459
06323   0 76000 0 00140         SLF                                                           4F13460
06324   0 50000 0 07624         CLA SIG1ST                                                    4F13461
06325   0 60100 0 00445         STO SIG1IX-3                                                  4F13462
06326   0 60000 0 01122         STZ ARGCTR          CLEAR                                     4F13463
06327   0 60000 0 01124         STZ CHSAVE          X                                         4F13464
06330   0 60000 0 01117         STZ 3LBAR           X                                         4F13465
06331   0 60000 0 01360         STZ NBAR            X                                         4F13466
06332   0 60000 0 15277         STZ CBAR            X                                         4F13467
06333   0 60000 0 15300         STZ ABAR            X                                         4F13468
06334   0 60000 0 15301         STZ FSTYPE          X                                         4F13469
06335  -0 53400 4 01507         LXD 1BAR,4          SET NBAR=-1                               4F13470
06336  -0 63400 4 01360         SXD NBAR,4          X                                         4F13471
06337  -0 50000 0 01500         CAL E(              SET ARERAS - E(                           4F13472
06340   0 60200 0 01120         SLW ARERAS          X                                         4F13473
06341   0 07400 4 01671         TSX C0190X,4        SET FWA - -F AND CHCTR - 0                4F13474
06342  -0 50000 0 00422         CAL TXHOP           SET SWITCHES FOR LEFT SCAN.               4F13475
06343   0 63000 0 06446         STP MS093           X                                         4F13476
06344   0 63000 0 06652         STP MS310           X                                         4F13477
06345   0 63000 0 06633         STP MS321           X                                         4F13478
06346  -0 50000 0 01512 MS010   CAL ADPLUS          SET OP TO ADDITION                        4F13479
06347   0 60200 0 01127 MS030   SLW E+1             X                                         4F13480
06350   0 60000 0 15303         STZ FNBITS          CLEAR FUNCTION NAME INDICATOR             4F13481
06351   0 60000 0 15304         STZ FNCTR           CLEAR FUNCTION ARG COUNTER.               4F13482
06352   0 60000 0 01347         STZ G               CLEAR RECEIVING CELL.                     4F13483
06353   0 50200 0 01406         CLS L(0)            SET E = -0                                4F13484
06354   0 60100 0 01126         STO E               X                                         4F13485
06355   0 53400 2 01414         LXA L(6),2          SET IR2 FOR SIX CHARS.                    4F13486
06356  -0 50000 0 01124 MS040   CAL CHSAVE          CHAR IN CHSAVE, IF ANY, TO AC.            4F13487
06357  -0 10000 0 06361         TNZ MS041           X                                         4F13488
06360   0 07400 4 01707         TSX C0190,4         CHSAVE EMPTY, GET NEXT CHAR.              4F13489
06361   0 34000 0 01417 MS041   CAS L(9)            IS CHAR. NUMERIC.                         4F13490
06362   0 02000 0 06367         TRA MS050           N/, TAKE TRA                              4F13491
D 06363 3 00000 0 07302 MS4007  TXH CM4100,0                                                  4F13492
06364   0 07400 4 07346         TSX ROYCNV,4        X                                         4F13493
06365   0 02000 0 06713         TRA HOLL            RETURN 1, THIS WAS HOLLERITH.             4F13494
06366   0 02000 0 06761         TRA LATXH           THIS WAS FIXED OR FLOATING CONSTANT.      4F13495
06367   0 53400 4 01373 MS050   LXA L(10),4         PREPARE TO TEST FOR PUNCTUATION.          4F13496
06370   0 34000 4 01406 MS051   CAS CTEST,4                                                   4F13497
06371   0 02000 0 06373         TRA MS052           X                                         4F13498
06372   0 02000 0 06426         TRA MS090           CHAR IS SOME PUNCTUATION.                 4F13499
06373   2 00001 4 06370 MS052   TIX MS051,4,1       X                                         4F13500
06374   0 76700 2 00044 MS060   ALS 36,2            POSITION CHAR FOR BUILDING SYMBOL.        4F13501
06375  -0 60200 0 01347         ORS G               ADD CHAR TO THOSE IN G.                   4F13502
06376   1 00006 2 06377         TXI MS061,2,6       UPDATE POSITIONING TAG.                   4F13503
06377   0 07400 4 01707 MS061   TSX C0190,4         GET NEXT CHAR.                            4F13504
06400   0 53400 4 01373 MS070   LXA L(10),4         PREPARE TO TEST FOR PUNCTUATION.
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06401   0 34000 4 01406 MS071   CAS CTEST,4          X                                                    4F13505
06402   0 02000 0 06404         TRA MS072            X                                                    4F13506
06403   0 02000 0 06430         TRA MS091            CHAR IS SOME PUNCTUATION.                            4F13507
06404   2 00001 4 06401 MS072   TIX MS071,4,1        X                                                    4F13508
06405  -3 00022 2 06374         TXL MS060,2,18       IF THIS IS CHAR 1, 2 /R 3 GO BUILD G.                4F13509
06406   0 34000 0 01422         CAS L(F)             IS THIS AN F ENDING FUNCTION NAME.                   4F13510
06407   0 02000 0 06411         TRA MS073            X                                                    4F13511
06410   0 02000 0 06413         TRA MS080            MAYBE, GO LOOK AT NEXT CHAR.                         4F13512
06411  -3 00044 2 06374 MS073   TXL MS060,2,36       TEST FOR UNDER 7 CHARS.                              4F13513
06412   0 07400 4 03400 MS074   TSX DIAG,4           BUILD G, 7TH CHAR IS ERROR.                          4F13514
06413   0 07400 4 01707 MS080   TSX C0190,4          GET NEXT CHAR.                                       4F13515
06414   0 34000 0 01375         CAS OPEN             TEST FOR (.                                          4F13516
06415   0 02000 0 06417         TRA MS081            X                                                    4F13517
06416   0 02000 0 06440         TRA MS092            YES, THIS IS A FUNCTION NAME.                        4F13518
06417   0 60100 0 01331 MS081   STO FIRSTC           NO, SAVE CURRENT CHAR.                               4F13519
06420  -0 50000 0 01422         CAL L(F)             ADD F TO CONTENTS OF G.                              4F13520
06421   0 76700 2 00044         ALS 36,2             X                                                    4F13521
06422  -0 60200 0 01347         ORS G                X                                                    4F13522
06423   3 00044 2 06412         TXH MS074,2,36       TEST FOR 7TH CHAR, YES IS ERROR.                     4F13523
06424   0 50000 0 01331         CLA FIRSTC           RESTORE CURRENT CHAR.                                4F13524
06425   1 00006 2 06400         TXI MS070,2,6        UPDATE POSITIONING TAG.                              4F13525
06426   0 60000 0 01124 MS090   STZ CHSAVE           CLEAR                                                4F13526
06427   0 02000 4 06562         TRA TRBLKA,4                                                              4F13527
06430   0 60200 0 01124 MS091   SLW CHSAVE           OF IS IN NEXT ELEMENT, SAVE.                         4F13528
06431  -0 50000 0 01430         CAL BLANK            ADD BLANK TO CHARS IN G.                             4F13529
06432   0 76700 2 00044         ALS 36,2             X                                                    4F13530
06433  -0 60200 0 01347         ORS G                X                                                    4F13531
06434   0 56000 0 01347         LDQ G                MOVE G TO E+2 AND TO G+1.                            4F13532
06435  -0 60000 0 01130         STQ E+2              X                                                    4F13533
06436  -0 60000 0 01350         STQ G+1              X                                                    4F13534
06437   0 02000 4 06612         TRA TRBLKB,4         NOW BRANCH TO INDIVIDUAL ROUTINE                     4F13535
06440  -0 75400 0 00000 MS092   PXD ,0               CLEAR                                                4F13536
06441   0 56000 0 01526         LDQ BLANKS           ADD BLANKS TO SUBROUTINE NAME IN G.                  4F13537
06442  -0 76300 2 00052         LGL 42,2             X                                                    4F13538
06443  -0 50100 0 01347         ORA G                X                                                    4F13539
06444   0 60200 0 01347         SLW G                X                                                    4F13540
06445   0 60200 0 01130         SLW E+2              MOVE FUNCTION NAME TO E+2.                           4F13541
U 06446     00000 0 06711 MS093 *** MS335,0          TXH FOR LEFT SIDE, TXL FOR RIGHT SIDE.               4F13542
06447  -0 53400 4 00470         LXD BK,4             THIS IS ARITH FUNCTION STATEMENT.                    4F13543
06450   0 60200 4 00471         SLW FORSUB,4         ENTER FUNCTION NAME IN FORSUB TABLE.                 4F13544
06451  -0 50000 0 00030         CAL EIFNO            ENTER INTERNAL FORMULA NO IN FORSUB.                 4F13545
06452  -0 32000 0 01527         ANA MASK1            X                                                    4F13546
06453   0 60100 4 00472         STO FORSUB+1,4       X                                                    4F13547
06454   1 77776 4 06455         TXI FS010,4,-2       UPDATE COUNT OF ENTRIES IN FORSUB.                   4F13548
06455  -0 63400 4 00470 FS010   SXD BK,4             X                                                    4F13549
06456   0 07400 4 01707 FS020   TSX C0190,4          GET FIRST CHAR OF ARGUMENT.                          4F13550
06457   0 34000 0 01400         CAS EQUAL            TEST FOR EQUAL.                                      4F13551
06460   0 02000 0 06462         TRA FS030            X                                                    4F13552
06461   0 02000 0 06640         TRA MS322            GO MOVE FROM E, E+1, E+2 TO LEFT, LEFT+1,+2          4F13553
06462   0 34000 0 01417 FS030   CAS L(9)             TEST FOR ILLEGAL ARGUMENT.                           4F13554
06463   0 02000 0 06466         TRA FS040            LEGAL, CONTINUE                                      4F13555
D 06464   3 00000 0 07312 MS9002 TXH CM4200,0                                                            4F13556
06465   0 07400 4 03400         TSX DIAG,4           BEGINS NUMERIC, ERROR.                               4F13557
06466   0 07400 2 01624 FS040   TSX C0160,2          COLLECT ARGUMENT NAME IN 1G.                         4F13558
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06467  0 07400 4 03255         TSX TESTBO,4     TEST CHAR FOLLOWING ARG FOR , OR)                4F13559
06470 -0 53400 2 01122         LXD ARGCTR,2     GET COUNT OF ARGUMENTS                           4F13560
06471  0 56000 0 01112         LDQ 1G           ENTER ARGUMENT NAME IN ARGREG TABLE.             4F13561
06472 -0 60000 2 15215         STQ ARGREG,2     X                                                4F13562
06473  1 77777 2 06474         TXI FS050,2,-1   UPDATE COUNT OF ARGUMENTS.                       4F13563
06474 -0 63400 2 01122 FS050   SXD ARGCTR,2                                                      4F13564
06475  3 77716 2 06456         TXH FS020,2,-50  TEST FOR ARGREG TABLE OVERFLOW.                  4F13565
06476  0 07400 4 03400         TSX DIAG,4       YES, ERROR.                                      4F13566
06477  0 07400 4 07353 MS200   TSX DECPNT,4     CONVERT BCD NUMBER TO BINARY                     4F13567
06500  0 07400 4 03400         TSX DIAG,4       HOLLERITH RETURN, ERROR.                         4F13568
06501  0 02000 0 06761         TRA LATXH        FLOATING POINT CONSTANT RETURN.                  4F13569
06502  0 76000 0 00141 MS210   SLN 1            TURN , LITE ON.                                  4F13570
06503 -0 53400 1 01117         LXD 3LBAR,1      PERFORM LEVEL ANALYSIS FOR ,                     4F13571
06504 -0 53400 4 15300         LXD ABAR,4                                                        4F13572
06505  0 50200 4 15301         CLS ALPHA-4,4                                                     4F13573
06506  0 60100 1 15520         STO LAMBDA,1                                                      4F13574
06507 -0 50000 0 01522         CAL ADSPOP                                                        4F13575
06510  0 60200 1 15521         SLW LAMBDA+1,1                                                    4F13576
06511  0 50000 0 01360         CLA NBAR                                                          4F13577
06512  0 77100 0 00022         ARS 18                                                            4F13578
06513  0 60100 1 15522         STO LAMBDA+2,1                                                    4F13579
06514  1 77775 1 06515         TXI MS211,1,-3                                                    4F13580
06515 -0 63400 1 01117 MS211   SXD 3LBAR,1                                                      4F13581
06516 -0 53400 1 01360         LXD NBAR,1                                                        4F13582
06517 -0 63400 1 15277         SXD CBAR,1                                                        4F13583
06520  1 77777 1 06521         TXI MS212,1,-1                                                    4F13584
06521 -0 63400 1 01360 MS212   SXD NBAR,1                                                      4F13585
06522  1 00003 4 06523         TXI MS213,4,3                                                     4F13586
06523 -0 63400 4 15300 MS213   SXD ABAR,4                                                      4F13587
06524  0 02000 0 06346         TRA MS010                                                         4F13588
06525 -0 53400 4 15300 MS220   LXD ABAR,4       PERFORM LEVEL ANALYSIS FOR )                     4F13589
06526  0 50000 4 15301         CLA ALPHA-4,4                                                     4F13590
06527  0 73400 1 00000         PAX ,1                                                            4F13591
06530 -0 63400 1 15277         SXD CBAR,1                                                        4F13592
06531  1 00004 4 06532         TXI MS221,4,4                                                     4F13593
06532 -0 63400 4 15300 MS221   SXD ABAR,4                                                      4F13594
06533  0 02000 0 07310         TRA MS020                                                         4F13595
06534 -0 53400 4 15300 MS230   LXD ABAR,4       PERFORM LEVEL ANALYSIS FOE ENDMK.                4F13596
06535  1 00003 4 06536         TXI MS231,4,3                                                     4F13597
06536 -3 00000 4 06540 MS231   TXL MS232,4,0    FINISHED, HAS LEVEL BEEN REDUCED TO ZERO,        4F13598
06537  0 07400 4 03400         TSX DIAG,4       NO, ERROR.                                       4F13599
06540 -0 53400 4 01122 MS232   LXD ARGCTR,4     WAS THIS AN ARITH FUNCTION STATEMENT             4F13600
06541 -3 00000 4 07625         TXL STATEC,4,0                                                    4F13601
06542 -0 50000 0 15301         CAL FSTYPE       YES, UPDATE FUNCTION TYPE AND                    4F13602
06543  0 40000 0 01407         ADD L(1)         COMPLETE FORSUB ENTRY BY ASSIGNING               4F13603
06544 -0 53400 1 00470         LXD BK,1         TYPE NUMBER.                                     4F13604
06545  0 62100 1 00470         STA FORSUB-1,1   X                                                4F13605
06546 -0 60200 0 01120         ORS ARERAS       ALSO SAVE FOR LATER REFERENCE.                   4F13606
06547  0 02000 0 07625         TRA STATEC                                                        4F13607
06550  0 02000 0 06534         TRA MS230        ENDMK                                            4F13608
06551  0 02000 0 06575         TRA MS260        (                                                4F13609
06552  0 02000 0 06502         TRA MS210        ,                                                4F13610
06553  0 02000 0 06525         TRA MS220        )                                                4F13611
06554  0 07400 4 03400 MSERR=  TSX DIAG,4       =                                                4F13612
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06555   0 02000 0 06572          TRA MS250          -                                                    4F13613
06556   0 02000 0 06572          TRA MS250          /                                                    4F13614
06557   0 02000 0 06477          TRA MS200          •                                                    4F13615
06560   0 02000 0 06572          TRA MS250          +                                                    4F13616
06561   0 76700 0 00036 MS240    ALS 30             *    SAVE *                                          4F13617
                        06562 TRBLKA BSS 0                                                             4F13618
06562   0 60200 0 01127          SLW E+1            X                                                    4F13619
06563   0 07400 4 01707          TSX C0190,4        GET NEXT CHAR.                                       4F13620
06564   0 34000 0 01405          CAS STAR           IS IT *                                              4F13621
06565   0 02000 0 06361          TRA MS041          X                                                    4F13622
06566   0 02000 0 06570          TRA MS241          YES, THIS WAS **                                     4F13623
06567   0 02000 0 06361          TRA MS041          NO, GO COMPARE TO OTHER PUNCTUATION.                 4F13624
06570  -0 50000 0 01525 MS241    CAL STRSTR         REPLACE * WITH **                                    4F13625
06571   0 02000 0 06573          TRA MS251          X                                                    4F13626
06572   0 76700 0 00036 MS250    ALS 30             POSITION CHAR WHICH IS + OR - OR /                   4F13627
06573   0 60200 0 01127 MS251    SLW E+1            PUT CURRENT OP IN E+1.                               4F13628
06574   0 02000 0 06356          TRA MS040          NOW GO COLLECT SYMBOL.                               4F13629
06575   0 76700 0 00036 MS260    ALS 30             ( TO SYMBOL WORD                                     4F13630
06576   0 60200 0 01130          SLW E+2            X                                                    4F13631
06577   0 02000 0 06757          TRA LATXL          GO PERFORM LEVEL ANALYSIS FOR (                      4F13632
06600   0 02000 0 06611          TRA MS300          ENDMK                                                4F13633
06601   0 02000 0 06632          TRA MS320          (                                                    4F13634
06602   0 02000 0 06611          TRA MS300          ,                                                    4F13635
06603   0 02000 0 06611          TRA MS300          )                                                    4F13636
06604   0 02000 0 06652          TRA MS310          =                                                    4F13637
06605   0 02000 0 06611          TRA MS300          -                                                    4F13638
06606   0 02000 0 06611          TRA MS300          /                                                    4F13639
06607   0 07400 4 03400          TSX DIAG,4         •                                                    4F13640
06610   0 02000 0 06611          TRA MS300          +                                                    4F13641
06611  -0 75400 0 00000 MS300    PXD ,0             *    CLEAR                                           4F13642
                        06612 TRBLKB BSS 0                                                             4F13643
06612  -0 76300 0 00006          LGL 6              BASE ADDRESS FOR TAGGED TRANSFER.                    4F13644
06613   0 07400 1 03242          TSX TESTFX+1,1     GET FIRST CHAR OF SYMBOL.                            4F13645
06614   0 02000 0 06757          TRA LATXL          TEST FOR FIXED OR FLOATING POINT.                    4F13646
06615  -0 50000 0 00030          CAL EIFNO          FLOATING, GO PERFORM LEVEL ANALYSIS.                 4F13647
06616  -0 32000 0 01527          ANA MASK1          FIXED, PREPARE FORVAR ENTRY.                         4F13648
06617   0 60200 0 01347          SLW G              X                                                    4F13649
06620   0 07400 1 03321          TSX TET00,1        X                                                    4F13650
06621   0 00000 0 00005              5              MAKE FORVAR ENTRY.                                   4F13651
06622  -0 75400 0 00000          PXD ,0             X                                                    4F13652
06623   0 56000 0 01356          LDQ LEFT+2                                                              4F13653
06624  -0 76300 0 00014          LGL 12                                                                  4F13654
06625   0 40200 0 01451          SUB CALLER                                                              4F13655
06626  -0 10000 0 06757          TNZ LATXL                                                               4F13656
06627   0 07400 1 03321          TSX TET00,1                                                             4F13657
06630   0 00000 0 00006              6                                                                   4F13658
06631   0 02000 0 06757          TRA LATXL          GO PERFORM LEVEL ANALYSIS.                           4F13659
06632   0 60000 0 01124 MS320    STZ CHSAVE         CLEAR CELL FOR OP.                                   4F13660
U 06633     00000 0 06666 MS321  *** MS330,0       TXH ON LEFT, TXL ON RIGHT OF = SIGN.                 4F13661
06634   0 07400 4 07333          TSX SS000X,4       GO PROCESS SUBSCRIPT COMBINATION.                    4F13662
06635   0 07400 4 01707          TSX C0190,4        GET NEXT CHAR.                                       4F13663
06636   0 40200 0 01400          SUB EQUAL          TEST FOR EQUAL SIGN.                                 4F13664
06637  -0 10000 0 06554          TNZ MSERR=         NO, ERROR.                                           4F13665
06640   0 53400 4 01411 MS322    LXA L(3),4         MOVE CONTENTS OF E WORDS TO LEFT WORDS.              4F13666
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06641   0 56000 4 01131 MS323   LDQ E+3,4                    X                                                    4F13667
06642  -0 60000 4 01357         STQ LEFT+3,4                 X                                                    4F13668
06643   2 00001 4 06641         TIX MS323,4,1                X                                                    4F13669
06644  -0 50000 0 00415 MS311   CAL TXLOP                    SET SWITCHES FOR RIGHT SIDE SCAN.                    4F13670
06645   0 63000 0 06446         STP MS093                    X                                                    4F13671
06646   0 63000 0 06652         STP MS310                    X                                                    4F13672
06647   0 63000 0 06633         STP MS321                    X                                                    4F13673
06650   0 76000 0 00141         SLN 1                        TURN = OR ) LITE ON.                                 4F13674
06651   0 02000 0 06346         TRA MS010                    GO SCAN NEXT ELEMENT.                                4F13675
U 06652     00000 0 06554 MS310 *** MSERR=,0                 TXH FOR LEFT, TXL FOR RIGHT OF EQUAL SIGN.           4F13676
06653   0 60000 0 01124         STZ CHSAVE                   CLEAR                                                4F13677
06654  -0 75400 0 00000         PXD ,0                       CLEAR AC.                                            4F136775
06655  -0 76300 0 00006         LGL 6                        GET FIRST CHAR OF SYMBOL.                            4F13678
06656   0 07400 1 03242         TSX TESTFX+1,1               TEST FOR FIXED OR FLOATING POINT                     4F13679
06657   0 02000 0 06640         TRA MS322                    FLOATING,                                            4F13680
06660  -0 50000 0 00030         CAL EIFNO                    FIXED, PREPARE FORVAL ENTRY.                         4F13681
06661  -0 32000 0 01527         ANA MASK1                    X                                                    4F13682
06662   0 60200 0 01347         SLW G                        X                                                    4F13683
06663   0 07400 1 03321         TSX TET00,1                  MAKE FORVAL ENTRY.                                   4F13684
06664   0 00000 0 00006             6                        X                                                    4F13685
06665   0 02000 0 06640         TRA MS322                                                                         4F13686
06666   0 07400 4 01771 MS330   TSX DIM1SR,4                 SEARCH FOR THIS NAME IN THE DIM1, DIM2,              4F13687
06667   0 02000 0 06671         TRA MS331                    AND DIM3 TABLES. IF IT IS FOUND IN ONE OF            4F13688
06670   0 02000 0 06676         TRA MS333                    THESE TABLES IT IS A SUBSCRIPTED VARIABLE            4F13689
06671   0 07400 4 01775 MS331   TSX DIM2SR,4                 OF THAT NUMBER OF DIMENSIONS. IF IT IS NOT           4F13690
06672   0 02000 0 06674         TRA MS332                    FOUND IN ANY DIMENSION TABLE THEN IT IS              4F13691
06673   0 02000 0 06676         TRA MS333                    ASSUMED TO BE THE NAME OF A FORTRAN II               4F13692
06674   0 07400 4 02005 MS332   TSX DIM3SR,4                 SUBROUTINE OR FUNCTION COMPILED SEPARATELY.          4F13693
06675   0 02000 0 06700         TRA MS334                    X                                                    4F13694
06676   0 07400 4 07333 MS333   TSX SS000X,4                 GO PROCESS SUBSCRIPT COMBINATION.                    4F13695
06677   0 02000 0 06761         TRA LATXH                    GO PERFORM LEVEL ANALYSIS.                           4F13696
06700  -0 50000 0 01471 MS334   CAL FNIND                    NOT FOUND, TREAT AS FUNCTION NAME.                   4F13697
06701   0 60200 0 15303         SLW FNBITS                   X                                                    4F13698
06702  -0 75400 0 00000         PXD ,0                       X                                                    4F13699
06703   0 56000 0 01526         LDQ BLANKS                   COMPLETE NAME WITH BLANKS.                           4F13700
06704  -0 76300 2 00052         LGL 42,2                     X                                                    4F13701
06705  -0 60200 0 01347         ORS G                        X                                                    4F13702
06706  -0 60200 0 01130         ORS E+2                      X                                                    4F13703
06707   0 07400 1 03321         TSX TET00,1                  ENTER NAME IN CLOSUB TABLE.                          4F13704
06710   0 00000 0 00011             9                        X                                                    4F13705
06711   0 76000 0 00142 MS335   SLN 2                        TURN FUNCTION LITE ON.                               4F13706
06712   0 02000 0 06757         TRA LATXL                    GO PERFORM LEVEL ANALYSIS.                           4F13707
06713   0 60000 0 01124 HOLL    STZ CHSAVE                           CLEAR CHSAVE                                 4F13708
06714  -0 50000 0 01352         CAL HOLCNT                           GET CURRENT H(+I WORD                        4F13709
06715   0 60200 0 01130         SLW E+2                                                                           4F13710
06716   0 53400 2 01103         LXA N,2                      GET NUMBER OF CHARACTERS IN THIS ARG                 4F13711
06717  -0 53400 4 01724         LXD CHCTR,4                  GET CURRENT RESIDUE CHAR COUNT                       4F13712
06720   0 56000 0 01365         LDQ RESIDU                   GET CURRENT RESIDU WORD                              4F13713
06721   0 53400 1 01414 C3351   LXA L(6),1                   SET TO COLLECT SIX CHARS                             4F13714
06722  -0 75400 0 00000         PXD 0,0                      CLEAR AC                                             4F13715
06723  -2 00001 4 06736 C3352   TNX C3354,4,1                TEST FOR NO MORE CHARS IN RESIDU                     4F13716
06724  -0 76300 0 00006 C33525  LGL 6                        GET NEXT CHAR                                        4F13717
06725   0 60200 0 01112         SLW 1G                       STORE WORD                                           4F13718
06726  -0 32000 0 01374         ANA ENDMK                    BLANK ALL EXCEPT CURRENT CHAR                        4F13719
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06727   0 40200 0 01374          SUB ENDMK      TEST FOR INTERNAL ENDMK                          4F13720
06730  -0 10000 0 06732          TNZ C3353                                                       4F13721
06731   0 07400 4 03400          TSX DIAG,4     YES, ERROR, GO TO DIAGNOSTIC.                    4F13722
06732  -0 50000 0 01112 C3353    CAL 1G         RETREIVE WORD                                    4F13723
06733  -2 00001 2 06746          TNX C3358,2,1  TEST FOR ALL CHARS COLLECTED                     4F13724
06734  -2 00001 1 06744          TNX C3356,1,1  TEST FOR SIX CHARS COLLECTED                     4F13725
06735   0 02000 0 06723          TRA C3352      NOT SIX CHARS YET, CONTINUE COLLECTING           4F13726
06736  -0 53400 4 01614 C3354    LXD FWA,4      LOAD MQ WITH NEXT F REGION WORD                  4F13727
06737   0 56000 4 00000          LDQ 0,4                                                         4F13728
06740   1 77777 4 06741          TXI C3355,4,-1 UPDATE FWA                                       4F13729
06741  -0 63400 4 01614 C3355    SXD FWA,4                                                       4F13730
06742   0 53400 4 01414          LXA L(6),4     RESET MQ CHAR COUNT TO SIX                       4F13731
06743   0 02000 0 06724          TRA C33525     CONTINUE COLLECTING                              4F13732
06744   0 07400 1 07322 C3356    TSX C3390,1    GO TO ENTER WORD IN HOLARG TABLE                 4F13733
06745   1 00000 0 06721 C3357    TXI C3351,0,** RETURN TO CONTINUE COLLECTING                    4F13734
06746  -0 60000 0 01365 C3358    STQ RESIDU     UPDATE RESIDU                                    4F13735
06747  -0 63400 4 01724          SXD CHCTR,4    UPDATE CHCTR                                     4F13736
06750  -2 00001 1 06754          TNX C3360,1,1  TEST FOR SIX CHARS IN AC, DEC IR1                4F13737
06751   0 56000 0 01526          LDQ BLANKS     NOT SIX CHARS, PREPARE TO ADD BLANKS             4F13738
06752  -0 76300 0 00006 C3359    LGL 6          ADD BLANKS                                       4F13739
06753   2 00001 1 06752          TIX C3359,1,1                                                   4F13740
06754   0 07400 1 07322 C3360    TSX C3390,1    GO TO ENTER WORD IN HOLARG TABLE                 4F13741
06755  -0 50000 0 01531          CAL ALL1       GET WORD OF ONES                                 4F13742
06756   0 07400 1 07322          TSX C3390,1    GO TO ENTER WORD IN HOLARG TABLE                 4F13743
                                                                                                 4F13744
                                                                                                 4F13745
                                                                                                 4F13746
                                                                                                 4F13747
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                                                                                                 4F13751
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                                                                                                 4F13770
                                                                                                 4F13771
                                                                                                 4F13772
                                                                                                 4F13773
```

LEVEL ANALYSIS

```
06757  -0 50000 0 00415 LATXL    CAL TXLOP      IS THIS A FUNCTION NAME
06760   0 02000 0 06762          TRA LATXL+3    NO
06761  -0 50000 0 00422 LATXH    CAL TXHOP      YES - TURN F LITE BACK ON
06762   0 63000 0 07307          STP CM4105     IS FORSUB EMPTY
06763   0 53400 1 01406 LA0000   LXA L(0),A     YES. GO SET FS BITS TO 0
06764   0 50000 0 01130          CLA E+2
06765  -0 76000 0 00142          SLT 2          SEARCH FN NAME IN FORSUB
06766   0 02000 0 07027          TRA LA0000+36
06767   0 76000 0 00142          SLN 2
06770  -0 53400 4 00470          LXD BK,C
06771  -3 00000 4 07000          TXL LA0000+13,C,0
06772  -0 63400 4 06777          SXD LA0000+12,C
06773   0 34000 1 00471          CAS FORSUB,A
06774   1 77776 1 06777          TXI LA0000+12,A,-2
06775   0 02000 0 07002          TRA LA0000+15
06776   1 77776 1 06777          TXI LA0000+12,A,-2
06777   3 00000 1 06773          TXH LA0000+8,A,0
07000   0 60000 0 15302          STZ FSBITS     SET FSBITS TO 0
07001   0 02000 0 07014          TRA LA0000+25
07002  -0 50000 1 00472          CAL FORSUB+1,A FN NAME IN FORSUB
07003  -0 32000 0 01452          ANA MASK2      EXTRACT TYPE NUMBER
07004  -0 53400 4 01122          LXD ARGCTR,C   IS THIS A FUNCTION STATEMENT
07005  -3 00000 4 07011          TXL LA0000+22,C,0 NO
07006   0 34000 0 15301          CAS FSTYPE     YES - UPDATE FS TYPE
07007   0 62100 0 15301          STA FSTYPE
D 07010 3 00000 0 00000          TXH 0,0
07011   0 76700 0 00007          ALS 7
07012  -0 50100 0 01464          ORA FSIND
07013   0 60200 0 15302          SLW FSBITS
```

```
07014 -0 53400 1 01117         LXD 3LBAR,A
07015 -0 53400 2 01360         LXD NBAR,B
07016 -0 53400 4 15300         LXD ABAR,C
07017 -3 00000 1 07043         TXL LA0003,A,0
07020  3 75520 1 07022         TXH LA0001,A,-1200
07021  0 07400 4 03400         TSX DIAG,4
07022  3 77323 2 07024 LA0001  TXH LA0002,B,-301
07023  0 07400 4 03400         TSX DIAG,4
07024 -3 00000 4 07043 LA0002  TXL LA0003,C,0
07025  3 77565 4 07043         TXH LA0003,C,-139
07026  0 07400 4 03400         TSX DIAG,4
07027 -0 53400 4 01122         LXD ARGCTR,C
07030 -3 00000 4 07000         TXL LA0000+13,C,0
07031 -0 63400 4 07036         SXD LA0000+43,C
07032  0 34000 1 15215         CAS ARGREG,A
07033  1 77777 1 07036         TXI LA0000+43,A,-1
07034  0 02000 0 07040         TRA MS1018
07035  1 77777 1 07036         TXI LA0000+43,A,-1
07036  3 00000 1 07032         TXH LA0000+39,A,0
07037  0 02000 0 07000         TRA LA0000+13
07040 -0 75400 1 00000 MS1018  PXD 0,A
07041  0 77100 0 00013         ARS 11
07042  0 02000 0 07012         TRA LA0000+23
07043  0 50000 0 06464 LA0003  CLA MS9002
07044  0 62100 0 07251         STA LA4320
07045 -0 75400 0 00000         PXD 0,0
07046  0 56000 0 01130         LDQ E+2
07047 -0 60000 1 15533         STQ LAMBDA+11,A
07050 -0 60000 1 15530         STQ LAMBDA+8,A
07051 -0 60000 1 15525         STQ LAMBDA+5,A
07052 -0 76300 0 00006         LGL 6
07053  0 60100 0 01331         STO FIRSTC
07054  0 40200 0 01375         SUB OPEN
07055  0 10000 0 07064         TZE LA003
07056  0 50000 0 06363         CLA MS4007
07057 -0 76000 0 00142         SLT 2
07060  0 02000 0 07063         TRA LA002
07061  0 76000 0 00142         SLN 2
07062  0 50000 0 07112         CLA FINI03
07063  0 62100 0 07251 LA002   STA LA4320
07064  0 50000 0 01126 LA003   CLA E
07065  0 60100 1 15531         STO LAMBDA+9,A
07066  0 60100 1 15526         STO LAMBDA+6,A
07067  0 60100 1 15523         STO LAMBDA+3,A
07070 -0 50000 0 01522         CAL ADSPOP
07071  0 60200 1 15535         SLW LAMBDA+13,A
07072  0 60200 1 15532         SLW LAMBDA+10,A
07073  0 60200 1 15527         SLW LAMBDA+7,A
07074 -0 75400 0 00000         PXD ,0
07075  0 56000 0 01127         LDQ E+1
07076 -0 60000 1 15521         STQ LAMBDA+1,A
07077 -0 76300 0 00006         LGL 6
07100  0 34000 0 01405         CAS STAR
07101  0 02000 0 07145         TRA LA0015
```

```
LOAD LA COUNTERS                                    4F13774
                                                    4F13775
                                                    4F13776
                                                    4F13777
                                                    4F13778
        ERROR..LAMBDA TABLE EXCEEDED.               4F13779
                                                    4F13780
        ERROR..BETA TABLE EXCEEDED                  4F13781
                                                    4F13782
                                                    4F13783
        ERROR..ALPHA TABLE EXCEEDED                 4F13784
VARIABLE OR (                                       4F13785
NOT AN FS - GO SET FS BITS TO 0                     4F13786
FUNCTION STATEMENT                                  4F13787
SEARCH FREE VARIABLE TABLE                          4F13788
                                                    4F13789
                                                    4F13790
                                                    4F13791
                                                    4F13792
NOT PRESENT - GO SET FSBITS TO 0                    4F13793
PRESENT - STORE TYPE IN FSBITS                      4F13794
                                                    4F13795
                                                    4F13796
                                                    4F13797
                                                    4F13798
                                                    4F13799
                                                    4F13800
                                                    4F13801
                                                    4F13802
                                                    4F13803
                                                    4F13804
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                                                    4F13806
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                                                    4F13810
                                                    4F13811
                                                    4F13812
                                                    4F13813
                                                    4F13814
                                                    4F13815
                                                    4F13816
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                                                    4F13818
                                                    4F13819
                                                    4F13820
                                                    4F13821
                                                    4F13822
                                                    4F13823
                                                    4F13824
                                                    4F13825
                                                    4F13826
/ SIGN                                              4F13827
```

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07102   0 02000 0 07135          TRA LA0010          * OR ** SIGN                                  4F13828
07103  -0 76000 0 00142          SLT 2               + OR - SIGN                                   4F13829
07104   0 02000 0 07121          TRA LA0044                                                        4F13830
07105   1 77775 2 07106          TXI MS1033,B,-3     -N TO -(N+3)                                  4F13831
07106  -0 75400 2 00000 MS1033   PXD ,B                                                           4F13832
07107   0 77100 0 00022          ARS 18                                                            4F13833
07110   0 60100 1 15536          STO LAMBDA+14,A     STO  (N+3) IN LAMBDA+3 (L+4)+2                4F13834
07111   1 00001 2 07112          TXI FINI03,B,1      -(N+3) TO - (N+2)                             4F13835
07112  -0 75400 2 07315 FINI03   PXD CM4300,B                                                     4F13836
07113   0 77100 0 00022          ARS 18                                                            4F13837
07114  -0 76000 0 00003          SSM                                                               4F13838
07115   0 60100 1 15534          STO LAMBDA+12,A     STO -(N+2) IN LAMBDA+3 (L+4)                  4F13839
07116  -0 76000 0 00141 LA0041   SLT 1                                                             4F13840
07117   1 00001 2 07213          TXI L43130,B,1      UNARY... -(N+2) TO -(N+1)                     4F13841
07120   1 00001 2 07155          TXI L13130,B,1      BINARY... -(N+2) TO - (N+1)                   4F13842
07121   0 50000 0 01331 LA0044   CLA FIRSTC                                                        4F13843
07122   0 34000 0 01375          CAS OPEN            EXAMINE SYMBOL                                4F13844
07123   0 02000 0 07125          TRA LA0050                                                        4F13845
07124   1 77775 2 07130          TXI LA0058,B,-3     -N TO -(N+3)                                  4F13846
07125  -0 76000 0 00141 LA0050   SLT 1                                                             4F13847
07126   1 77777 2 07217          TXI LA4000,B,-1     UNARY... -NTO -(N+1)                          4F13848
07127   1 77777 2 07161          TXI LA1000,B,-1     BINARY... -N TO -(N+1)                        4F13849
07130  -0 75400 2 00000 LA0058   PXD ,B                                                           4F13850
07131   0 77100 0 00022          ARS 18                                                            4F13851
07132   0 60100 1 15533          STO LAMBDA+11,A     STO S(N+3) IN LAMBDA +3(L+3)+2                4F13852
07133   0 40000 0 01407          ADD L(1)            FORM -(N+2) IN ADD (ACC)                      4F13853
07134   1 00001 2 07116          TXI LA0041,2,1                                                    4F13854
07135   0 16200 0 07145 LA0010   TQP LA0015          GO TO * ROUTINE                               4F13855
07136  -0 76000 0 00142          SLT 2               **                                            4F13856
07137   0 02000 0 07141          TRA LA0072                                                        4F13857
07140   1 77777 2 07174          TXI L23000,B,-1     -N TO -(N+1)                                  4F13858
07141   0 50000 0 01331 LA0072   CLA FIRSTC                                                        4F13859
07142   0 40200 0 01375          SUB OPEN                                                          4F13860
07143  -0 10000 0 07207          TNZ LA2000                                                        4F13861
07144   1 77777 2 07167          TXI L22000,B,-1     -N TO -(N+1)                                  4F13862
07145  -0 76000 0 00142 LA0015   SLT 2               * OR /                                        4F13863
07146   0 02000 0 07150          TRA LA0021                                                        4F13864
07147   1 77776 2 07257          TXI L33000,B,-2     -N TO -(N+2)                                  4F13865
07150   0 50000 0 01331 LA0021   CLA FIRSTC                                                        4F13866
07151   0 34000 0 01375          CAS OPEN                                                          4F13867
07152   1 77777 2 07272          TXI LA3000,B,-1                                                   4F13868
07153   1 77776 2 07252          TXI L32000,B,-2     -N TO -N(+2)                                  4F13869
07154   1 77777 2 07272          TXI LA3000,B,-1                                                   4F13870
07155   0 60200 4 15310 L13130   SLW ALPHA+3,C       STO -(N+2) IN ALPHA+A+3                       4F13871
07156   0 50200 0 01406          CLS L(0)                                                          4F13872
07157   0 60100 1 15531          STO LAMBDA+9,A      STO -Q IN LAMBDA +3(L+3)                      4F13873
07160   0 76000 0 00141          SLN 1                                                             4F13874
07161   0 50200 0 15277 LA1000   CLS CBAR                                                         4F13875
07162   0 77100 0 00022          ARS 18                                                            4F13876
07163   0 60200 4 15305          SLW ALPHA,C         STO -C IN ALPHA+A                             4F13877
07164   1 77775 4 07165          TXI LA1040,C,-3     -A TO - (A+3)                                 4F13878
07165  -0 63400 4 15300 LA1040   SXD ABAR,C                                                       4F13879
07166   0 02000 0 07220          TRA LA4010                                                        4F13880
07167  -0 75400 2 00000 L22000   PXD ,B                                                           4F13881
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07170   0 77100 0 00022         ARS 18                                  4F13882
07171   0 60100 1 15525         STO LAMBDA+5,A      STO S(N+1) IN LAMBDA+3(L+1)+2   4F13883
07172   0 40000 0 01407         ADD L(1)                                4F13884
07173   1 00001 2 07203         TXI L23130,B,1      -(N+1) TO -N        4F13885
07174  -0 75400 2 00000 L23000  PXD ,B                                  4F13886
07175   0 77100 0 00022         ARS 18                                  4F13887
07176   0 60100 1 15530         STO LAMBDA+8,A      STO S(N+1) IN LAMBDA+3(L+2)+2   4F13888
07177   0 40000 0 01407         ADD L(1)                                4F13889
07200  -0 76000 0 00003         SSM                                     4F13890
07201   1 00001 2 07202         TXI L23090,B,1      -(N+1) TO -N        4F13891
07202   0 60100 1 15526 L23090  STO LAMBDA+6,A       STO -N IN LAMBDA+3(L+2)   4F13892
07203   0 60200 4 15305 L23130  SLW ALPHA,C         STO -N IN ALPHA +A      4F13893
07204   0 50200 0 01406         CLS L(0)                                4F13894
07205   0 60100 1 15523         STO LAMBDA+3,A      STO -0 IN LAMBDA+3(L+1)     4F13895
07206   0 76000 0 00141         SLN 1                                   4F13896
07207   0 50200 4 15304 LA2000  CLS ALPHA-1,C                           4F13897
07210   0 60100 1 15520         STO LAMBDA,A        STO C(ALPHA+A-1) IN LAMBDA+3L   4F13898
07211   0 50000 0 01360         CLA NBAR                                4F13899
07212   1 00006 1 07240         TXI LA4180,A,6                          4F13900
07213   0 60200 4 15305 L43130  SLW ALPHA,C         STO -(N+2) IN ALPHA+A       4F13901
07214   0 50200 0 01406         CLS L(0)                                4F13902
07215   0 60100 1 15531         STO LAMBDA+9,A      STO -0 IN LAMBDA+3(L+3)     4F13903
07216   0 76000 0 00141         SLN 1                                   4F13904
07217   0 50200 4 15302 LA4000  CLS ALPHA-3,C                           4F13905
07220   0 60100 1 15520 LA4010  STO LAMBDA,A        STO C(ALPHA+A-3) IN LAMBDA+3L   4F13906
07221   0 50200 0 01360         CLS NBAR                                4F13907
07222   0 77100 0 00022         ARS 18                                  4F13908
07223   0 60200 4 15303         SLW ALPHA-2,C       STO-N IN ALPHA+A-2      4F13909
07224   0 60200 1 15522         SLW LAMBDA+2,A      STO S(N) IN LAMBDA+3L+2     4F13910
07225   0 60100 1 15523         STO LAMBDA+3,A      STO -N IN LAMBDA+3(L+1)     4F13911
07226  -0 75400 2 00000         PXD ,B                                  4F13912
07227   0 77100 0 00022         ARS 18                                  4F13913
07230   0 60100 1 15525         STO LAMBDA+5,A      STO S(N+1) IN LAMBDA+3(L+1)+2   4F13914
07231   0 60100 4 15304         STO ALPHA-1,C       STO-(N+1) IN ALPHA+A-1      4F13915
07232  -0 76000 0 00003         SSM                                     4F13916
07233   0 60100 1 15526         STO LAMBDA+6,A      STO -(N+1) IN LAMBDA+3(L+2)     4F13917
07234   1 77777 2 07235         TXI LA4150,B,-1     -(N+1) TO -(N+2)        4F13918
07235  -0 50000 0 01524 LA4150  CAL ADSTAR                              4F13919
07236   0 60200 1 15524         SLW LAMBDA+4,A      STO * IN LAMBDA+3(L+1)+1    4F13920
07237  -0 75400 2 00000 LA4170  PXD ,B                                  4F13921
07240   0 77100 0 00022 LA4180  ARS 18                                  4F13922
07241   0 60100 1 15530         STO LAMBDA+8,A      STOS(N+2) IN LAMBDA+3(L+2)+2    4F13923
07242  -0 60200 1 15531         ORS LAMBDA+9,A      STO -(N+2) IN LAMBDA+3(L+3)     4F13924
07243  -0 50000 0 01525         CAL STRSTR                              4F13925
07244   0 60200 1 15527         SLW LAMBDA+7,A      STO SPOP IN LAMBDA+3(L+2)+1     4F13926
07245  -0 50000 0 01522         CAL ADSPOP                              4F13927
07246  -0 50100 0 15302         ORA FSBITS                              4F13928
07247  -0 50100 0 15303         ORA FNBITS                              4F13929
07250   0 60200 1 15532         SLW LAMBDA+10,A     STO SPOP IN LAMBDA+3(L+3)+1     4F13930
07251   1 77767 1 00000 LA4320  TXI **,A,-9                              4F13931
07252  -0 75400 2 00000 L32000  PXD ,B                                  4F13932
07253   0 77100 0 00022         ARS 18                                  4F13933
07254   0 60100 1 15530         STO LAMBDA+8,A      STO 5(N+2) IN LAMBDA+3(L+2)+2   4F13934
07255   0 40000 0 01407         ADD L(1)                                4F13935
```

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07256   1 00001 2 07266          TXI L33130,B,1       -(N+2) TO -(N+1)                                  4F13936
07257  -0 75400 2 00000 L33000   PXD ,B                                                                  4F13937
07260   0 77100 0 00022          ARS 18                                                                   4F13938
07261   0 60100 1 15533          STO LAMBDA+11,A      STO S(N+2) IN LAMBDA+3(L+3)+2                       4F13939
07262   0 40000 0 01407          ADD L(1)                                                                 4F13940
07263  -0 76000 0 00003          SSM                                                                      4F13941
07264   1 00001 2 07265          TXI L33090,B,1       -(N+2) TO -(N+1)                                    4F13942
07265   0 60100 1 15531 L33090   STO LAMBDA+9,A       STO -(N+1) IN LAMBDA+3(L+3)                         4F13943
07266   0 60200 4 15305 L33130   SLW ALPHA,C          STO -(N+1) IN ALPHA+A                               4F13944
07267   0 50200 0 01406          CLS L(0)                                                                 4F13945
07270   0 60100 1 15526          STO LAMBDA+6,A                                                           4F13946
07271   0 76000 0 00141          SLN 1                                                                    4F13947
07272   0 50200 4 15303 LA3000   CLS ALPHA-2,C                                                            4F13948
07273   0 60100 1 15520          STO LAMBDA,A         STO C(ALPHA+A-2) IN LAMBDA+3L                       4F13949
07274   0 50200 0 01360          CLS NBAR                                                                 4F13950
07275   0 77100 0 00022          ARS 18                                                                   4F13951
07276   0 60200 4 15304          SLW ALPHA-1,C        STO -N IN ALPHA+A-1                                 4F13952
07277   0 60200 1 15522          SLW LAMBDA+2,A       STO S(N) IN LAMBDA+3L+2                             4F13953
07300   0 60100 1 15523          STO LAMBDA+3,A       STO -N IN LAMBDA+3(L+1)                             4F13954
07301   1 00003 1 07237          TXI LA4170,A,3                                                           4F13955
07302   1 77775 1 07303 CM4100   TXI CM4101,A,-3      LA COUNTER MODIFICATION ROUTINES                    4F13956
07303  -0 63400 1 01117 CM4101   SXD 3LBAR,A                                                            4F13957
07304  -0 63400 2 15277 CM4102   SXD CBAR,B                                                             4F13958
07305   1 77777 2 07306          TXI CM4104,B,-1                                                          4F13959
07306  -0 63400 2 01360 CM4104   SXD NBAR,B                                                             4F13960
U  07307     00000 0 06346 CM4105   *** MS010,0                                                         4F13961
07310  -0 50000 0 01524 MS020    CAL ADSTAR                                                               4F13962
07311   0 02000 0 06347          TRA MS030                                                                4F13963
07312   1 77775 1 07313 CM4200   TXI CM4201,A,-3                                                          4F13964
07313  -0 63400 1 01117 CM4201   SXD 3LBAR,A                                                            4F13965
07314   1 77777 4 07320          TXI CM4303,C,-1                                                          4F13966
07315   1 77772 1 07316 CM4300   TXI CM4301,A,-6                                                          4F13967
07316  -0 63400 1 01117 CM4301   SXD 3LBAR,A                                                            4F13968
07317   1 77777 4 07320          TXI CM4303,C,-1                                                          4F13969
07320  -0 63400 4 15300 CM4303   SXD ABAR,C                                                             4F13970
07321   1 77777 2 07304          TXI CM4102,B,-1                                                          4F13971
                                 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *  4F13972
                                                                                                          4F13973
                                 CLOSED SUBROUTINE TO MAKE ENTRIES IN HOLARG TABLE                        4F13974
07322  -0 63400 1 06745 C3390    SXD C3357,1              SAVE CALLING IR                                 4F13975
07323   0 60200 0 01112          SLW 1G                   MOVE WORD TO BE ENTERED TO 1G                   4F13976
07324   0 07400 1 03321          TSX TET00,1              GO TO ENTER WORD IN HOLARG TABLE                4F13977
07325   0 00000 0 00015          13                                                                       4F13978
07326   0 50000 0 01352          CLA HOLCNT                                                               4F13979
07327   0 40000 0 01407          ADD L(1)                 UPDATE HOLCNT                                   4F13980
07330   0 60100 0 01352          STO HOLCNT                                                               4F13981
07331  -0 53400 1 06745          LXD C3357,1              RELOAD CALLING IR                               4F13982
07332   0 02000 1 00001          TRA 1,1                  RETURN TO CALLER+1                              4F13983
                                 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *  4F13984
                                                                                                          4F13985
                                 PROGRAM TO SIMPLIFY THE TREATMENT OF RELATIVE ADDRESSES IN               4F13986
                                 SECTION ONE THRU THE USE OF THE RA000 SUBROUTINE BY STATE B.             4F13987
07333  -0 63400 4 07366 SS000X   SXD SSIR4,4              SAVE CALLING TAG.                               4F13988
07334   0 07400 4 02614          TSX SS000,4              GO TO SUBSCRIPT SCAN AND ANALYSIS ROUTINE.      4F13989
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07335   0 07400 4 02437          TSX RA000,4          GO TO RELATIVE ADDRESS COMPUTATION ROUTINE.4F13990
07336  -0 50000 0 01351          CAL GTAG                                                        4F13991
07337  -0 32000 0 01527          ANA MASK1                                                       4F13992
07340   0 60200 0 01141          SLW E+11                                                        4F13993
07341   0 07400 4 00450          TSX SIG1IX,4         GO ENTER THIS RELATIVE ADDRESS IN SIGMA1.  4F13994
07342   0 76700 0 00017          ALS 15               POSITION SIGMA TAG.                        4F13995
07343  -0 60200 0 01126          ORS E                ADD SIGMA TAG TO I-TAU TAGS IN E.          4F13996
07344  -0 53400 4 07366          LXD SSIR4,4          RELOAD CALLING TAG.                        4F13997
07345   0 02000 4 00001          TRA 1,4              RETURN TO CALLER +1.                       4F13998
                                                                                                 4F13999
                                 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F14000
                                                                                                 4F14001
                                 ROYCNV,4/ CALLS=C0190,FXCNIX,FLCNIX,DIAG.                       4F14002
                                 ROYCNV DOES FIXED AND FLOATING POINT CONVERSION FOR SECTION     4F14003
                                 ARITHMETIC.                                                     4F14004
                                 ROYCNV= ENTRY POINT FOR FIXED OR FLOATING POINT INTEGERS.       4F14005
07346   0 60100 0 01103 ROYCNV   STO N                  SAVE DECIMAL DIGIT IN N.                 4F14006
07347  -0 63400 4 07352          SXD EXIT,4           SAVE C(XR4) FOR RETURN.                    4F14007
07350   0 60000 0 01100          STZ DOE              CLEAR DOE (IMPLICIT EXPONENT).             4F14008
07351   0 50000 0 07370          CLA CM1              PICK UP SWITCH CONTROL,                    4F14009
07352   1 00000 0 07357 EXIT     TXI IN2,0,**         AND GO SET SWITCH.                         4F14010
                                 DECPNT= ENTRY POINT FOR FLOATING POINT FRACTIONS.               4F14011
07353   0 60000 0 01103 DECPNT   STZ N                CLEAR N (NO INTEGER).                      4F14012
07354  -0 63400 4 07352          SXD EXIT,4           SAVE C(XR4) FOR RETURN.                    4F14013
07355   0 60000 0 01100          STZ DOE              CLEAR DOE (IMPLICIT EXPONENT).             4F14014
07356  -0 50000 0 07370 NC7      CAL CM1              PICK UP SWITCH CONTROL.                    4F14015
07357   0 63000 0 07400 IN2      STP CM2              SET SWITCHES CM2, AND                      4F14016
07360   0 63000 0 07412          STP CM3              CM3.                                       4F14017
07361   0 14000 0 07362          TOV NC5              TURN OFF OV TRIGGER.                       4F14018
07362   0 07400 4 01707 NC5      TSX C0190,4        * GO GET NEXT NB CHARACTER IN THE AC.        4F14019
07363   0 60200 0 01124          SLW CHSAVE           SAVE IT FOR STATE B, AND THEN              4F14020
07364   0 34000 0 01423          CAS L(H)             COMPARE IT WITH H.                         4F14021
D 07365 1 00000 0 07367          TXI NC1,0            IF H, GO TO HEXIT.                         4F14022
D 07366 1 00000 0 07533 SSIR4    TXI HEXIT,0          IF NOT H, CONTINUE                         4F14023
07367   0 34000 0 01373 NC1      CAS TEN              AND COMPARE WITH TEN.                      4F14024
D 07370 -3 00000 0 07404 CM1     TXL NC2,0            CHAR EXCEEDS 10, SO IS NON-NUMERIC.        4F14025
07371  -0 75400 0 00000          PXD ,0               CLEAR THE AC (MACHINE ERROR).              4F14026
07372   0 60100 0 01102          STO H                CHARACTER IS NUMERIC, SO HOLD IT.          4F14027
07373   0 50000 0 01103          CLA N                MULTIPLY THE PREVIOUS                      4F14028
07374   0 76700 0 00002          ALS 2                PARTIAL RESULT (OR ZERO)                   4F14029
07375   0 40000 0 01103          ADD N                BY 10,                                     4F14030
07376   0 76700 0 00001          ALS 1                AND ADD IN                                 4F14031
07377   0 40000 0 01102          ADD H                THE CURRENT DIGIT.                         4F14032
D 07400 3 00000 0 07421 CM2      TXH NC3,0            SWITCH (NO TRANSFER IF INTEGER).           4F14033
07401   0 14000 0 07427          TOV NC4              TEST OVERFLOW, AND                         4F14034
07402   0 60100 0 01103          STO N                IF NONE, SAVE NEW PARTIAL RESULT.          4F14035
D 07403 1 00000 0 07362          TXI NC5,0            THEN GO PICK UP NEXT CHARACTER.            4F14036
07404   0 34000 0 01403 NC2      CAS POINT            COMPARE NON-NUMERIC WITH A POINT.          4F14037
D 07405 1 00000 0 07412          TXI CM3,0            IF GREATER THAN 27, GO OUT.                4F14038
D 07406 1 00000 0 07356          TXI NC7,0            IF POINT, GO BACK AND SET SWITCH.          4F14039
07407   0 34000 0 07542          CAS L(E)             IF LESS THAN 27, COMPARE WITH E.           4F14040
D 07410 1 00000 0 07412          TXI CM3,0            IF GREATER THAN 21, GO OUT.                4F14041
D 07411 1 00000 0 07431          TXI EC1,0            IF E, GO TO EXPONENT ROUTINE.              4F14042
D 07412 3 00000 0 07470 CM3      TXH FN4,0            SWITCH (NO TRANSFER IF INTEGER).           4F14043
```

```
         07413   0 50000 0 01103          CLA N
         07414   0 76700 0 00022 MS9506   ALS 18
         07415   0 60100 0 01347          STO G
         07416   0 07400 4 00417          TSX FXCNIX,4
         07417  -0 50100 0 01517          ORA FIXVAR
D        07420   1 00000 0 07521          TXI EXITR,0
         07421   0 14000 0 07426 NC3      TOV NC8
         07422   0 60100 0 01103          STO N
         07423   0 50200 0 01407          CLS L(1)
         07424   0 40000 0 01100 NC9      ADD DOE
         07425   0 60100 0 01100          STO DOE
D        07426   1 00000 0 07362 NC8      TXI NC5,0
         07427   0 50000 0 01407 NC4      CLA L(1)
D        07430   1 00000 0 07424          TXI NC9,0
         07431   0 07400 4 01707 EC1      TSX C0190,4
         07432   0 60200 0 01124          SLW CHSAVE
         07433   0 60000 0 01101          STZ EKE
         07434   0 34000 0 01401          CAS 11Z
D        07435   1 00000 0 07465          TXI FN5,0
D        07436   1 00000 0 07444          TXI EC3,0
         07437   0 34000 0 01404          CAS 12Z
D        07440   1 00000 0 07465          TXI FN5,0
D        07441   1 00000 0 07451          TXI EC6,0
         07442   0 34000 0 01420          CAS MINUS
D        07443   1 00000 0 07465          TXI FN5,0
         07444   0 50200 0 01101 EC3      CLS EKE
         07445   0 34000 0 01373          CAS TEN
D        07446   1 00000 0 07465          TXI FN5,0
         07447  -0 75400 0 00000 EC4      PXD ,0
         07450   0 60100 0 01101 EC5      STO EKE
         07451   0 07400 4 01707 EC6      TSX C0190,4
         07452   0 60200 0 01124          SLW CHSAVE
         07453   0 34000 0 01373          CAS TEN
D        07454   1 00000 0 07465          TXI FN5,0
         07455  -0 75400 0 00000          PXD ,0
         07456   0 60100 0 01102          STO H
         07457   0 50000 0 01101          CLA EKE
         07460   0 76700 0 00002          ALS 2
         07461   0 40000 0 01101          ADD EKE
         07462   0 76700 0 00001          ALS 1
         07463   0 36100 0 01102          ACL H
D        07464   1 00000 0 07450          TXI EC5,0
         07465   0 50000 0 01101 FN5      CLA EKE
         07466   0 40000 0 01100          ADD DOE
         07467   0 60100 0 01100          STO DOE
         07470   0 50000 0 01103 FN4      CLA N
         07471   0 10000 0 07516          TZE MS9500
         07472   0 62100 0 07535          STA K1
         07473   0 77100 0 00017          ARS 15
         07474   0 10000 0 07476          TZE FN1
         07475  -0 50100 0 07536          ORA K2
         07476   0 30000 0 07535 FN1      FAD K1
         07477  -0 77300 0 00010          RQL 8
         07500   0 76000 0 00010          RND
```

```
                PICK UP CONVERTED CONSTANT, AND          4F14044
                STORE IN THE                             4F14045
                DECREMENT OF G, AND                      4F14046
              * GO MAKE FIXCON ENTRY.                    4F14047
                CREATE INTERNAL FXD-PT VARIABLE,AND      4F14048
                GO TAKE EXITR.                           4F14049
                IF THERE WAS NO OVERFLOW,                4F14050
                SAVE PARTIAL RESULT, AND                 4F14051
                SUBTRACT 1 FROM DOE                      4F14052
                TO ADJUST EXPONENT                       4F14053
                IN FINAL RESULT.                         4F14054
                THEN GO PICK UP NEXT CHARACTER.          4F14055
                ADD 1 TO DOE ,                           4F14056
                IF THERE WAS INTEGER OVERFLOW.           4F14057
              * GO GET NEXT NB CHARACTER IN THE AC.       4F14058
                SAVE IT FOR STATE B, AND                 4F14059
                CLEAR EKE (EXPLICIT EXPONENT).           4F14060
                COMPARE CHARACTER WITH A DASH.           4F14061
                IF GREATER THAN 32, GO OUT.              4F14062
                IF A DASH, SET EKE MINUS.                4F14063
                IF LESS THAN 32, COMPARE WITH PLUS.      4F14064
                IF GREATER THAN 16, GO OUT.              4F14065
                IF PLUS, GO EXAMINE NEXT CHAR.           4F14066
                IF LESS THAN 16,COMPARE WITH MINUS.      4F14067
                IF GREATER THAN 12, GO OUT.              4F14068
                IF MINUS, SET EKE TO -0.                 4F14069
                COMPARE WITH TEN.                        4F14070
                IF NON-NUMERIC, GO EXAMINE NEXT CH.      4F14071
                CLEAR ACC,                               4F14072
                SAVE PARTIAL RESULT(OR 0) IN EKE.        4F14073
              * GO GET NEXT NB CHARACTER IN THE AC.       4F14074
                SAVE IT FOR STATE B,                     4F14075
                AND COMPARE WITH TEN.                    4F14076
                CHAR EXCEEDS 10, SO IS NON-NUMERIC.      4F14077
                CLEAR THE AC (MACHINE ERROR).            4F14078
                CHARACTER IS NUMERIC, SO HOLD IT.        4F14079
                MULTIPLY THE PREVIOUS                    4F14080
                PARTIAL RESULT (OR ZERO)                 4F14081
                BY 10,                                   4F14082
                AND ADD IN                               4F14083
                THE CURRENT DIGIT.                       4F14084
                CONTINUE UNTIL NON-NUMERIC IS MET.       4F14085
                COMBINE EXPLICIT EXPONENT                4F14086
                WITH IMPLICIT EXPONENT,                  4F14087
                AND SAVE IN DOE.                         4F14088
                IF N CONTAINS ZERO, TAKE                 4F14089
                FLO PT CONSTANT RETURN.                  4F14090
                PUT INTEGER INTO FLO PT WORD,            4F14091
                ADJUST, AND                              4F14092
                IF MORE THAN 15 BITS IN LENGTH           4F14093
                AFFIX CORRECT EXPONENT.                  4F14094
                THEN FLOATING ADD THE RESULT             4F14095
                OF INTEGER CONVERSION, AND               4F14096
                ROUND --TO OBTAIN                        4F14097
```

```
07501 -0 50100 0 07537         ORA K3
07502  0 53400 1 01100         LXA DOE,1
07503 -3 00000 1 07516         TXL MS9500,1,0
07504 -3 00062 1 07506         TXL FN2,1,50
D 07505  1 00000 0 07532       TXI CER,0
07506  0 56000 0 01100 FN2     LDQ DOE
07507  0 16200 0 07524         TQP FN3
07510  0 24100 1 07623         FDP TAB,1
07511 -0 60000 0 01103         STQ N
07512  0 50000 0 01103         CLA N
07513  0 36100 0 07540         ACL K4
07514 -0 76000 0 00001         PBT
D 07515  1 00000 0 07532       TXI CER,0
07516  0 60100 0 01347 MS9500  STO G
07517  0 07400 4 00424         TSX FLCNIX,4
07520 -0 50100 0 01513         ORA FLOVAR
07521  0 60200 0 01130 EXITR   SLW E+2
07522 -0 53400 4 07352         LXD EXIT,4
07523  0 02000 4 00002         TRA 2,4
07524  0 60100 0 01103 FN3     STO N
07525  0 56000 0 01103         LDQ N
07526  0 26000 1 07623         FMP TAB,1
07527  0 36100 0 07541         ACL K5
07530 -0 76000 0 00001         PBT
D 07531  1 00000 0 07516       TXI MS9500,0
07532  0 07400 4 03400  CER    TSX DIAG,4
07533 -0 53400 4 07352 HEXIT   LXD EXIT,4
07534  0 02000 4 00001         TRA 1,4

07535 +233000000000     K1     OCT 233000000000
07536 +252000000000     K2     OCT 252000000000
07537 +000400000000     K3     OCT 400000000
07540 +335000000000     K4     OCT 335000000000
07541 +043000000000     K5     OCT 43000000000
07542  000000000025     L(E)   BCD 100000E

07543 +375536246150            OCT 375536246150
07544 +372430204754            OCT 372430204754
07545 +366700324573            OCT 366700324573
07546 +363546566774            OCT 363546566774
07547 +360436770626            OCT 360436770626
07550 +354713132675            OCT 354713132675
07551 +351557257061            OCT 351557257061
07552 +346445677215            OCT 346445677215
07553 +342726145174            OCT 342726145174
07554 +337570120775            OCT 337570120775
07555 +334454732312            OCT 334454732312
07556 +330741367020            OCT 330741367020
07557 +325601137163            OCT 325601137163
07560 +322464114134            OCT 322464114134
07561 +316755023372            OCT 316755023372
07562 +313612334310            OCT 313612334310
07563 +310473426555            OCT 310473426555
07564 +304770675742            OCT 304770675742
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```
NORMALIZED RESULT.                                  4F14098
EXAMINE THE C(DOE), AND                             4F14099
IF ZERO, TAKE FLO PT RETURN.                        4F14100
IF GREATER THAN 50, THEN                            4F14101
ERROR. --GO TO DIAGNOSTIC.                          4F14102
DETERMINE WHETHER INTEGER WAS                       4F14103
TO THE RIGHT OR TO THE LEFT OF DP.                  4F14104
IF TO THE RIGHT, DIVIDE BY A                        4F14105
SUITABLE CONSTANT                                   4F14106
TO ADJUST RESULT                                    4F14107
AND TEST FOR OUT OF RANGE.                          4F14108
IF P=1, SKIP TO ARITH RETURN.                       4F14109
ERROR. --GO TO DIAGNOSTIC.                          4F14110
STORE IN G, AND                                     4F14111
* GO MAKE FLOCON ENTRY.                             4F14112
CREATE INTERNAL FLO-PT VARIABLE,                    4F14113
SAVE VARIABLE IN E+2,                               4F14114
RESTORE THE C(XR4), AND                             4F14115
* RETURN TO MAIN ROUTINE.                           4F14116
IF INTEGER WAS SITUATED                             4F14117
TO THE LEFT OF THE DECIMAL POINT,                   4F14118
MULTIPLY BY A SUITABLE                              4F14119
CONSTANT TO ADJUST AND TEST RANGE.                  4F14120
IF P=1, SKIP TO ERROR.                              4F14121
RETURN TO ARITHMETIC ROUTINE.                       4F14122
* CONVERSION ERROR, GO TO DIAGNOSTIC.               4F14123
RESTORE THE C(XR4), AND                             4F14124
* RETURN TO MAIN ROUTINE.                           4F14125
                                                    4F14126
CONSTANT USED BY ROYCNV.                            4F14127
CONSTANT USED BY ROYCNV.                            4F14128
CONSTANT USED BY ROYCNV.                            4F14129
CONSTANT USED BY ROYCNV.                            4F14130
CONSTANT USED BY ROYCNV.                            4F14131
CONSTANT USED BY ROYCNV.                            4F14132
                                                    4F14133
48-TABLE USED BY ROYCNV.                            4F14134
47-TABLE USED BY ROYCNV.                            4F14135
46-TABLE USED BY ROYCNV.                            4F14136
45-TABLE USED BY ROYCNV.                            4F14137
44-TABLE USED BY ROYCNV.                            4F14138
43-TABLE USED BY ROYCNV.                            4F14139
42-TABLE USED BY ROYCNV.                            4F14140
41-TABLE USED BY ROYCNV.                            4F14141
40-TABLE USED BY ROYCNV.                            4F14142
39-TABLE USED BY ROYCNV.                            4F14143
38-TABLE USED BY ROYCNV.                            4F14144
37-TABLE USED BY ROYCNV.                            4F14145
36-TABLE USED BY ROYCNV.                            4F14146
35-TABLE USED BY ROYCNV.                            4F14147
34-TABLE USED BY ROYCNV.                            4F14148
33-TABLE USED BY ROYCNV.                            4F14149
32-TABLE USED BY ROYCNV.                            4F14150
31-TABLE USED BY ROYCNV.                            4F14151
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07565 +301623713116          OCT 301623713116          30-TABLE USED BY ROYCNV.          4F14152
07566 +276503074076          OCT 276503074076          29-TABLE USED BY ROYCNV.          4F14153
07567 +273402374713          OCT 273402374713          28-TABLE USED BY ROYCNV.          4F14154
07570 +267635456171          OCT 267635456171          27-TABLE USED BY ROYCNV.          4F14155
07571 +264512676456          OCT 264512676456          26-TABLE USED BY ROYCNV.          4F14156
07572 +261410545213          OCT 261410545213          25-TABLE USED BY ROYCNV.          4F14157
07573 +255647410337          OCT 255647410337          24-TABLE USED BY ROYCNV.          4F14158
07574 +252522640262          OCT 252522640262          23-TABLE USED BY ROYCNV.          4F14159
07575 +247417031702          OCT 247417031702          22-TABLE USED BY ROYCNV.          4F14160
07576 +243661534466          OCT 243661534466          21-TABLE USED BY ROYCNV.          4F14161
07577 +240532743536          OCT 240532743536          20-TABLE USED BY ROYCNV.          4F14162
07600 +235425434430          OCT 235425434430          19-TABLE USED BY ROYCNV.          4F14163
07601 +231674055530          OCT 231674055530          18-TABLE USED BY ROYCNV.          4F14164
07602 +226543212741          OCT 226543212741          17-TABLE USED BY ROYCNV.          4F14165
07603 +223434157116          OCT 223434157116          16-TABLE USED BY ROYCNV.          4F14166
07604 +217706576512          OCT 217706576512          15-TABLE USED BY ROYCNV.          4F14167
07605 +214553630410          OCT 214553630410          14-TABLE USED BY ROYCNV.          4F14168
07606 +211443023471          OCT 211443023471          13-TABLE USED BY ROYCNV.          4F14169
07607 +205721522451          OCT 205721522451          12-TABLE USED BY ROYCNV.          4F14170
07610 +202564416672          OCT 202564416672          11-TABLE USED BY ROYCNV.          4F14171
07611 +177452013710          OCT 177452013710          10-TABLE USED BY ROYCNV.          4F14172
07612 +173734654500          OCT 173734654500          09-TABLE USED BY ROYCNV.          4F14173
07613 +170575360400          OCT 170575360400          08-TABLE USED BY ROYCNV.          4F14174
07614 +165461132000          OCT 165461132000          07-TABLE USED BY ROYCNV.          4F14175
07615 +161750220000          OCT 161750220000          06-TABLE USED BY ROYCNV.          4F14176
07616 +156606500000          OCT 156606500000          05-TABLE USED BY ROYCNV.          4F14177
07617 +153470400000          OCT 153470400000          04-TABLE USED BY ROYCNV.          4F14178
07620 +147764000000          OCT 147764000000          03-TABLE USED BY ROYCNV.          4F14179
07621 +144620000000          OCT 144620000000          02-TABLE USED BY ROYCNV.          4F14180
07622 +141500000000          OCT 141500000000          01-TABLE USED BY ROYCNV.          4F14181
07623 +136400000000     TAB  OCT 136400000000          00-TABLE USED BY ROYCNV.          4F14182
                              END OF PROGRAM ROYCNV.                                   4F14183
                         * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F14184
                                                                                       4F14185
                                                                                       4F14186
07624  0 00001 0 01230 SIG1ST PZE SIGMA1+2,,1                                          4F141865
                  07625 STATEC BSS 0                                                   4F14187
                                                                                       4F14188
                  15215        ORG 2701+4096                                           4F14189
                  15215 ARGREG BSS 50                                                  4F14190
                  15277 CBAR   BSS 1                                                   4F14191
                  15300 ABAR   BSS 1                                                   4F14192
                  15301 FSTYPE BSS 1                                                   4F14193
                  15302 FSBITS BSS 1                                                   4F14194
                  15303 FNBITS BSS 1                                                   4F14195
                  15304 FNCTR  BSS 1                                                   4F14196
                  15305 ALPHA  BSS 139                                                 4F14197
                  15520 LAMBDA BSS 1200                                                4F14198
                              END OF ARITHMETIC / STATE B.                             4F14199
                         * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F14200
                                                                                       4F14201
                              ARITHMETIC / STATE C=                                    4F14204
                              STATE C. PERFORMS OPTIMIZATION ON LAMBDA TABLE.          4F14205
                                                                                       4F14206
                  07625       ORG STATEC
```

```
07625   0 56000 0 01406 R00000 LDQ L(0)                  CLEAR MQ                                  4F14207
07626  -0 53400 1 01360        LXD NBAR,A                LDXA WITH -N                              4F14208
07627  -0 63400 1 07636        SXD R00700,A                                                        4F14209
07630  -0 63400 1 07714        SXD R05200,A                                                        4F14210
07631  -0 63400 1 10266        SXD AS0800,A                                                        4F14211
07632  -0 63400 1 10313        SXD AS2900,A                                                        4F14212
07633   0 53400 7 01406        LXA L(0),7                CLEAR XA,XB,XC,                           4F14213
07634  -0 60000 2 15044 R00500 STQ BETA,B                                                        4F14214
07635   1 77777 2 07636        TXI R00700,B,-1                                                     4F14215
07636   3 00000 2 07634 R00700 TXH R00500,B,0                                                      4F14216
07637   0 50000 0 01117        CLA 3LBAR                                                           4F14217
07640   0 62200 0 07651        STD R01700                                                          4F14218
07641   0 62200 0 07726        STD R06200                                                          4F14219
07642   0 50000 1 15520 R01000 CLA LAMBDA,A              ADD INTO GAMMA COUNTERS                   4F14220
07643   0 73400 2 00000        PAX 0,B                                                             4F14221
07644   0 50000 2 15044        CLA BETA,B                                                          4F14222
07645   0 40000 0 01506        ADD BETAD1                (-3)*2**18+(-3)                           4F14223
07646   0 62200 2 15044        STD BETA,B                                                          4F14224
07647   0 62100 2 15044        STA BETA,B                                                          4F14225
07650   1 77775 1 07651        TXI R01700,A,-3                                                     4F14226
07651   3 00000 1 07642 R01700 TXH R01000,A,0            -3L IN XA AT END                          4F14227
07652   3 77772 1 07703 R01800 TXH R04200,A,-6           EXIT FROM SINGLE ELEMENT REDUCTION        4F14228
07653   0 50000 1 15515        CLA LAMBDA-3,A                                                      4F14229
07654   0 73400 2 00000        PAX 0,B                                                             4F14230
07655   0 50000 2 15044        CLA BETA,B                                                          4F14231
07656   0 40200 0 01506        SUB BETAD1                                                          4F14232
07657   0 10000 0 07661        TZE R02600                                                          4F14233
07660   1 00003 1 07652        TXI R01800,A,3                                                      4F14234
07661   0 56000 1 15516 R02600 LDQ LAMBDA-2,A            SINGLE ELEMENT                            4F14235
07662  -0 76300 0 00006        LGL 6                     EXAMINE OPERATION                         4F14236
07663   0 40200 0 01401        SUB 11Z                                                             4F14237
07664  -0 10000 0 07666        TNZ R03200                                                          4F14238
07665   1 00003 1 07652        TXI R01800,A,3                                                      4F14239
07666  -0 50000 0 01527 R03200 CAL MASK1                SINGLE ELEMENT, NON-UNARY OP              4F14240
07667   0 32000 1 15515        ANS LAMBDA-3,A            EXTRACT TAGS AND STORE BACK               4F14241
07670   0 50000 1 15512        CLA LAMBDA-6,A                                                      4F14242
07671  -0 50100 1 15515        ORA LAMBDA-3,A                                                      4F14243
07672   0 60200 1 15512        SLW LAMBDA-6,A                                                      4F14244
07673  -0 50000 1 15516        CAL LAMBDA-2,A            EXTRACT FS BITS AND STORE BACK            4F14245
07674  -0 32000 0 01470        ANA MASK5                                                           4F14246
07675  -0 60200 1 15513        ORS LAMBDA-5,A                                                      4F14247
07676  -0 50000 1 15517        CAL LAMBDA-1,A            STORE BACK SYMBOL                         4F14248
07677   0 60200 1 15514        SLW LAMBDA-4,A                                                      4F14249
07700   0 60000 2 15044        STZ BETA,B                REDUCE GAMMA COUNT TO 0                   4F14250
07701   0 60000 1 15515        STZ LAMBDA-3,A            CLEAR TAG WORD                            4F14251
07702   1 00003 1 07652        TXI R01800,A,3            RESUME SCAN-BACK                          4F14252
07703   0 60000 0 01347 R04200 STZ G                                                               4F14253
07704   0 53400 7 01406        LXA L(0),7                CLEAR XA,XB,XC                            4F14254
07705   0 50000 2 15044 R04500 CLA BETA,B                SET ORIGINS OF SCRIPL TABLE               4F14255
07706   0 10000 0 07713        TZE R05100                                                          4F14256
07707   0 56000 0 01347        LDQ G                                                               4F14257
07710  -0 62000 2 15044        SLQ BETA,B                                                          4F14258
07711   0 40000 0 01347        ADD G                                                               4F14259
07712   0 62200 0 01347        STD G                                                               4F14260
```

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07713   1 77777 2 07714 R05100 TXI R05200,B,-1
07714   3 00000 2 07705 R05200 TXH R04500,B,0
07715  -0 50000 1 15520 R05300 CAL LAMBDA,A
07716   0 10000 0 07725         TZE R06100
07717   0 60200 4 15520         SLW LAMBDA,C
07720   0 50000 1 15521         CLA LAMBDA+1,A
07721   0 60100 4 15521         STO LAMBDA+1,C
07722   0 50000 1 15522         CLA LAMBDA+2,A
07723   0 60100 4 15522         STO LAMBDA+2,C
07724   1 77775 4 07725         TXI R06100,C,-3
07725   1 77775 1 07726 R06100 TXI R06200,A,-3
07726   3 00000 1 07715 R06200 TXH R05300,A,0
07727  -0 63400 4 07750         SXD R07800,C
07730  -0 63400 4 10074         SXD CS0760,C
07731   0 53400 1 01406         LXA L(0),A
07732   0 50000 1 15520 R06400 CLA LAMBDA,A
07733   0 73400 2 00000         PAX 0,B
07734   0 50000 2 15044         CLA BETA,B
07735  -0 73400 4 00000         PDX 0,C
07736   0 50000 1 15520         CLA LAMBDA,A
07737   0 60100 4 16650         STO SCRIPL,C
07740   0 50000 1 15521         CLA LAMBDA+1,A
07741   0 60100 4 16651         STO SCRIPL+1,C
07742   0 50000 1 15522         CLA LAMBDA+2,A
07743   0 60100 4 16652         STO SCRIPL+2,C
07744   1 77775 4 07745         TXI R07500,C,-3
07745  -0 75400 4 00000 R07500 PXD 0,C
07746   0 62200 2 15044         STD BETA,B
07747   1 77775 1 07750         TXI R07800,A,-3
07750   3 00000 1 07732 R07800 TXH R06400,A,0
07751   0 56000 0 01406 CS0000 LDQ L(0)
07752  -0 50000 1 16645 CS0010 CAL SCRIPL-3,A
07753   0 10000 0 07762         TZE CS0080
07754   0 73400 2 00000 CS0030 PAX 0,B
07755  -3 00000 2 10062         TXL CS0660,B,0
07756   0 62100 0 07754         STA CS0030
07757   0 50000 2 15044         CLA BETA,B
07760   0 73400 4 00000 CS0060 PAX 0,C
07761  -3 77772 4 07763         TXL CS0090,C,-6
07762   1 00003 1 07752 CS0080 TXI CS0010,A,3
07763  -0 63400 1 10036 CS0090 SXD CS0470,A
07764  -0 63400 4 01357         SXD LENGTH,C
07765  -3 00000 4 07770 CS0100 TXL CS0130,C,0
07766   1 00003 1 07767         TXI CS0120,A,3
07767   1 00003 4 07765 CS0120 TXI CS0100,C,3
07770  -0 50000 1 16645 CS0130 CAL SCRIPL-3,A
07771  -0 10000 0 07773         TNZ CS0151
07772   1 00003 1 07770         TXI CS0130,A,3
07773   0 73400 2 00000 CS0151 PAX 0,B
07774  -3 00000 2 10055         TXL CS0610,B,0
07775   0 62100 0 07760         STA CS0060
07776   0 50000 2 15044         CLA BETA,B
07777   0 73400 4 00000         PAX 0,C
10000  -0 75400 4 00000         PXD 0,C
```

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                                                                    4F14261
DEC(K)=DEC(ACC)=-3P AT END                                          4F14262
STRING BEADS... COMPRESS LAMBDA TABLE                               4F14263
                                                                    4F14264
                                                                    4F14265
                                                                    4F14266
                                                                    4F14267
                                                                    4F14268
                                                                    4F14269
                                                                    4F14270
                                                                    4F14271
                                                                    4F14272
-3P IN XC AT END                                                    4F14273
                                                                    4F14274
                                                                    4F14275
STORE ORDERED, REDUCED LAMBDA TABLE                                 4F14276
IN SCRIPL TABLE                                                     4F14277
                                                                    4F14278
                                                                    4F14279
                                                                    4F14280
                                                                    4F14281
                                                                    4F14282
                                                                    4F14283
                                                                    4F14284
                                                                    4F14285
                                                                    4F14286
                                                                    4F14287
                                                                    4F14288
                                                                    4F14289
-3P IN XA AT END                                                    4F14290
ELIMINATE COMMON SEGMENTS                                           4F14291
                                                                    4F14292
ERASED SEGMENT - CONTINUE BACK-SCAN                                 4F14293
                                                                    4F14294
EXIT FROM CS ROUTINE                                                4F14295
                                                                    4F14296
                                                                    4F14297
                                                                    4F14298
AT LEAST TWO ELEMENTS                                               4F14299
ONE ELEMENT OR ERASED SEGMENT                                       4F14300
SAVE XA                                                             4F14301
SAVE XC, CONTAINING LENGTH OF SEGMENT                               4F14302
SEARCH UP FOR MATCHING SEGMENT                                      4F14303
                                                                    4F14304
                                                                    4F14305
                                                                    4F14306
                                                                    4F14307
ERASED SEGMENT                                                      4F14308
                                                                    4F14309
GO ON TO NEXT SEGMENT                                               4F14310
                                                                    4F14311
                                                                    4F14312
                                                                    4F14313
                                                                    4F14314
```

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10001   0 40200 0 01357          SUB LENGTH                                  4F14315
10002  -0 10000 0 07765          TNZ CS0100                                  4F14316
10003  -0 53400 2 10036          LXD CS0470,B    NOT SAME LENGTH SEGMENT-CONTINUE SEARCH 4F14317
10004  -0 63400 1 10054          SXD CS0600,A    SAME LENGTH SEGMENT         4F14318
10005  -3 00000 4 10032 CS0250   TXL CS0430,C,0                               4F14319
10006   0 50000 2 16647          CLA SCRIPL-1,B  MATCHING SEGMENTS           4F14320
10007   0 40200 1 16647          SUB SCRIPL-1,A                              4F14321
10010  -0 10000 0 07765          TNZ CS0100                                  4F14322
10011  -0 50000 2 16645          CAL SCRIPL-3,B                              4F14323
10012  -0 32000 0 01527          ANA MASK1       SYMBOLS MATCH               4F14324
10013   0 60200 0 01347          SLW G                                       4F14325
10014  -0 50000 1 16645          CAL SCRIPL-3,A                              4F14326
10015  -0 32000 0 01527          ANA MASK1                                   4F14327
10016   0 76000 0 00006          COM                                         4F14328
10017   0 36100 0 01347          ACL G                                       4F14329
10020   0 76000 0 00006          COM                                         4F14330
10021  -0 10000 0 07765          TNZ CS0100                                  4F14331
10022   0 50000 2 16646          CLA SCRIPL-2,B                              4F14332
10023   0 77100 0 00006          ARS 6           TAGS MATCH                  4F14333
10024   0 76700 0 00006          ALS 6                                       4F14334
10025   0 40200 1 16646          SUB SCRIPL-2,A                              4F14335
10026  -0 10000 0 07765          TNZ CS0100                                  4F14336
10027   1 00003 1 10030          TXI CS0360,A,3                              4F14337
10030   1 00003 2 10031 CS0360   TXI CS0370,B,3  OPS MATCH                    4F14338
10031   1 00003 4 10005 CS0370   TXI CS0250,C,3                              4F14339
10032  -0 50000 1 16650 CS0430   CAL SCRIPL,A                                 4F14340
10033  -0 32000 0 01452          ANA MASK2       MATCHING SEGMENTS           4F14341
10034   0 34000 1 16647 CS0450   CAS SCRIPL-1,A  SEARCH FOR REFERENCES       4F14342
10035   1 00003 1 10034          TXI CS0450,A,3                              4F14343
10036   1 00000 0 10040 CS0470   TXI CS0490,0,0                              4F14344
10037   1 00003 1 10034          TXI CS0450,A,3                              4F14345
10040   0 50000 0 07754 CS0490   CLA CS0030      CHANGE REFERENCE            4F14346
10041   0 62100 1 16647          STA SCRIPL-1,A                              4F14347
10042  -0 53400 4 01357          LXD LENGTH,C                                4F14348
10043  -0 53400 1 10054          LXD CS0600,A                                4F14349
10044  -3 00000 4 10050 CS0530   TXL CS0570,C,0  ERASE DUPLICATE SEGMENT      4F14350
10045  -0 60000 1 16645          STQ SCRIPL-3,A                              4F14351
10046   1 00003 1 10047          TXI CS0560,A,3                              4F14352
10047   1 00003 4 10044 CS0560   TXI CS0530,C,3                              4F14353
10050   0 53400 4 07760 CS0570   LXA CS0060,C                                4F14354
10051  -0 60000 4 15044          STQ BETA,C                                  4F14355
10052  -0 50000 0 01401          CAL 11Z         STORE CS BIT                4F14356
10053  -0 60200 2 16651          ORS SCRIPL+1,B                              4F14357
10054   1 00000 0 07770 CS0600   TXI CS0130,0,0                              4F14358
10055  -0 53400 1 10036 CS0610   LXD CS0470,A                                4F14359
10056  -0 53400 4 01357          LXD LENGTH,C                                4F14360
10057  -3 00000 4 07752 CS0630   TXL CS0010,C,0                              4F14361
10060   1 00003 1 10061          TXI CS0650,A,3                              4F14362
10061   1 00003 4 10057 CS0650   TXI CS0630,C,3                              4F14363
10062   0 53400 5 01406 CS0660   LXA L(0),5      STRING BEADS... COMPRESS SCRIPL TABLE 4F14364
10063  -0 50000 1 16650 CS0670   CAL SCRIPL,A                                4F14365
10064   0 10000 0 10073          TZE CS0750                                  4F14366
10065   0 60200 4 16650          SLW SCRIPL,C                                4F14367
10066   0 50000 1 16651          CLA SCRIPL+1,A                              4F14368
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10067   0 60100 4 16651          STO SCRIPL+1,C                                  4F14369
10070   0 50000 1 16652          CLA SCRIPL+2,A                                  4F14370
10071   0 60100 4 16652          STO SCRIPL+2,C                                  4F14371
10072   1 77775 4 10073          TXI CS0750,C,-3                                 4F14372
10073   1 77775 1 10074 CS0750   TXI CS0760,A,-3                                 4F14373
10074   3 00000 1 10063 CS0760   TXH CS0670,A,0                                  4F14374
10075  -0 63400 4 10111          SXD PM0080,C      -3Q IN XC AT END              4F14375
10076  -0 63400 4 10300          SXD AS1800,C                                    4F14376
10077  -0 63400 4 10323          SXD AS3600,C                                    4F14377
10100   0 76000 0 00140 PM0000   SLF               TURN OFF ALL SENSE LITES      4F14378
10101   0 53400 1 01406          LXA L(0),A        PERMUTE * AND /               4F14379
10102   0 50000 1 16650 PM0010   CLA SCRIPL,A                                    4F14380
10103   0 73400 2 00000          PAX 0,B                                         4F14381
10104   0 50000 2 15044          CLA BETA,B                                      4F14382
10105   0 73400 4 00000          PAX 0,C           LDXC WITH SEGMENT LENGTH      4F14383
10106  -0 63400 4 10110          SXD PM0070,C                                    4F14384
10107  -3 77767 4 10113          TXL PM0100,C,-9                                 4F14385
10110   1 00000 1 10111 PM0070   TXI PM0080,A,0     LENGTH LESS THAN 3 OR OD NOT = TO *  4F14386
10111  -3 00000 1 10256 PM0080   TXL AS0000,A,0     EXIT FROM PERMUTATION ROUTINE  4F14387
10112   0 02000 0 10102          TRA PM0010                                      4F14388
10113   0 56000 1 16651 PM0100   LDQ SCRIPL+1,A     SEGMENT LENGTH AT LEAST = TO 3  4F14389
10114  -0 75400 0 00000          PXD 0,0                                         4F14390
10115  -0 76300 0 00006          LGL 6                                           4F14391
10116   0 40200 0 01405          SUB STAR                                        4F14392
10117  -0 10000 0 10110          TNZ PM0070                                      4F14393
10120   0 16200 0 10122          TQP PM0170                                      4F14394
10121   0 02000 0 10110          TRA PM0070                                      4F14395
10122  -0 63400 4 10131 PM0170   SXD PM0260,C                                    4F14396
10123  -0 63400 4 10147          SXD PM0400,C                                    4F14397
10124  -0 63400 4 10200          SXD PM0680,C                                    4F14398
10125   0 53400 4 01406          LXA L(0),C        LDXC WITH 0                   4F14399
10126   1 77775 1 10127          TXI PM0240,A,-3                                 4F14400
10127   0 76000 0 00143 PM0240   SLN 3             TURN * LITE ON                4F14401
10130   1 77775 4 10131 PM0250   TXI PM0260,C,-3                                 4F14402
10131  -3 00000 4 10212 PM0260   TXL PM0790,C,0     EXIT                          4F14403
10132  -0 63400 4 10142          SXD PM0340,C                                    4F14404
10133  -0 53400 2 10134          LXD PM0290,B                                    4F14405
10134   1 00000 3 10135 PM0290   TXI PM0300,3,0     XA TO XA AND XB               4F14406
10135  -0 75400 0 00000 PM0300   PXD 0,0                                         4F14407
10136   0 56000 1 16651          LDQ SCRIPL+1,A                                  4F14408
10137  -0 76300 0 00006          LGL 6                                           4F14409
10140   0 34000 0 01402          CAS SLASH                                       4F14410
10141   0 00007 0 00000 FEXUB    HTR 0,0,7                                       4F14411
10142  -3 00000 0 10174 PM0340   TXL PM0640,0,0     / SIGN                        4F14412
10143  -0 76000 0 00143          SLT 3             * SIGN... IS * LITE ON        4F14413
10144   1 77775 1 10127          TXI PM0240,A,-3   NO                            4F14414
10145   1 77775 2 10146          TXI PM0390,B,-3   YES - SEARCH FOR / SIGN       4F14415
10146   1 77775 4 10147 PM0390   TXI PM0400,C,-3                                 4F14416
10147  -3 00000 4 10210 PM0400   TXL PM0770,C,0     EXIT                          4F14417
10150  -0 75400 0 00000          PXD 0,0                                         4F14418
10151   0 56000 2 16651          LDQ SCRIPL+1,B                                  4F14419
10152  -0 76300 0 00006          LGL 6                                           4F14420
10153   0 40200 0 01402          SUB SLASH                                       4F14421
10154   0 10000 0 10156          TZE PM0480                                      4F14422
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10155   1 77775 2 10146          TXI PM0390,B,-3                          4F14423
10156   0 50000 1 16650 PM0480   CLA SCRIPL,A      PERMUTE TAG WORDS      4F14424
10157   0 56000 2 16650          LDQ SCRIPL,B                             4F14425
10160  -0 60000 1 16650          STQ SCRIPL,A                             4F14426
10161   0 60100 2 16650          STO SCRIPL,B                             4F14427
10162   0 50000 1 16651          CLA SCRIPL+1,A    PERMUTE OP WORDS       4F14428
10163   0 56000 2 16651          LDQ SCRIPL+1,B                           4F14429
10164  -0 60000 1 16651          STQ SCRIPL+1,A                           4F14430
10165   0 60100 2 16651          STO SCRIPL+1,B                           4F14431
10166   0 50000 1 16652          CLA SCRIPL+2,A    PERMUTE SYMBOL WORDS   4F14432
10167   0 56000 2 16652          LDQ SCRIPL+2,B                           4F14433
10170  -0 60000 1 16652          STQ SCRIPL+2,A                           4F14434
10171   0 60100 2 16652          STO SCRIPL+2,B                           4F14435
10172  -0 53400 4 10142          LXD PM0340,C                             4F14436
10173   1 77775 1 10130          TXI PM0250,A,-3   RESUME SEGMENT SCAN    4F14437
10174  -0 76000 0 00143 PM0640   SLT 3             / SIGN... IS * LITE ON 4F14438
10175   1 77775 2 10177 PM0650   TXI PM0670,B,-3   NO                     4F14439
10176   1 77775 1 10130          TXI PM0250,A,-3                          4F14440
10177   1 77775 4 10200 PM0670   TXI PM0680,C,-3                          4F14441
10200  -3 00000 4 10210 PM0680   TXL PM0770,C,0                           4F14442
10201  -0 75400 0 00000          PXD 0,0                                  4F14443
10202   0 56000 2 16651          LDQ SCRIPL+1,B                           4F14444
10203  -0 76300 0 00006          LGL 6                                    4F14445
10204   0 40200 0 01402          SUB SLASH                                4F14446
10205   0 10000 0 10175          TZE PM0650                               4F14447
10206   0 76000 0 00143          SLN 3             TORN * LITE ON         4F14448
10207   0 02000 0 10156          TRA PM0480                               4F14449
10210  -0 53400 1 10211 PM0770   LXD PM0780,A                              4F14450
10211   1 00000 3 10212 PM0780   TXI PM0790,3,0    XB TO XA,XB            4F14451
10212  -0 75400 0 00000 PM0790   PXD 0,0                                  4F14452
10213   0 56000 1 16646          LDQ SCRIPL-2,A                           4F14453
10214  -0 76300 0 00006          LGL 6                                    4F14454
10215   0 40200 0 01402          SUB SLASH                                4F14455
10216   0 10000 0 10111          TZE PM0080        ... / - EXIT FROM SEGMENT SCAN 4F14456
10217  -0 75400 0 00000          PXD 0,0                                  4F14457
10220   0 56000 1 16643          LDQ SCRIPL-5,A                           4F14458
10221  -0 76300 0 00006          LGL 6                                    4F14459
10222   0 40200 0 01402          SUB SLASH                                4F14460
10223   0 10000 0 10111          TZE PM0080        ... / * - EXIT FROM SEGMENT SCAN 4F14461
10224   0 50000 1 16645          CLA SCRIPL-3,A    ... **                 4F14462
10225   0 60100 0 01126          STO E                                    4F14463
10226   0 50000 1 16646          CLA SCRIPL-2,A                           4F14464
10227   0 60100 0 01127          STO E+1                                  4F14465
10230   0 50000 1 16647          CLA SCRIPL-1,A                           4F14466
10231   0 60100 0 01130          STO E+2                                  4F14467
10232   1 00003 1 10233          TXI PM0980,A,3                           4F14468
10233   1 00003 4 10234 PM0980   TXI PM0990,C,3                           4F14469
10234  -3 00000 4 10244 PM0990   TXL PM1070,C,0    FINIS                  4F14470
10235   0 50000 1 16645          CLA SCRIPL-3,A                           4F14471
10236   0 60100 1 16650          STO SCRIPL,A                             4F14472
10237   0 50000 1 16646          CLA SCRIPL-2,A                           4F14473
10240   0 60100 1 16651          STO SCRIPL+1,A                           4F14474
10241   0 50000 1 16647          CLA SCRIPL-1,A                           4F14475
10242   0 60100 1 16652          STO SCRIPL+2,A                           4F14476
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10243   1 00003 1 10233          TXI PM0980,A,3                                  4F14477
10244   0 50000 0 01126 PM1070   CLA E                                           4F14478
10245   0 60100 1 16650          STO SCRIPL,A                                    4F14479
10246   0 50000 0 01127          CLA E+1                                         4F14480
10247   0 60100 1 16651          STO SCRIPL+1,A                                  4F14481
10250   0 50000 0 01130          CLA E+2                                         4F14482
10251   0 60100 1 16652          STO SCRIPL+2,A                                  4F14483
10252  -0 50000 1 16654          CAL SCRIPL+4,A     PRESERVE CS BIT              4F14484
10253  -0 32000 0 01401          ANA 11Z                                         4F14485
10254  -0 60200 1 16651          ORS SCRIPL+1,A                                  4F14486
10255   0 02000 0 10110          TRA PM0070                                      4F14487
10256   0 53400 7 01406 AS0000   LXA L(0),7         RENUMBER SEGMENT OF SCRIPL   4F14488
10257   0 50000 2 15044 AS0100   CLA BETA,B                                      4F14489
10260   0 10000 0 10265          TZE AS0700                                      4F14490
10261  -0 75400 4 00000          PXD 0,C                                         4F14491
10262   0 77100 0 00022          ARS 18                                          4F14492
10263   0 62100 2 15044          STA BETA,B                                      4F14493
10264   1 77777 4 10265          TXI AS0700,C,-1                                 4F14494
10265   1 77777 2 10266 AS0700   TXI AS0800,B,-1                                 4F14495
10266   3 00000 2 10257 AS0800   TXH AS0100,B,0                                  4F14496
10267   0 50000 1 16650 AS0900   CLA SCRIPL,A                                    4F14497
10270   0 73400 2 00000          PAX 0,B                                         4F14498
10271   0 50000 2 15044          CLA BETA,B                                      4F14499
10272   0 62100 1 16650          STA SCRIPL,A                                    4F14500
10273   0 56000 1 16652          LDQ SCRIPL+2,A                                  4F14501
10274  -0 76300 0 00001          LGL 1                                           4F14502
10275   0 76000 0 00001          LBT                                             4F14503
10276   0 16200 0 10302          TQP AS2000                                      4F14504
10277   1 77775 1 10300          TXI AS1800,A,-3                                 4F14505
10300   3 00000 1 10267 AS1800   TXH AS0900,A,0                                  4F14506
10301   0 02000 0 10307          TRA AS2500                                      4F14507
10302  -0 76300 0 00043 AS2000   LGL 35                                          4F14508
10303   0 73400 2 00000          PAX 0,B                                         4F14509
10304   0 50000 2 15044          CLA BETA,B                                      4F14510
10305   0 62100 1 16652          STA SCRIPL+2,A                                  4F14511
10306   1 77775 1 10300          TXI AS1800,A,-3                                 4F14512
10307   0 53400 3 01406 AS2500   LXA L(0),3         LDXA,XB WITH 0               4F14513
10310   0 56000 0 01406          LDQ L(0)           CLEAR MQ                     4F14514
10311  -0 60000 2 15044 AS2700   STQ BETA,B         RECLEAR BETA TABLE           4F14515
10312   1 77777 2 10313          TXI AS2900,B,-1                                 4F14516
10313   3 00000 2 10311 AS2900   TXH AS2700,B,0                                  4F14517
10314   0 50000 1 16650 AS3000   CLA SCRIPL,A       ADD INTO GAMMA COUNTERS      4F14518
10315   0 73400 2 00000          PAX 0,B                                         4F14519
10316   0 50000 2 15044          CLA BETA,B                                      4F14520
10317   0 40000 0 01462          ADD BETAD2         3*2**18+(-3)                 4F14521
10320   0 62200 2 15044          STD BETA,B                                      4F14522
10321   0 62100 2 15044          STA BETA,B                                      4F14523
10322   1 77775 1 10323          TXI AS3600,A,-3                                 4F14524
10323   3 00000 1 10314 AS3600   TXH AS3000,A,0     -3Q IN XA AT END             4F14525
10324  -0 63400 1 01117          SXD 3QBAR,A        -3Q TO 3QBAR = 3LBAR         4F14526
10325  -0 50000 1 16645 CCS000   CAL SCRIPL-3,A     ELIMINATE COMMON SUBEXPRESSIONS 4F14527
10326   0 73400 2 00000          PAX 0,B            LOAD XB WITH S(I)            4F14528
10327  -3 00000 2 10354          TXL CCS240,B,0     EXIT AT S(0)                 4F14529
10330  -0 50000 2 15044          CAL BETA,B         OBTAIN LENGTH OF S(I)        4F14530
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10331   0 62200 0 10332          STD CCS060
10332   1 00000 1 10333 CCS060   TXI CCS070,A,0
10333  -0 50000 1 16651 CCS070   CAL SCRIPL+1,A
10334  -0 32000 0 01401          ANA 11Z
10335   0 10000 0 10325          TZE CCS000
10336  -0 75400 2 00000          PXD 0,B
10337   0 77100 0 00022          ARS 18
10340   0 53400 4 01406          LXA L(0),C
10341  -0 53400 2 10342          LXD CCS140,B
10342   1 00000 3 10343 CCS140   TXI CCS150,3,0
10343  -3 00000 2 10350 CCS150   TXL CCS200,B,0
10344   0 34000 2 16647          CAS SCRIPL-1,B
10345   1 00003 2 10343          TXI CCS150,B,3
10346   1 00001 4 10347          TXI CCS190,C,1
10347   1 00003 2 10343 CCS190   TXI CCS150,B,3
10350   3 00001 4 10325 CCS200   TXH CCS000,C,1
10351  -0 50000 0 01530          CAL MASK4
10352   0 32000 1 16651          ANS SCRIPL+1,A
10353   0 02000 0 10325          TRA CCS000
10354  -0 53400 1 10323 CCS240   LXD AS3600,A
10355  -3 00000 1 10610 PL0000   TXL LK0000,A,0
10356   0 50000 1 16645          CLA SCRIPL-3,A
10357   0 73400 2 00000          PAX 0,B
10360  -0 50000 2 15044          CAL BETA,B
10361   0 73400 4 00000          PAX 0,C
10362   0 62200 0 10363          STD PL0060
10363   1 00000 1 10364 PL0060   TXI PL0070,A,0
10364  -0 75400 0 00000 PL0070   PXD 0,0
10365   0 56000 1 16651          LDQ SCRIPL+1,A
10366  -0 76300 0 00006          LGL 6
10367   0 34000 0 01427          CAS SPECOP
10370   0 02000 0 10465          TRA PL0680
10371   0 02000 0 10427          TRA PL0460
10372  -0 75400 0 00000 PL0130   PXD 0,0
10373   0 56000 1 16652          LDQ SCRIPL+2,A
10374  -0 76300 0 00001          LGL 1
10375   0 76000 0 00001          LBT
10376   0 16200 0 10410          TQP PL0300
10377  -0 76300 0 00005          LGL 5
10400   0 34000 0 01423 PL0135   CAS L(H)
10401   0 34000 0 01425          CAS L(0)
10402   0 02000 0 10405          TRA PL0240
10403   0 02000 0 10405          TRA PL0240
10404   0 02000 0 10355          TRA PL0000
10405  -0 50000 0 01416 PL0240   CAL L(8)
10406  -0 60200 1 16651 PL0250   ORS SCRIPL+1,A
10407   1 00000 0 10355 PL0260   TXI PL0000,0,0
10410  -0 53400 2 10411 PL0300   LXD PL0310,B
10411   1 00000 3 10412 PL0310   TXI PL0320,3,0
10412  -0 63400 4 10413 PL0320   SXD PL0330,C
10413   1 00000 2 10414 PL0330   TXI PL0340,B,0
10414  -0 50000 2 16650 PL0340   CAL SCRIPL,B
10415   0 73400 4 00000          PAX 0,C
10416  -0 32000 0 01452          ANA MASK2
```

```
AND BACK UP TO                                          4F14531
BEGINNING OF CURRENT SEGMENT                            4F14532
OBTAIN OP1 (S(I))                                       4F14533
EXTRACT CS-BIT                                          4F14534
CONTINUE TO S(I-1)                                      4F14535
                                                        4F14536
                                                        4F14537
TO S(I)                                                 4F14538
AND KEEP COUNT OF SAME                                  4F14539
XA TO XA,XB                                             4F14540
SEARCH-UP FINISHED. EXAMINE COUNT                       4F14541
                                                        4F14542
CONTINUE SEARCH                                         4F14543
RAISE REF COUNTER AND                                   4F14544
CONTINUE SEARCH                                         4F14545
MULTIPLE REFERENCE                                      4F14546
SINGLE REFERENCE - SO SET                               4F14547
OP1(S(I))30 TO 0, AND                                   4F14548
CONTINUE FOR S(I-1)                                     4F14549
-3Q TO XA                                               4F14550
GO TO LINKAGE                                           4F14551
                                                        4F14552
                                                        4F14553
                                                        4F14554
                                                        4F14555
                                                        4F14556
SET XA TO BEGINNING OF S(I)                             4F14557
                                                        4F14558
OBTAIN                                                  4F14559
AND                                                     4F14560
EXAMINE OP1 (S(I))                                      4F14561
                                                        4F14562
                                                        4F14563
OP1 (S(I)) IS +, - OR *                                 4F14564
OBTAIN                                                  4F14565
AND                                                     4F14566
EXAMINE SYM1 (S(I))                                     4F14567
                                                        4F14568
EX (IN)TERNAL VARIAVLE                                  4F14569
IS SYM1 (S(I)) FIX OR FLO PT                            4F14570
                                                        4F14571
FLO PT... SET OP1 (S(I)) 32 = 1                         4F14572
FLO PT... DITTO                                         4F14573
FIX PT... OP1 (S(I)) 32 = 0                             4F14574
SET OP1 (S(I)) 32 = 1                                   4F14575
                                                        4F14576
CONTINUE SCAN                                           4F14577
SYM1 (S(I)) = SOME S(J)                                 4F14578
XA TO XA,XB                                             4F14579
                                                        4F14580
                                                        4F14581
                                                        4F14582
                                                        4F14583
                                                        4F14584
```

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10417   0 40200 1 16652          SUB SCRIPL+2,A                                  4F14585
10420   0 10000 0 10424          TZE PL0420                                      4F14586
10421   0 50000 4 15044          CLA BETA,C                                      4F14587
10422   0 73400 4 00000          PAX 0,C                                         4F14588
10423   0 02000 0 10412          TRA PL0320                                      4F14589
10424  -0 50000 2 16651 PL0420   CAL SCRIPL+1,B     SYM1(S(I)) = S(J)           4F14590
10425  -0 32000 0 01416          ANA L(8)          EXTRACT OP1 (S(J)) 32 AND GO  4F14591
10426   0 02000 0 10406          TRA PL0250        SET OP1 (S(I)) 32 = OP1 (S(J)) 32 4F14592
10427  -0 76300 0 00007 PL0460   LGL 7             OP1 (S(I)) IS SPOP          4F14593
10430   0 16200 0 10437          TQP PL0465                                      4F14594
10431   0 56000 1 16652 PL0461   LDQ SCRIPL+2,A     FS NAME -                   4F14595
10432  -0 75400 0 00000          PXD 0,0           EXAMINE SUM1 (S(I)) S,1-5   4F14596
10433  -0 76300 0 00006          LGL 6                                         4F14597
10434   0 40200 0 01433          SUB L(X)                                      4F14598
10435  -0 10000 0 10405          TNZ PL0240        FLO PT... GO SET OP1 (S(I)) 32 = 1 4F14599
10436   0 02000 0 10355          TRA PL0000        FIX PT ... OP1 (S(I)) 32 = 0 4F14600
10437   0 76000 0 00001 PL0465   LBT                                           4F14601
10440   0 02000 0 10445          TRA PL0470                                    4F14602
10441   0 56000 1 16652          LDQ SCRIPL+2,A                                4F14603
10442  -0 75400 0 00000          PXD ,0                                        4F14604
10443  -0 76300 0 00006          LGL 6                                         4F14605
10444   0 02000 0 10400          TRA PL0135                                    4F14606
10445   0 50000 1 16652 PL0470   CLA SCRIPL+2,A     NOT AN FS NAME              4F14607
10446   0 53400 2 01406          LXA L(0),B                                    4F14608
10447   0 34000 2 11117 PL0480   CAS OPSUB,B                                   4F14609
10450   1 77777 2 10453          TXI PL0520,B,-1                               4F14610
10451   0 02000 0 10462          TRA PL0650                                    4F14611
10452   1 77777 2 10453          TXI PL0520,B,-1                               4F14612
10453   3 77754 2 10447 PL0520   TXH PL0480,B,-20                              4F14613
10454   0 60100 0 01347          STO G                                         4F14614
10455  -0 63400 1 10407          SXD PL0260,A                                  4F14615
10456   0 07400 1 03321          TSX TET00,A                                   4F14616
10457   0 00000 0 00011          HTR 9                                         4F14617
10460  -0 53400 1 10407          LXD PL0260,A                                  4F14618
10461   0 02000 0 10431          TRA PL0461                                    4F14619
10462  -0 50000 0 01412 PL0650   CAL L(4)           SET OP1 (S(I)) 33 =1        4F14620
10463  -0 60200 1 16651          ORS SCRIPL+1,A                                4F14621
10464   0 02000 0 10431          TRA PL0461                                    4F14622
10465   0 16200 0 10372 PL0680   TQP PL0130                                    4F14623
10466  -0 75400 0 00000          PXD 0,0           OP1 (S(I) IS **             4F14624
10467   0 56000 1 16652          LDQ SCRIPL+2,A    OBTAIN AND                  4F14625
10470  -0 76300 0 00001          LGL 1             EXAMINE                     4F14626
10471   0 76000 0 00001          LBT               SYM1 (S(I))                 4F14627
10472   0 16200 0 10550          TQP PL1000                                    4F14628
10473  -0 76300 0 00005          LGL 5             EX (IN)TERNAL VARIABLE      4F14629
10474   0 34000 0 01423          CAS L(H)          IS OT FIX OR FLO PT         4F14630
10475   0 34000 0 01425          CAS L(0)                                      4F14631
10476   0 02000 0 10501          TRA PL0800                                    4F14632
10477   0 02000 0 10501          TRA PL0800                                    4F14633
10500   0 02000 0 10503          TRA PL0830        FIX PT                      4F14634
10501  -0 50000 0 01416 PL0800   CAL L(8)          FLO PT... SET OP1 (S(I)) 32 = 1 4F14635
10502  -0 60200 1 16651 PL0820   ORS SCRIPL+1,A                                4F14636
10503  -0 75400 0 00000 PL0830   PXD 0,0                                       4F14637
10504   0 56000 1 16655          LDQ SCRIPL+5,A    OBTAIN                      4F14638
```

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10505 -0 76300 0 00001          LGL 1                  AND                                    4F14639
10506  0 76000 0 00001          LBT                    EXAMINE                                4F14640
10507  0 16200 0 10567          TQP PL1200             SYM2 (S(I))                            4F14641
10510 -0 76300 0 00005          LGL 5                                                         4F14642
10511  0 34000 0 01423          CAS L(H)                                                      4F14643
10512  0 34000 0 01425          CAS L(O)                                                      4F14644
10513  0 02000 0 10545          TRA PL0940             SYM2 (S(I)) IS FLO PT, SO GO           4F14645
10514  0 02000 0 10545          TRA PL0940             SET OP2 (S(I)) 32 = 1                  4F14646
10515 -0 75400 0 00000 PL0850   PXD 0,0                SYM2(S(I)) IS FIX PT                   4F14647
10516 -0 76300 0 00006          LGL 6                                                         4F14648
10517  0 40200 0 01375          SUB OPEN                                                      4F14649
10520 -0 10000 0 10355          TNZ PL0000             SYM2 (S(I)) IS EXTERNAL                4F14650
10521 -0 76300 0 00031          LGL 25                 SYM2 (S(I)) IS INTERNAL (AND FIX PT)   4F14651
10522  0 40000 0 10537          ADD PL0880                                                    4F14652
10523  0 62100 0 10515          STA PL0850                                                    4F14653
10524  0 76200 0 00302          RDR FXCODR                                                    4F14654
10525  0 46000 0 10515          LDA PL0850                                                    4F14655
10526  0 70000 0 01347          CPY G                                                         4F14656
10527  0 70000 0 01350          CPY G+1                                                       4F14657
10530  0 50000 0 01347          CLA G                                                         4F14658
10531  0 34000 0 01350          CAS G+1                                                       4F14659
10532  0 02000 0 10534          TRA *+2                GO TO THE DIAGNOSTIC.                  4F14660
10533  0 02000 0 10535          TRA PL1570                                                    4F14661
10534  0 07400 4 03400          TSX DIAG,4             * GO TO THE DIAGNOSTIC.                4F14662
10535  0 10000 0 10355 PL1570   TZE PL0000             EXP IS 0, SO OP1 (S(I)) 33 = 0         4F14663
10536  0 34000 0 10141          CAS FEXUB                                                     4F14664
10537  3 00000 0 00002 PL0880   TXH FIXCON,0,0         EXP NOT LESS THAN 7, SO                4F14665
10540  0 02000 0 10355          TRA PL0000             OP1 (S(I)) 33 = 0                      4F14666
10541  0 60100 1 16655          STO SCRIPL+5,A         EXP LESS THAN 7, SO STORE EXP          4F14667
10542 -0 50000 0 01412          CAL L(4)               AS SYM2 (S(I)) AND SET                 4F14668
10543 -0 60200 1 16651          ORS SCRIPL+1,A         OP1 (S(I)) 33 = 1                      4F14669
10544  0 02000 0 10355          TRA PL0000                                                    4F14670
10545 -0 50000 0 01416 PL0940   CAL L(8)               SYM2 (S(I)) IS FLO PT                  4F14671
10546 -0 60200 1 16654          ORS SCRIPL+4,A         SET OP2 (S(I)) 32 = 1                  4F14672
10547  0 02000 0 10355          TRA PL0000                                                    4F14673
10550 -0 53400 2 10551 PL1000   LXD PL1010,B                                                 4F14674
10551  1 00000 3 10552 PL1010   TXI PL1020,3,0         SYM1 (S(I)) IS SOME S(J)               4F14675
10552 -0 63400 4 10553 PL1020   SXD PL1030,C           XA TO XA,XB                            4F14676
10553  1 00000 2 10554 PL1030   TXI PL1040,B,0                                               4F14677
10554 -0 50000 2 16650 PL1040   CAL SCRIPL,B                                                 4F14678
10555  0 73400 4 00000          PAX 0,C                                                       4F14679
10556 -0 32000 0 01452          ANA MASK2                                                     4F14680
10557  0 40200 1 16652          SUB SCRIPL+2,A                                                4F14681
10560  0 10000 0 10564          TZE PL1130                                                    4F14682
10561  0 50000 4 15044          CLA BETA,C                                                    4F14683
10562  0 73400 4 00000          PAX 0,C                                                       4F14684
10563  0 02000 0 10552          TRA PL1020                                                    4F14685
10564 -0 50000 2 16651 PL1130   CAL SCRIPL+1,B                                               4F14686
10565 -0 32000 0 01416          ANA L(8)                                                      4F14687
10566  0 02000 0 10502          TRA PL0820                                                    4F14688
10567 -0 53400 2 10570 PL1200   LXD PL1210,B           SYM2 (S(I)) = SOME S(K)                4F14689
10570  1 00000 3 10571 PL1210   TXI PL1220,3,0         XA TO XA,XB                            4F14690
10571 -0 53400 4 10603 PL1220   LXD PL1330,C           LKXC WITH -6                           4F14691
10572 -0 63400 4 10573 PL1230   SXD PL1240,C                                                 4F14692
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10573   1 00000 2 10574 PL1240 TXI PL1250,B,0
10574  -0 50000 2 16650 PL1250 CAL SCRIPL,B
10575   0 73400 4 00000         PAX 0,C
10576  -0 32000 0 01452         ANA MASK2
10577   0 40200 1 16655         SUB SCRIPL+5,A
10600   0 10000 0 10604         TZE PL1340
10601   0 50000 4 15044         CLA BETA,C
10602   0 73400 4 00000         PAX 0,C
10603   1 77772 0 10572 PL1330 TXI PL1230,0,-6
10604  -0 50000 2 16651 PL1340 CAL SCRIPL+1,B
10605  -0 32000 0 01416         ANA L(8)
10606  -0 60200 1 16654         ORS SCRIPL+4,A
10607   0 02000 0 10355         TRA PL0000
10610  -0 53400 1 10323 LK0000 LXD AS3600,A
10611  -0 50000 1 16645 LK0030 CAL SCRIPL-3,A
10612   0 73400 2 00000         PAX 0,B
10613  -3 00000 2 11020         TXL LK1610,B,0
10614   0 56000 1 16646         LDQ SCRIPL-2,A
10615   0 50000 2 15044         CLA BETA,B
10616   0 62200 0 10617         STD LK0110
10617   1 00000 1 10620 LK0110 TXI LK0120,A,0
10620  -0 53400 4 10621 LK0120 LXD LK0130,C
10621   1 00000 5 10622 LK0130 TXI LK0140,5,0
10622  -0 63400 1 10323 LK0140 SXD AS3600,A
10623   0 50000 2 15043         CLA BETA-1,B
10624  -0 73400 2 00000         PDX 0,B
10625  -0 63400 2 10626         SXD LK0180,B
10626   1 00000 4 10627 LK0180 TXI LK0190,C,0
10627   0 16200 0 10753 LK0190 TQP LK1200
10630  -0 77300 0 00001         RQL 1
10631   0 16200 0 10753         TQP LK1200
10632  -0 50000 0 01404         CAL 12Z
10633  -0 60200 1 16651         ORS SCRIPL+1,A
10634  -0 75400 0 00000         PXD 0,0
10635   0 56000 4 16651         LDQ SCRIPL+1,C
10636  -0 76300 0 00006         LGL 6
10637   0 34000 0 01427         CAS SPECOP
10640   0 02000 0 10643         TRA LK0320
10641   0 02000 0 10730         TRA LK0950
10642   0 02000 0 10611         TRA LK0030
10643   0 16200 0 10664 LK0320 TQP LK0570
10644  -0 76300 0 00033         LGL 27
10645  -0 50000 1 16650         CAL SCRIPL,A
10646  -0 32000 0 01452         ANA MASK2
10647   0 16200 0 10657         TQP LK0480
10650   0 40200 4 16652         SUB SCRIPL+2,C
10651  -0 10000 0 10611         TNZ LK0030
10652  -0 50000 0 01411         CAL L(3)
10653  -0 60200 4 16651 LK0430 ORS SCRIPL+1,C
10654  -0 50000 0 01436 LK0440 CAL BIT29
10655  -0 60200 1 16651         ORS SCRIPL+1,A
10656   0 02000 0 10611         TRA LK0030
10657   0 40200 4 16655 LK0480 SUB SCRIPL+5,C
10660  -0 10000 0 10611         TNZ LK0030
```

```
                                                                    4F14693
                                                                    4F14694
                                                                    4F14695
                                                                    4F14696
                                                                    4F14697
SYM2(S(I)) = S(K)                                                   4F14698
                                                                    4F14699
                                                                    4F14700
                                                                    4F14701
SET OP2(S(I)) 32 = OP1 (S(K)) 32                                    4F14702
                                                                    4F14703
                                                                    4F14704
RESUME SCAN                                                         4F14705
-3Q TO XA                                                           4F14706
                                                                    4F14707
S(I) TO XB                                                          4F14708
EXIT UPON ENCOUNTERING S(0)                                         4F14709
PLACE LAST OP OP S(I) IN MQ                                         4F14710
                                                                    4F14711
                                                                    4F14712
MOVE XA TO BEGINNING OF S(I)                                        4F14713
                                                                    4F14714
XA TO XA,XC                                                         4F14715
                                                                    4F14716
                                                                    4F14717
LENGTH OF S(I-1) TO XB                                              4F14718
                                                                    4F14719
MOVE XC TO BEGINNING OF S(I-1)                                      4F14720
S(I) TYPE AC                                                        4F14721
                                                                    4F14722
S(I) TYPE AC                                                        4F14723
S(I) RESULTS IN MQ (TYPE MQ)                                        4F14724
SET OP1 (S(I)) 31 = 1                                               4F14725
                                                                    4F14726
PLACE OP1 (S(I-1)) IN MQ                                            4F14727
                                                                    4F14728
                                                                    4F14729
                                                                    4F14730
                                                                    4F14731
S(I)TYPTMQ, S(I-1)TYPEAC . OP1(S(I))29=0                            4F14732
                                                                    4F14733
S(I)TYPE MQ, OP1(S(I-1) = **                                        4F14734
                                                                    4F14735
EXTRACT S(I) IN ACC                                                 4F14736
OP1 (S(I-1)) 33 = 0                                                 4F14737
OP1 (S(I-1)) 33 = 1. OPEN ** SUBROUTINE.                            4F14738
SET OP1 (S(I)) 29 = OP1 (S(I-1)) 35 = 0                             4F14739
S(I) = SYM1 (S(I-1)), SO                                            4F14740
                                                                    4F14741
                                                                    4F14742
                                                                    4F14743
OP1 (S(I-1)) = 0. CLOSED ** SUBROUTINE.                             4F14744
                                                                    4F14745
SET OP1(S(I))29=OP1(S(I-1))35=0                                     4F14746
```

```
10661 -0 50000 0 01407         CAL L(1)
10662 -0 60200 4 16654         ORS SCRIPL+4,C
10663  0 02000 0 10654         TRA LK0440
10664 -0 75400 0 00000 LK0570  PXD 0,0
10665  0 56000 4 16654         LDQ SCRIPL+4,C
10666 -0 76300 0 00006         LGL 6
10667  0 40200 0 01405         SUB STAR
10670 -0 10000 0 10611         TNZ LK0030
10671 -0 50000 0 01410         CAL L(2)
10672 -0 60200 4 16651         ORS SCRIPL+1,C
10673 -0 50000 1 16650 LK0630  CAL SCRIPL,A
10674 -0 32000 0 01452         ANA MASK2
10675 -3 00000 2 10610 LK0650  TXL LK0000,B,0
10676  0 34000 1 16647         CAS SCRIPL-1,A
10677  1 00003 1 10702         TXI LK0700,A,3
10700  0 02000 0 10703         TRA LK0710
10701  1 00003 1 10702         TXI LK0700,A,3
10702  1 77775 2 10675 LK0700  TXI LK0650,B,-3
10703  0 56000 1 16646 LK0710  LDQ SCRIPL-2,A
10704 -0 77300 0 00001         RQL 1
10705  0 16200 0 10707         TQP LK0750
10706  1 00003 1 10702         TXI LK0700,A,3
10707  0 50000 4 16650 LK0750  CLA SCRIPL,C
10710  0 56000 1 16645         LDQ SCRIPL-3,A
10711  0 60100 1 16645         STO SCRIPL-3,A
10712 -0 60000 4 16650         STQ SCRIPL,C
10713 -0 50000 4 16651         CAL SCRIPL+1,C
10714  0 56000 1 16646         LDQ SCRIPL-2,A
10715  0 60200 1 16646         SLW SCRIPL-2,A
10716 -0 60000 4 16651         STQ SCRIPL+1,C
10717 -0 32000 0 01452         ANA MASK2
10720 -0 60200 4 16651         ORS SCRIPL+1,C
10721  0 50000 4 16652         CLA SCRIPL+2,C
10722  0 56000 1 16647         LDQ SCRIPL-1,A
10723  0 60100 1 16647         STO SCRIPL-1,A
10724 -0 60000 4 16652         STQ SCRIPL+2,C
10725 -0 53400 1 10323         LXD AS3600,A
10726 -0 50000 0 01407 LK0900  CAL L(1)
10727  0 02000 0 10653         TRA LK0430
10730 -0 77300 0 00033 LK0950  RQL 27
10731 -0 50000 1 16650         CAL SCRIPL,A
10732 -0 32000 0 01452         ANA MASK2
10733  0 16200 0 10742         TQP LK1050
10734  3 00006 2 10611         TXH LK0030,B,6
10735  0 40200 4 16655         SUB SCRIPL+5,C
10736 -0 10000 0 10611         TNZ LK0030
10737 -0 50000 0 01411         CAL L(3)
10740 -0 60200 4 16654         ORS SCRIPL+4,C
10741  0 02000 0 10654         TRA LK0440
10742 -0 77300 0 00017 LK1050  RQL 15
10743  0 16200 0 10745         TQP LK1100
10744  0 02000 0 10611         TRA LK0030
10745 -3 00006 2 10611 LK1100  TXL LK0030,B,6
10746  0 40200 4 16660         SUB SCRIPL+8,C
```

```
S(I) = SYM2 (S(I-1)), SO                                        4F14747
SET OP2 (S(I-1)) 35 = 1                                         4F14748
                                                                4F14749
S(I) TYPE MQ, OP1 (S(I-1)) = *                                  4F14750
PLACE PO2 (S(I-1)) IN MQ                                        4F14751
IS OP2 (S(I-1)) = *                                             4F14752
                                                                4F14753
NO - SET OP1 (S(I)) 29 = OP1 (S(I-1)) 35 =04F14754
                                                                4F14755
YES                                                             4F14756
SET OP1(S(I-1))34=1                                             4F14757
                                                                4F14758
SEARCH FOR S(I) IN S(I-1)                                       4F14759
NOT FOUND AT ALL                                                4F14760
                                                                4F14761
                                                                4F14762
                                                                4F14763
NOT FOUND - CONTINUE SEARCH                                     4F14764
                                                                4F14765
S(I) IS SYMJ (S(I-1))                                           4F14766
IS OPJ (S(I-1)) = *                                             4F14767
                                                                4F14768
NO... CONTINUE SEARCH                                           4F14769
YES...PERMUTE EL1(S(I-1)) WITH ELJ(S(I-1))                      4F14770
EXCHANGE                                                        4F14771
TAG                                                             4F14772
WORDS                                                           4F14773
PLACE OP1 (S(I-1)) IN ACC                                       4F14774
PLACE OPJ (S(I-1)) IN MQ                                        4F14775
EXCHANGE                                                        4F14776
OP                                                              4F14777
WORDS AND                                                       4F14778
SET OP1(S(I-1))30-33= OPJ(S(I-1))30-33                          4F14779
THEN                                                            4F14780
EXCHANGE                                                        4F14781
SYMBOL                                                          4F14782
WORDS                                                           4F14783
RESTORE XA                                                      4F14784
AND                                                             4F14785
                                                                4F14786
S(I) TYPE MQ, OP1 (S(I-1)) = SPOP                               4F14787
                                                                4F14788
EXTRACT S(I) IN ACC                                             4F14789
OP1 (S(I-1)) 33 = 0 (CLOSED SUBROUTINE)                         4F14790
OPEN MULTIV... SET OP1 (S(I)) 29 = 0                            4F14791
OPEN UNIV... IS S(I) = SUM2 (S(I-1))                            4F14792
NO... SET OP1 (S(I))29 = OP2 (S(I-1))35 = 04F14793
AND                                                             4F14794
SET OP2 (S(I-1))34 = OP2 (S(I-1))35 = 1                         4F14795
                                                                4F14796
                                                                4F14797
TEST OP1(S(I-1))12                                              4F14798
FN-NAME                                                         4F14799
CLOSED UNIV. SBRTN                                              4F14800
CLOSED MULTIV. SBRTN
```

```
10747 -0 10000 0 10611          TNZ LK0030          S(I) NOT = SYM3 (S (I-1))                    4F14801
10750 -0 50000 0 01407          CAL L(1)            S(I) = SYM3 (S(I-1)), SO                     4F14802
10751 -0 60200 4 16657          ORS SCRIPL+7,C      SET OP3 (S(I-1))35 = 1                       4F14803
10752  0 02000 0 10654          TRA LK0440                                                       4F14804
10753 -0 75400 0 00000 LK1200   PXD 0,0            S(I) TYPE AC                                 4F14805
10754  0 56000 4 16651          LDQ SCRIPL+1,C      PLACE OP1 (S(I-1)) IN MQ                     4F14806
10755 -0 76300 0 00006          LGL 6                                                            4F14807
10756  0 34000 0 01427          CAS SPECOP                                                       4F14808
10757  0 02000 0 10771          TRA LK1340                                                       4F14809
10760  0 02000 0 11007          TRA LK1470                                                       4F14810
10761 -0 50000 1 16650          CAL SCRIPL,A        S(I) TYPE AC, OP1 (S(I-1)) = + OR -          4F14811
10762 -0 32000 0 01452          ANA MASK2           SEARCH FOR S(I) IN S(I-1)                    4F14812
10763 -3 00000 2 10610 LK1280   TXL LK0000,B,0      NOT FOUND AT ALL                             4F14813
10764  0 34000 1 16647          CAS SCRIPL-1,A                                                   4F14814
10765  1 00003 1 10770          TXI LK1330,A,3                                                   4F14815
10766  0 02000 0 10707          TRA LK0750          S(I) = SOME SYMJ (S(I-1))... GO PERMUTE      4F14816
10767  1 00003 1 10770          TXI LK1330,A,3      NOT FOUND... CONTINUE SEARCH                 4F14817
10770  1 77775 2 10763 LK1330   TXI LK1280,B,-3                                                  4F14818
10771  0 16200 0 10777 LK1340   TQP LK1410                                                       4F14819
10772 -0 50000 1 16650          CAL SCRIPL,A        S(I) TYPE AC, OP1 (S(I-1)) = **              4F14820
10773 -0 32000 0 01452          ANA MASK2                                                        4F14821
10774  0 40200 4 16652          SUB SCRIPL+2,C      IS S(I) = SYM1 (S(I-1))                      4F14822
10775 -0 10000 0 10611          TNZ LK0030          NO                                           4F14823
10776  0 02000 0 10726          TRA LK0900          YES                                          4F14824
10777 -0 75400 0 00000 LK1410   PXD 0,0            S(I) TYPE AC, OP1 (S(I-1)) = *               4F14825
11000  0 56000 4 16654          LDQ SCRIPL+4,C                                                   4F14826
11001 -0 76300 0 00006          LGL 6               IS OP2 (S(I-1)) = 1                          4F14827
11002  0 40200 0 01402          SUB SLASH                                                        4F14828
11003  0 10000 0 10673          TZE LK0630          YES                                          4F14829
11004 -0 50000 0 01410          CAL L(2)            NO                                           4F14830
11005 -0 60200 4 16651          ORS SCRIPL+1,C      SET OP1 (S(I-1)) 34 = 1                      4F14831
11006  0 02000 0 10610          TRA LK0000                                                       4F14832
11007 -0 77300 0 00033 LK1470   RQL 27              S(I) TYPE AC, OP1 (S(I-1)) = SPOP            4F14833
11010 -0 50000 1 16650          CAL SCRIPL,A                                                     4F14834
11011 -0 32000 0 01452          ANA MASK2           EXTRACT S(I) IN ACC                          4F14835
11012  0 16200 0 11015          TQP LK1530                                                       4F14836
11013  3 00006 2 10611          TXH LK0030,B,6      OPEN MULTIV.                                 4F14837
11014  0 02000 0 10657 LK1520   TRA LK0480                                                       4F14838
11015 -0 77300 0 00017 LK1530   RQL 15                                                           4F14839
11016  0 16200 0 10657          TQP LK0480                                                       4F14840
11017  0 02000 0 10611          TRA LK0030          FN-NAME                                      4F14841
11020 -0 53400 2 15044 LK1610   LXD BETA,B          IS S(0) A SINGLE ELEMENT                     4F14842
11021 -0 75400 0 00000          PXD 0,0                                                          4F14843
11022  0 56000 1 16646          LDQ SCRIPL-2,A                                                   4F14844
11023  3 00003 2 11042          TXH LK1780,B,3      NO                                           4F14845
11024 -0 76300 0 00006          LGL 6               YES                                          4F14846
11025  0 40200 0 01401          SUB 11Z             IS OP (S(0)) = + OR -                        4F14847
11026  0 10000 0 11047          TZE LKK000          OP (S(0)) = -                                4F14848
11027 -0 50000 0 16652          CAL SCRIPL+2        OP (S(0)) = +                                4F14849
11030 -0 32000 0 01527          ANA MASK1           DOES SYM (S(0)) = S(1)                       4F14850
11031 -0 10000 0 11047          TNZ LKK000          NO                                           4F14851
11032 -0 50000 0 16654          CAL SCRIPL+4        YES - PLACE OP1 (S(1)) IN ACC                4F14852
11033 -0 32000 0 01404          ANA 12Z                                                          4F14853
11034  0 10000 0 11047          TZE LKK000          OP1 (S(1)) 31 = 0                            4F14854
```

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11035 -0 60200 0 16651          ORS SCRIPL+1          SET OP (S(0)) 31 = 1                                  4F14855
11036  0 76700 0 00002          ALS 2                                                                       4F14856
11037 -0 60200 0 16654          ORS SCRIPL+4          SET OP1 (S(1)) 29 = 1                                 4F14857
11040  0 77100 0 00006          ARS 6                                                                       4F14858
11041  0 02000 0 11046          TRA LK1820                                                                  4F14859
11042  0 16200 0 11047 LK1780   TQP LKK000           S(0) TYPT AC                                          4F14860
11043 -0 77300 0 00001          RQL 1                                                                       4F14861
11044  0 16200 0 11047          TQP LKK000           S(0) TYPE AC                                          4F14862
11045 -0 50000 0 01404          CAL 12Z              S(0) TYPE MQ, SO                                      4F14863
11046 -0 60200 0 16651 LK1820   ORS SCRIPL+1                                                               4F14864
11047 -0 53400 5 01117 LKK000   LXD 3QBAR,5          -3Q TO XA,XC                                          4F14865
11050 -0 50000 4 16645          CAL SCRIPL-3,C                                                             4F14866
11051  0 73400 2 00000          PAX 0,B                                                                    4F14867
11052  0 50000 2 15044          CLA BETA,B                                                                 4F14868
11053  0 62200 0 11054          STD LKK050                                                                 4F14869
11054  1 00000 4 11055 LKK050   TXI LKK060,C,0       BACK UP XA TO 1ST ELEMENT OF LAST SEGMENT             4F14870
11055 -0 75400 0 00000 LKK060   PXD 0,0                                                                   4F14871
11056  0 56000 4 16651          LDQ SCRIPL+1,C       PLACE OP1 OF LAST SEGMENT IN MQ                       4F14872
11057 -0 76300 0 00006          LGL 6                                                                      4F14873
11060  0 40200 0 01405          SUB STAR                                                                   4F14874
11061 -0 10000 0 11070          TNZ PC0000                                                                 4F14875
11062  0 16200 0 11064          TQP LKK130                                                                 4F14876
11063  0 02000 0 11070          TRA PC0000                                                                 4F14877
11064  0 56000 4 16654 LKK130   LDQ SCRIPL+4,C       OP1 OF LAST SEGMENT IS *                              4F14878
11065 -0 76300 0 00002          LGL 2                                                                      4F14879
11066  0 76000 0 00001          LBT                                                                        4F14880
11067 -0 60200 4 16651          ORS SCRIPL+1,C       OP2 IS *, SO SET OP1 (S(L)) 34 = 1                    4F14881
11070 -0 53400 4 01122 PC0000   LXD ARGCTR,C         IS THIS AN FS                                         4F14882
11071  3 00000 4 11073          TXH PC0030,C,0                                                             4F14883
11072  1 00001 4 11074          TXI PC0040,C,1       NO                                                    4F14884
11073  0 53400 4 01406 PC0030   LXA L(0),C           YES                                                   4F14885
11074 -0 50000 1 16645 PC0040   CAL SCRIPL-3,A                                                            4F14886
11075  0 73400 2 00000          PAX 0,B                                                                    4F14887
11076 -3 00000 2 11112          TXL PC0190,B,0       EXIT AT S(0)                                          4F14888
11077  0 50000 2 15044          CLA BETA,B                                                                 4F14889
11100  0 62200 0 11101          STD PC0100                                                                 4F14890
11101  1 00000 1 11102 PC0100   TXI PC0110,A,0                                                            4F14891
11102  0 56000 1 16651 PC0110   LDQ SCRIPL+1,A       PLACE OP1 (S(I)) IN MQ                                4F14892
11103 -0 76300 0 00036          LGL 30                                                                     4F14893
11104  0 76000 0 00001          LBT                                                                        4F14894
11105  1 00454 0 11107 PC0140   TXI PC0160,0,300                                                          4F14895
11106  0 16200 0 11074          TQP PC0040           OP1 (S(I)) 29= 1 AND OP1 (S(I)) 30 = 0                4F14896
11107 -0 75400 4 00000 PC0160   PXD 0,C              OP1 (S(I)) 29 = 0 OR OP1 (S(I)) 30 = 1                4F14897
11110  0 62200 2 15044          STD BETA,B           STORE ERAS. REL. ADD. COUNT IN BETA,                  4F14898
11111  1 00001 4 11074          TXI PC0040,C,1       AND UPDATE FOR NEXT SEGMENT                           4F14899
11112 -0 53400 2 11105 PC0190   LXD PC0140,B                                                               4F14900
11113  0 50000 2 15520 PC0200   CLA BETA+300,B                                                            4F14901
11114  0 60100 2 16650          STO CPBETA+300,B                                                           4F14902
11115  2 00001 2 11113          TIX PC0200,B,1                                                             4F14903
11116  0 02000 0 11155          TRA STATED           GO FETCH STATE D                                      4F14904
                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F14905
                                                                                                           4F14906
                                DICTIONARY OF OPEN SUBROUTINES FOLLOWS                                     4F14907
11117 -272122626060     OPSUB   OCT 672122626060     XABS                                                  4F14908
```

```
                                                                                4F14909
11120 +212262606060           OCT 212262606060       ABS                        4F14910
11121 -273145636060           OCT 673145636060       XINT                       4F14911
11122 +314563606060           OCT 314563606060       INT                        4F14912
11123 -274446246060           OCT 674446246060       XMOD                       4F14913
11124 -044624606060           OCT 444624606060       MOD                        4F14914
11125 -274421670060           OCT 674421670060       XMAX0                      4F14915
11126 -042167016060           OCT 442167016060       MAX1                       4F14916
11127 -274421670160           OCT 674421670160       XMAX1                      4F14917
11130 -042167006060           OCT 442167006060       MAX0                       4F14918
11131 -274431450060           OCT 674431450060       XMIN0                      4F14919
11132 -043145016060           OCT 443145016060       MIN1                       4F14920
11133 -274431450160           OCT 674431450160       XMIN1                      4F14921
11134 -043145006060           OCT 443145006060       MIN0                       4F14922
11135 +264346216360           OCT 264346216360       FLOAT                      4F14923
11136 -272631676060           OCT 672631676060       XFIX                       4F14924
11137 -223127456060           OCT 623127456060       SIGN                       4F14925
11140 -276231274560           OCT 676231274560       XSIGN                      4F14926
11141 -272431446060           OCT 672431446060       XDIM                       4F14927
11142 +243144606060           OCT 243144606060       DIM                        4F14928
                  11143       BSS 10                                            4F14929
                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F149295
                  11155 STATED BSS 0                                            4F14930
                                                                                4F14931
                  15044       ORG 2596+4096                                     4F14932
                  15044 BETA  BSS 300                                           4F14933
                                END OF ARITHMETIC / STATE C.                    4F14934
                                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F14935
                                                                                4F14936
                                ARITHMETIC / STATE D=                           4F14939
                  11155       ORG STATED                                        4F14940
11155 -0 53400 1 01117 MC0000 LXD 3QBAR,A            MODE CHECKING ROUTINE      4F14941
11156 -0 63400 1 11227        SXD MC0420,A                                      4F14942
11157  0 53400 1 01406        LXA L(0),A                                        4F14943
11160 -0 63400 1 11176 MC0030 SXD XASAVE,A                                      4F14944
11161 -0 50000 1 16650        CAL SCRIPL,A                                      4F14945
11162  0 73400 2 00000 MC0050 PAX ,2                 S(I) TO XB                 4F14946
11163  0 50000 2 16174        CLA CPBETA,B                                      4F14947
11164  0 73400 2 00454 MC0070 PAX TAU2,B                                        4F14948
11165 -0 63400 2 11226        SXD MC0410,B                                      4F14949
11166 -0 63400 2 11233        SXD MC0460,B                                      4F14950
11167  3 77772 2 11226        TXH MC0410,B,-6        SINGLE ELEMENT - GO ONTO S(I+1) 4F14951
11170  0 76000 0 00140        SLF                    TURN OFF ALL SENSE LITES   4F14952
11171 -0 75400 0 00000        PXD 0,0                CLEAR ACC                  4F14953
11172  0 56000 1 16651        LDQ SCRIPL+1,A         PLACE OP1 (S(I)) IN MQ     4F14954
11173 -0 76300 0 00006        LGL 6                                             4F14955
11174  0 34000 0 01427        CAS SPECOP                                        4F14956
11175  0 16200 0 11177        TQP MC0180                                        4F14957
11176  1 00000 0 11226 XASAVE TXI MC0410,0,0                                    4F14958
11177 -0 76300 0 00032 MC0180 LGL 26                 OP1 (S(I)) = +, - OR *     4F14959
11200  0 16200 0 11202        TQP MC0210             FIX PT                     4F14960
11201  0 76000 0 00141        SLN 1                  FLO PT                     4F14961
11202 -0 75400 0 00000 MC0210 PXD 0,0                                           4F14962
11203  0 56000 1 16652        LDQ SCRIPL+2,A         PLACE SYMJ (S(I)) IN MQ - J = 1,... 4F14963
11204 -0 76300 0 00001        LGL 1
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11205   0 76000 0 00001          LBT
11206   0 16200 0 11231          TQP  MC0440
11207  -0 76300 0 00005          LGL  5
11210   0 34000 0 01423          CAS  L(H)
11211   0 34000 0 01425          CAS  L(O)
11212   1 00000 0 11217 XBSAVE   TXI  MC0340,0,0
11213   0 02000 0 11217          TRA  MC0340
11214  -0 76000 0 00141 MC0310   SLT  1
11215   1 00003 2 11223          TXI  MC0380,B,3
11216   0 07400 4 03400          TSX  DIAG,4
11217  -0 76000 0 00141 MC0340   SLT  1
11220   0 07400 4 03400          TSX  DIAG,4
11221   0 76000 0 00141          SLN  1
11222   1 00003 2 11223          TXI  MC0380,B,3
11223  -3 00000 2 11225 MC0380   TXL  MC0400,B,0
11224   1 77775 1 11202          TXI  MC0210,A,-3
11225  -0 53400 1 11176 MC0400   LXD  XASAVE,A
11226   1 00000 1 11227 MC0410   TXI  MC0420,A,0
11227   3 00000 1 11160 MC0420   TXH  MC0030,A,0
11230   0 02000 0 11254          TRA  CP0000
11231  -0 63400 2 11212 MC0440   SXD  XBSAVE,B
11232  -0 53400 4 11176          LXD  XASAVE,C
11233   1 00000 4 11234 MC0460   TXI  MC0470,C,0
11234  -0 50000 4 16650 MC0470   CAL  SCRIPL,C
11235  -0 32000 0 01452          ANA  MASK2
11236   0 34000 1 16652          CAS  SCRIPL+2,A
11237   0 02000 0 11241          TRA  MC0520
11240   0 02000 0 11246          TRA  MC0570
11241   0 73400 2 01226 MC0520   PAX  SIGMA1,B
11242   0 50000 2 16174          CLA  CPBETA,B
11243   0 73400 2 00000 MC0540   PAX  TAU1,B
11244  -0 63400 2 11245          SXD  MC0560,B
11245   1 00000 4 11234 MC0560   TXI  MC0470,C,0
11246  -0 53400 2 11212 MC0570   LXD  XBSAVE,B
11247  -0 50000 4 16651          CAL  SCRIPL+1,C
11250   0 77100 0 00003          ARS  3
11251   0 76000 0 00001          LBT
11252   0 02000 0 11214          TRA  MC0310
11253   0 02000 0 11217          TRA  MC0340

11254   0 76000 0 00140 CP0000   SLF
11255   0 60000 0 16160          STZ  FNSW
11256  -0 53400 4 01122          LXD  ARGCTR,C
11257  -3 00000 4 11265          TXL  CP0090,C,0
11260   0 07400 4 01731          TSX  CITOO,C
11261   0 00000 0 01531          HTR  ALL1
11262   0 00000 0 01531          HTR  ALL1
11263   0 00000 0 01531          HTR  ALL1
11264   0 00000 0 01531          HTR  ALL1
11265  -0 50000 0 00030 CP0090   CAL  EIFNO
11266  -0 32000 0 01527          ANA  MASK1
11267   0 60200 0 16164          SLW  CW
11270  -0 53400 1 01117          LXD  3QBAR,A
11271   0 50000 1 16645 CP0130   CLA  SCRIPL-3,A
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                                                    4F14964
                                                    4F14965
SYMJ (S(I)) IS A VARIABLE                           4F14966
                                                    4F14967
                                                    4F14968
                                                    4F14969
FLO PT                                              4F14970
FLO PT                                              4F14971
SYMJ (S(I)) IS A FIX PT VARIABLE                    4F14972
OK                                                  4F14973
ERROR.. FLO PT LITE ON                              4F14974
SYMJ(S(I)) IS A FLO PT VARIABLE                     4F14975
ERROR.. FLO PT LITE OFF                             4F14976
RESTORE FLO PT LITE                                 4F14977
                                                    4F14978
FINISHED WITH S(I)                                  4F14979
CONTINUE SCANNING S(I). J TO J+1                    4F14980
GO TO S(I+1)                                        4F14981
                                                    4F14982
                                                    4F14983
EXIT TO COMPILER                                    4F14984
SYMJ (S(ITT = SAME S(K)                             4F14985
                                                    4F14986
MOVE XC TO 1ST ELEMENT OF S(I+1)                    4F14987
                                                    4F14988
EXTRACT S(K) IN ACC                                 4F14989
AND COMPARE WITH SYMJ (S(I))                        4F14990
                                                    4F14991
                                                    4F14992
S(K) TO XB                                          4F14993
                                                    4F14994
                                                    4F14995
                                                    4F14996
SYMJ (S(I)) = S(K) FOR SOME K                       4F14997
PLACE OP1 (S(K)) IN ACC                             4F14998
                                                    4F14999
                                                    4F15000
                                                    4F15001
S(K) IS FIX PT                                      4F15002
S(K) IS FLO PT                                      4F15003
                                                    4F15004
TURN OFF ALL SENSE LITES                            4F15005
                                                    4F15006
IS THIS AN FS STATEMENT                             4F15007
NO                                                  4F15008
YES - COMPILE FOUR 36 - BIT                         4F15009
STRINGS IN 1 AS A PRELUDE TO                        4F15010
FS STATEMENT COMPILATION                            4F15011
                                                    4F15012
                                                    4F15013
                                                    4F15014
STO INT. FORM. NO. IN DEC. FIELD OF CW.             4F15015
-3Q TO XA                                           4F15016
EXTRACT CURRENT S(I)                                4F15017
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11272   0 73400 2 00000 CP0140 PAX ,2                                                    4F15018
11273   0 50000 2 16174        CLA CPBETA,B                                              4F15019
11274   0 62200 0 01363        STD PHI(I)          STO ERAS. REL. ADD. IN PHI (I)        4F15020
11275  -0 32000 0 01452        ANA MASK2                                                 4F15021
11276   0 73400 2 01356 CP0180 PAX TAU3,B                                                4F15022
11277  -0 63400 2 11324        SXD CP0400,B                                              4F15023
11300   0 76000 0 00006        COM                                                       4F15024
11301   0 40000 0 01407        ADD L(1)                                                  4F15025
11302   0 76700 0 00022        ALS 18                                                    4F15026
11303   0 62200 0 11304        STD CP0240                                                4F15027
11304   1 00000 1 11305 CP0240 TXI CP0250,A,0      MOVE XA TO 1ST ELEMENT OF CURRENT S(I) 4F15028
11305  -0 63400 1 01117 CP0250 SXD 3QBAR,A                                              4F15029
11306   0 56000 1 16651        LDQ SCRIPL+1,A      EXAMINE OP1 (S(I)) 29,30,31,32        4F15030
11307  -0 76300 0 00036        LGL 30                                                    4F15031
11310   0 76000 0 00001        LBT                                                       4F15032
11311   0 02000 0 11313        TRA CP0310          OP1 (S(I)) 29 = 0                     4F15033
11312   0 16200 0 11321        TQP CP0370          OP1 (S(I)) 30 = 0                     4F15034
11313   0 76000 0 00141 CP0310 SLN 1               OP1 (S(I)) 29 = 0 OR OP1 (S(I)) 30 = 1, SO 4F15035
11314  -0 77300 0 00001        RQL 1               SET STORE LITE                        4F15036
11315   0 16200 0 11317        TQP CP0350          OP1 (S(I)) 31 = 0, SO SET STO LITE    4F15037
11316   0 76000 0 00142        SLN 2               OP1 (S(I)) 31 = 1, SO SET STQ LITE    4F15038
11317  -0 77300 0 00001 CP0350 RQL 1                                                    4F15039
11320   0 02000 0 11322        TRA CP0380                                                4F15040
11321  -0 77300 0 00002 CP0370 RQL 2                                                    4F15041
11322   0 16200 0 11326 CP0380 TQP CP0420          TEST OP1 (S(I)) 32                    4F15042
11323  -0 76000 0 00144        SLT 4               OP1 (S(I)) 32 = 1, SO SET FLPTSW      4F15043
11324   3 00000 0 00000 CP0400 TXH 0,0,0                                                 4F15044
11325   0 02000 0 11327        TRA CP0430                                                4F15045
11326   0 76000 0 00144 CP0420 SLN 4               OP1 (S(I)) 32 = 0, SO SET FXPTSW      4F15046
11327  -0 75400 0 00000 CP0430 PXD 0,0                                                  4F15047
11330   0 56000 1 16651        LDQ SCRIPL+1,A      PLACE OP1 (S(I)) IN MQ                4F15048
11331  -0 76300 0 00006        LGL 6                                                     4F15049
11332   0 34000 0 01427        CAS SPECOP                                                4F15050
11333   1 00000 0 11407        TXI CP0960,0,0                                            4F15051
11334   1 77775 1 11543        TXI CP2040,A,-3                                           4F15052
11335   0 40200 0 01401        SUB 11Z                                                   4F15053
11336   0 10000 0 11365        TZE CP0760                                                4F15054
11337  -0 76300 0 00035        LGL 29              OP1 (S(I)) = +                        4F15055
11340   0 16200 0 11425        TQP CP1130          OP1 (S(I)) 35 = 0                     4F15056
11341  -0 53400 2 11324 CP0540 LXD CP0400,B       OP1 (S(I)) 35 = 1                     4F15057
11342   1 00003 2 11343        TXI CP0560,B,3                                            4F15058
11343  -3 00000 2 12337 CP0560 TXL ES0000,B,0     GO TO END-OF-SEGMENT SBRTN            4F15059
11344  -0 63400 2 11324        SXD CP0400,B                                              4F15060
11345   1 77775 1 11346        TXI CP0590,A,-3                                           4F15061
11346  -0 75400 0 00000 CP0590 PXD 0,0                                                  4F15062
11347   0 56000 1 16651        LDQ SCRIPL+1,A      PLACE OPJ (S(I)) IN MQ                4F15063
11350  -0 76300 0 00006        LGL 6                                                     4F15064
11351   0 34000 0 01405        CAS STAR                                                  4F15065
11352   0 02000 0 11433        TRA CP1200          OPJ (S(I)) = /                        4F15066
11353   0 02000 0 11506        TRA CP1720          OPJ (S(I)) = *                        4F15067
11354   0 40200 0 01401        SUB 11Z                                                   4F15068
11355   0 10000 0 11400        TZE CP0880          OPJ (S(I)) = -                        4F15069
11356  -0 50000 0 01550        CAL L(FAD)          OPJ (S(I)) = +                        4F15070
11357  -0 76000 0 00144        SLT 4                                                     4F15071
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11360   0 02000 0 11363          TRA CP0740
11361   0 76000 0 00144          SLN 4
11362  -0 50000 0 01532          CAL L(ADD)
11363   0 60200 0 16165 CP0740   SLW CW+1
11364   0 02000 0 11503          TRA CP1690
11365  -0 76300 0 00035 CP0760   LGL 29
11366   0 16200 0 11375          TQP CP0850
11367  -0 50000 0 01540          CAL L(CHS)
11370   0 60200 0 16165          SLW CW+1
11371   0 60000 0 16166          STZ CW+2
11372   0 60000 0 16167          STZ CW+3
11373   0 07400 2 12621          TSX COMP,B
11374   0 02000 0 11341          TRA CP0540
11375  -0 50000 0 01543 CP0850   CAL L(CLS)
11376   0 60200 0 16165          SLW CW+1
11377   0 02000 0 11427          TRA CP1150
11400  -0 50000 0 01553 CP0880   CAL L(FSB)
11401  -0 76000 0 00144          SLT 4
11402   0 02000 0 11405          TRA CP0940
11403   0 76000 0 00144          SLN 4
11404  -0 50000 0 01574          CAL L(SUB)
11405   0 60200 0 16165 CP0940   SLW CW+1
11406   0 02000 0 11503          TRA CP1690
11407   0 16200 0 11411 CP0960   TQP CP0980
11410   0 02000 0 12100          TRA CP4140
11411  -0 76300 0 00035 CP0980   LGL 29
11412   0 76000 0 00143          SLN 3
11413   0 76000 0 00001          LBT
11414   0 02000 0 11417          TRA CP1050
11415  -0 76000 0 00143          SLT 3
11416   3 00000 0 00000          TXH 0,0,0
11417   0 16200 0 11421 CP1050   TQP CP1070
11420   0 02000 0 11341          TRA CP0540
11421  -0 50000 0 01556 CP1070   CAL L(LDQ)
11422  -0 76000 0 00143          SLT 3
11423   0 02000 0 11426          TRA CP1140
11424   0 76000 0 00143          SLN 3
11425  -0 50000 0 01541 CP1130   CAL L(CLA)
11426   0 60200 0 16165 CP1140   SLW CW+1
11427   0 07400 4 12627 CP1150   TSX AC0000,C
11430   0 07400 2 12621          TSX COMP,B
11431   0 60000 0 16164          STZ CW
11432   0 02000 0 11341          TRA CP0540
11433  -0 76000 0 00143 CP1200   SLT 3
11434   0 02000 0 11446          TRA CP1330
11435  -0 76000 0 00144          SLT 4
11436   0 02000 0 11501          TRA CP1670
11437   0 76000 0 00144          SLN 4
11440   0 07400 4 01731          TSX CIT00,C
11441   0 00000 0 01406          HTR L(0)
11442   0 00000 0 01560          HTR L(LRS)
11443   0 00000 0 01406          HTR L(0)
11444   0 00000 0 01472          HTR DEC35
11445   0 02000 0 11451          TRA CP1450
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                                                                    4F15072
                                                                    4F15073
FIX PT. RESTORE FXPTSW                                              4F15074
                                                                    4F15075
                                                                    4F15076
                                                                    4F15077
OP1 (S(I)) = -                                                      4F15078
                                                                    4F15079
OP1 (S(I)) 35 = 1, SO                                               4F15080
COMPILE CHS FOR 1ST ELEMENT                                         4F15081
                                                                    4F15082
                                                                    4F15083
                                                                    4F15084
                                                                    4F15085
OP1 (S(I)) 35 = 0, SO                                               4F15086
COMPILE CLS SYM1 (S(I)) FOR 1ST ELEMENT                             4F15087
                                                                    4F15088
OPJ (S(I)) = -                                                      4F15089
                                                                    4F15090
                                                                    4F15091
FIX PT. RESTORE FXPTSW                                              4F15092
                                                                    4F15093
                                                                    4F15094
                                                                    4F15095
                                                                    4F15096
                                                                    4F15097
OP1 (S(I)) = *                                                      4F15098
TURN LITE 3 ON                                                      4F15099
TEST OP1 (S(I)) 34                                                  4F15100
OP1 (S(I)) 34 = 0, SO LEAVE LITE 3 ON                               4F15101
OP1 (S(I)) 34 = 1, SO TURN LITE 3 OFF                               4F15102
                                                                    4F15103
OP1 (S(I)) 35 = 1, SO GO MODIFY J                                   4F15104
OP1 (S(I)) 35 = 0                                                   4F15105
                                                                    4F15106
EL1 (S(II) TO MQ                                                    4F15107
EL1 (S(II) TO ACC                                                   4F15108
                                                                    4F15109
                                                                    4F15110
ADDRESS COMPILE SYM1 (S(I))                                         4F15111
                                                                    4F15112
RESET CW                                                            4F15113
GO MODIFY J                                                         4F15114
OPJ (S(I)) = /                                                      4F15115
                                                                    4F15116
PREDECESSOR IN ACC                                                  4F15117
FLO PT.                                                             4F15118
FIX PT. RESTORE FXPTSW                                              4F15119
COMPILE LRS 35                                                      4F15120
                                                                    4F15121
                                                                    4F15122
                                                                    4F15123
                                                                    4F15124
                                                                    4F15125
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11446 -0 76000 0 00144 CP1330 SLT 4                    PREDECESSOR IN MQ                    4F15126
11447  0 02000 0 11470         TRA CP1570             AND SEGMENT IS                       4F15127
11450  0 76000 0 00144         SLN 4                  FIX PT. RESTORE FXPTSW               4F15128
11451  0 50000 0 01547 CP1450  CLA L(DVP)                                                  4F15129
11452  0 60100 0 16165         STO CW+1                                                    4F15130
11453  0 07400 4 12627         TSX AC0000,C           ADDRESS COMPILE SYMJ (S(I))          4F15131
11454  0 07400 2 12621         TSX COMP,B             COMPILE DVP SYMJ (S(I))              4F15132
11455  0 07400 4 01731         TSX CIT00,C            COMPILE CLM                          4F15133
11456  0 00000 0 01406         HTR L(0)                                                    4F15134
11457  0 00000 0 01542         HTR L(CLM)                                                  4F15135
11460  0 00000 0 01406         HTR L(0)                                                    4F15136
11461  0 00000 0 01406         HTR L(0)                                                    4F15137
11462  0 07400 4 01731         TSX CIT00,C            COMPILE LLS 18                       4F15138
11463  0 00000 0 01406         HTR L(0)                                                    4F15139
11464  0 00000 0 01557         HTR L(LLS)                                                  4F15140
11465  0 00000 0 01406         HTR L(0)                                                    4F15141
11466  0 00000 0 01466         HTR DEC18                                                   4F15142
11467  0 02000 0 11341         TRA CP0540             GO MODIFY J                          4F15143
11470  0 50000 0 01573 CP1570  CLA L(STQ)             PREDECESSOR IN MQ                    4F15144
11471  0 60100 0 16165         STO CW+1               AND SEGMENT IS FLO PT                4F15145
11472  0 50000 0 01505         CLA X(                                                      4F15146
11473  0 60100 0 16166         STO CW+2                                                    4F15147
11474  0 60000 0 16167         STZ CW+3                                                    4F15148
11475  0 07400 2 12621         TSX COMP,B             COMPILE STQ 700000                   4F15149
11476  0 50000 0 01541         CLA L(CLA)                                                  4F15150
11477  0 60100 0 16165         STO CW+1                                                    4F15151
11500  0 07400 2 12621         TSX COMP,B             COMPILE CLA 700000                   4F15152
11501  0 50000 0 01551 CP1670  CLA L(FDP)                                                  4F15153
11502  0 60100 0 16165         STO CW+1               COMPILE FDP SYMJ (S(I))              4F15154
11503  0 07400 4 12627 CP1690  TSX AC0000,C           ADDRESS COMPILE SYMJ (S(I))          4F15155
11504  0 07400 2 12621         TSX COMP,B                                                  4F15156
11505  0 02000 0 11341         TRA CP0540             GO MODIFY J                          4F15157
11506 -0 76000 0 00143 CP1720  SLT 3                  OPJ(S(I))=*                          4F15158
11507  0 02000 0 11521         TRA CP1840                                                  4F15159
11510  0 50000 0 01572         CLA L(STO)             PREDECESSOR IN ACC                   4F15160
11511  0 60100 0 16165         STO CW+1                                                    4F15161
11512  0 50000 0 01505         CLA X(                                                      4F15162
11513  0 60100 0 16166         STO CW+2                                                    4F15163
11514  0 60000 0 16167         STZ CW+3                                                    4F15164
11515  0 07400 2 12621         TSX COMP,B             COMPILE STO 700000                   4F15165
11516  0 50000 0 01556         CLA L(LDQ)                                                  4F15166
11517  0 60100 0 16165         STO CW+1                                                    4F15167
11520  0 07400 2 12621         TSX COMP,B             COMPILE LDQ 700000                   4F15168
11521  0 76000 0 00143 CP1840  SLN 3                  TURN LATE 3 ON                       4F15169
11522  0 07400 4 12627         TSX AC0000,C           ADDRESS COMPILE SYMJ(S(I))           4F15170
11523 -0 76000 0 00144         SLT 4                                                       4F15171
11524  0 02000 0 11537         TRA CP2000                                                  4F15172
11525  0 76000 0 00144         SLN 4                  FIX PT. RESTORE FXPTSW               4F15173
11526  0 50000 0 01562         CLA L(MPY)                                                  4F15174
11527  0 60100 0 16165         STO CW+1                                                    4F15175
11530  0 07400 2 12621         TSX COMP,B             COMPILE MPY SYMJ(S(I))               4F15176
11531  0 07400 4 01731         TSX CIT00,C            COMPILE ALS 17                       4F15177
11532  0 00000 0 01406         HTR L(0)                                                    4F15178
11533  0 00000 0 01533         HTR L(ALS)                                                  4F15179
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11534   0 00000 0 01406          HTR L(0)                                    4F15180
11535   0 00000 0 01465          HTR DEC17                                   4F15181
11536   0 02000 0 11341          TRA CP0540      GO MODIFY J                 4F15182
11537   0 50000 0 01552 CP2000   CLA L(FMP)      FLO PT.                     4F15183
11540   0 60100 0 16165          STO CW+1                                    4F15184
11541   0 07400 2 12621          TSX COMP,B      COMPILE FMP SYMJ(S(I))      4F15185
11542   0 02000 0 11341          TRA CP0540      GO MODIFY J.                4F15186
11543  -0 76300 0 00007 CP2040   LGL 7           OP1(S(I))=SPOP              4F15187
11544   0 76000 0 00001          LBT             TEST OP1(S(I))12            4F15188
11545   0 16200 0 11665          TQP CP2650      LIB OR OPEN FUNCTION        4F15189
11546   0 16200 0 12210          TQP CP5000      FN-FUNCTION                 4F15190
11547  -0 75400 0 00000          PXD 0,0         FS-FUNCTION                 4F15191
11550   0 76300 0 00017          LLS 15          PUT TYPE NO IN ADD(ACC)     4F15192
11551  -0 50100 0 01503          ORA P(          FORM 4...TYPE NO.           4F15193
11552   0 60200 0 16162          SLW ARGORG      AND STO IN ARGORG           4F15194
11553  -0 32000 0 01452          ANA MASK2                                   4F15195
11554  -0 50100 0 01505          ORA X(          FORM 7...TYPE NO.           4F15196
11555   0 60200 0 16163          SLW XRSAVE      AND STO IN XRSAVE           4F15197
11556   0 50000 1 16651          CLA SCRIPL+1,A                              4F15198
11557   0 76000 0 00001          LBT             EXAMINE OP2(S(I))35         4F15199
11560   0 02000 0 11567          TRA CP2150      1ST ARG STORED              4F15200
11561   0 07400 4 01731 CP2100   TSX CIT00,C     1ST ARG IN ACC              4F15201
11562   0 00000 0 01406          HTR L(0)        COMPILE STO 4...TYPE NO. + 0 4F15202
11563   0 00000 0 01572          HTR L(STO)                                  4F15203
11564   0 00000 0 16162          HTR ARGORG                                  4F15204
11565   0 00000 0 01406          HTR L(0)                                    4F15205
11566   1 77775 1 11574          TXI CP2200,A,-3 GO ON TO OP3(S(I))          4F15206
11567  -0 50000 0 01541 CP2150   CAL L(CLA)                                  4F15207
11570   0 60200 0 16165          SLW CW+1                                    4F15208
11571   0 07400 4 12627          TSX AC0000,C    ADDRESS COMPILE SYM2(S(I))  4F15209
11572   0 07400 2 12621          TSX COMP,B      COMPILE CLA SYM2(S(I))      4F15210
11573   0 02000 0 11561          TRA CP2100                                  4F15211
11574   0 60000 0 16164 CP2200   STZ CW          RESET CW                    4F15212
11575  -0 53400 2 11324          LXD CP0400,B                                4F15213
11576   1 00003 2 11577          TXI CP2230,B,3                              4F15214
11577   3 77772 2 11642 CP2230   TXH CP2500,B,-6 FINISHED WITH S(I)          4F15215
11600  -0 63400 2 11324          SXD CP0400,B                                4F15216
11601   0 50000 1 16651          CLA SCRIPL+1,A                              4F15217
11602   0 76000 0 00001          LBT             EXAMINE OP3(S(I))35         4F15218
11603   0 02000 0 11612          TRA CP2300      2ND ARG STORED              4F15219
11604   0 07400 4 01731 CP2250   TSX CIT00,C     2ND ARG IN MQ               4F15220
11605   0 00000 0 01406          HTR L(0)        COMPILE STQ 4...TYPE NO. + 1 4F15221
11606   0 00000 0 01573          HTR L(STQ)                                  4F15222
11607   0 00000 0 16162          HTR ARGORG                                  4F15223
11610   0 00000 0 01454          HTR 2E18                                    4F15224
11611   1 77775 1 11617          TXI CP2350,A,-3 GO ON TO SYM4(S(I))         4F15225
11612  -0 50000 0 01556 CP2300   CAL L(LDQ)                                  4F15226
11613   0 60200 0 16165          SLW CW+1                                    4F15227
11614   0 07400 4 12627          TSX AC0000,C    ADDRESS COMPILE SYM3(S(I))  4F15228
11615   0 07400 2 12621          TSX COMP,B      COMPILE LDQ SYM3(S(I))      4F15229
11616   0 02000 0 11604          TRA CP2250                                  4F15230
11617   0 50000 0 01521 CP2350   CLA DECMI2      INITIALIZE DEC(P(CNTR) TO 2 4F15231
11620   0 60200 0 16161          SLW P(CNTR                                  4F15232
11621  -0 53400 2 11324 CP2370   LXD CP0400,B                                4F15233
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11622   1 00003 2 11623         TXI CP2390,B,3
11623   3 77772 2 11642 CP2390  TXH CP2500,B,-6      FINISHED WITH S(I)
11624  -0 63400 2 11324         SXD CP0400,B
11625  -0 50000 0 01541         CAL L(CLA)
11626   0 60200 0 16165         SLW CW+1
11627   0 07400 4 12627         TSX AC0000,C         ADDRESS COMPILE SYMJ(S(I)), J=4,...
11630   0 07400 2 12621         TSX COMP,B           COMPILE CLA SYMJ(S(I)), J=4,...
11631   0 07400 4 01731         TSX CIT00,C          COMPILE STO 4...TYPE NO. + J-2, J=4,...
11632   0 00000 0 01406         HTR L(0)
11633   0 00000 0 01572         HTR L(STO)
11634   0 00000 0 16162         HTR ARGORG
11635   0 00000 0 16161         HTR P(CNTR
11636   0 50000 0 16161         CLA P(CNTR           UPDATE P(CNTR
11637   0 40000 0 01454         ADD 2E18
11640   0 60100 0 16161         STO P(CNTR
11641   1 77775 1 11621         TXI CP2370,A,-3
11642  -0 53400 1 01117 CP2500  LXD 3QBAR,A          FINISHED WITH S(I)
11643  -0 50000 0 01575         CAL L(SXD)
11644   0 60200 0 16165         SLW CW+1
11645  -0 50000 0 16163         CAL XRSAVE
11646   0 60200 0 16166         SLW CW+2
11647  -0 50000 0 01412         CAL L(4)
11650   0 60200 0 16167         SLW CW+3
11651   0 07400 2 12621         TSX COMP,B           COMPILE SXD 7...TYPE NO. , 4
11652  -0 50000 0 01602         CAL L(TSX)
11653   0 60200 0 16165         SLW CW+1
11654  -0 50000 1 16652         CAL SCRIPL+2,A
11655   0 60200 0 16166         SLW CW+2
11656   0 07400 2 12621         TSX COMP,B           COMPILE TSX SYM1(S(I)),4
11657  -0 50000 0 01561         CAL L(LXD)
11660   0 60200 0 16165         SLW CW+1
11661  -0 50000 0 16163         CAL XRSAVE
11662   0 60200 0 16166         SLW CW+2
11663   0 02000 0 12756         TRA CP6000
11664   1 00000 0 12337 CP5830  TXI ES0000,0,0

11665  -0 76300 0 00024 CP2650  LGL 20               TEST OP1(S(I))33
11666   0 16200 0 11734         TQP CP3060           0... LIB. SBRTN
11667   0 50200 0 16164         CLS CW               1... OPEN SBRTN
11670   0 60100 0 16164         STO CW               CW TO -CW
11671   0 50000 1 16647         CLA SCRIPL-1,A
11672   0 60100 0 16166         STO CW+2             COMPILE FUNCTION NAME
11673   0 07400 2 12621         TSX COMP,B           RESET CW
11674   0 60000 0 16164         STZ CW
11675  -0 53400 2 11324         LXD CP0400,B
11676  -3 77767 2 11720         TXL CP2930,B,-9      OPEN UNIVARIATE FUNCTION
11677  -0 50000 0 01531         CAL ALL1
11700   0 60200 0 16164         SLW CW
11701   0 50000 1 16651         CLA SCRIPL+1,A       EXAMINE OP2(S(I))35
11702   0 76000 0 00001         LBT                  0... ARG STORED
11703   0 02000 0 11716         TRA CP2900           1... ARG NOT STORED
11704   0 77100 0 00001         ARS 1
11705   0 56000 0 01512         LDQ ADPLUS
11706   0 76000 0 00001         LBT
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11707   0 02000 0 11711         TRA CP2860
11710   0 56000 0 01524         LDQ ADSTAR
11711  -0 60000 0 16166 CP2860  STQ CW+2
11712   0 60000 0 16167         STZ CW+3
11713   0 07400 2 12621 CP2880  TSX COMP,B
11714   0 60000 0 16164         STZ CW
11715   0 02000 0 12337         TRA ES0000
11716   0 07400 4 12627 CP2900  TSX AC0000,C
11717   0 02000 0 11713         TRA CP2880
11720   0 07400 4 12627 CP2930  TSX AC0000,C
11721  -0 53400 2 11324         LXD CP0400,B
11722   1 00003 2 11723         TXI CP2960,B,3
11723   3 77772 2 11727 CP2960  TXH CP3000,B,-6
11724  -0 63400 2 11324         SXD CP0400,B
11725   0 07400 2 12621         TSX COMP,B
11726   1 77775 1 11720         TXI CP2930,A,-3
11727  -0 50000 0 01531 CP3000  CAL ALL1
11730   0 60200 0 16164         SLW CW
11731   0 07400 2 12621         TSX COMP,B
11732   0 60000 0 16164         STZ CW
11733   0 02000 0 12337         TRA ES0000
11734  -3 77767 2 11763 CP3060  TXL CP3350,B,-9
11735   0 50000 1 16651         CLA SCRIPL+1,A
11736   0 76000 0 00001         LBT
11737   0 02000 0 11755         TRA CP3280
11740   0 50000 0 01575 CP3100  CLA L(SXD)
11741   0 60100 0 16165         STO CW+1
11742   0 50000 0 01505         CLA X(
11743   0 60100 0 16166         STO CW+2
11744   0 50000 0 01412         CLA L(4)
11745   0 60100 0 16167         STO CW+3
11746   0 07400 2 12621         TSX COMP,B
11747   0 50000 0 01602         CLA L(TSX)
11750   0 60100 0 16165         STO CW+1
11751   0 50000 1 16647         CLA SCRIPL-1,A
11752   0 60100 0 16166         STO CW+2
11753   0 07400 2 12621         TSX COMP,B
11754   0 02000 0 12332         TRA CP5780
11755   0 50000 0 01541 CP3280  CLA L(CLA)
11756   0 60100 0 16165         STO CW+1
11757   0 07400 4 12627         TSX AC0000,C
11760   0 07400 2 12621         TSX COMP,B
11761   0 60000 0 16164         STZ CW
11762   0 02000 0 11740         TRA CP3100
11763  -3 77764 2 12007 CP3350  TXL CP3560,B,-12
11764   0 50000 1 16651         CLA SCRIPL+1,A
11765   0 76000 0 00001         LBT
11766   0 02000 0 11775         TRA CP3450
11767   0 50000 0 01556 CP3390  CLA L(LDQ)
11770   0 60100 0 16165         STO CW+1
11771   1 77775 1 11772         TXI CP3420,A,-3
11772   0 07400 4 12627 CP3420  TSX AC0000,C
11773   0 07400 2 12621         TSX COMP,B
11774   1 00003 1 11740         TXI CP3100,A,3
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                                                    4F15288
                                                    4F15289
                                                    4F15290
                                                    4F15291
                                                    4F15292
COMPILE ACC OR MQ INDICATOR                         4F15293
RESET CW                                            4F15294
                                                    4F15295
ADDRESS COMPILE SYM2(S(I))                          4F15296
GO COMPILE SYM2(S(I))                               4F15297
OPEN MULTIVARIATE FUNCTION                          4F15298
                                                    4F15299
                                                    4F15300
                                                    4F15301
                                                    4F15302
COMPILE SYMJ(S(I))                                  4F15303
                                                    4F15304
                                                    4F15305
                                                    4F15306
COMPILE LAST ARGUMENT NAME                          4F15307
RESET CW                                            4F15308
GO TO END-OF-SEGMENT SBRTN                          4F15309
                                                    4F15310
CLOSED UNIVARIATE FUNCTION                          4F15311
EXAMINE OP2(S(I))35                                 4F15312
0••• ARG STORED                                     4F15313
1••• ARG IN ACC                                     4F15314
                                                    4F15315
                                                    4F15316
                                                    4F15317
                                                    4F15318
COMPILE SXD7•••0,4                                  4F15319
                                                    4F15320
                                                    4F15321
                                                    4F15322
                                                    4F15323
COMPILE TSX SYM1(S(I)),4                            4F15324
COMPILE FLOW TRACE INFO AND LXD 7(,4                4F15325
                                                    4F15331
                                                    4F15332
ADDRESS COMPILE SYM2(S(I))                          4F15333
COMPILE CLA SYM2(S(I))                              4F15334
RESET CW                                            4F15335
GO COMPILE SXD,TSX,LXD SEQUENCE                     4F15336
                                                    4F15337
CLOSED BIVARIATE FUNCTION                           4F15338
EXAMINE OP2(S(I))35                                 4F15339
0••• ARG1 STORED                                    4F15340
1••• ARG1 IN ACC                                    4F15341
                                                    4F15342
                                                    4F15343
ADDRESS COMPILE SYM3(S(I))                          4F15344
COMPILE LDQ SYM3(S(I))                              4F15345
GO COMPILE SXD,TSX,LXD SEQUENCE                     4F15346
```

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11775   0 50000 1 16654 CP3450 CLA SCRIPL+4,A
11776   0 76000 0 00001        LBT
11777   0 02000 0 12001        TRA CP3490
12000   0 02000 0 11755        TRA CP3280
12001   0 50000 0 01541 CP3490 CLA L(CLA)
12002   0 60100 0 16165        STO CW+1
12003   0 07400 4 12627        TSX AC0000,C
12004   0 07400 2 12621        TSX COMP,B
12005   0 60000 0 16164        STZ CW
12006   0 02000 0 11767        TRA CP3390
12007   0 50000 1 16651 CP3560 CLA SCRIPL+1,A
12010   0 76000 0 00001        LBT
12011   1 77772 1 12041        TXI CP3820,A,-6
12012   1 77772 1 12013        TXI CP3600,A,-6
12013   0 50000 0 01521 CP3600 CLA DECMI2
12014   0 60100 0 16161        STO P(CNTR
12015   0 50000 0 01556 CP3620 CLA L(LDQ)
12016   0 60100 0 16165        STO CW+1
12017   0 07400 4 12627        TSX AC0000,C
12020   0 07400 2 12621        TSX COMP,B
12021   0 50000 0 01573        CLA L(STQ)
12022   0 60100 0 16165        STO CW+1
12023   0 50000 0 01503        CLA P(
12024   0 60100 0 16166        STO CW+2
12025   0 50000 0 16161        CLA P(CNTR
12026   0 60100 0 16167        STO CW+3
12027   0 40200 0 01454        SUB 2E18
12030   0 60100 0 16161        STO P(CNTR
12031   0 07400 2 12621        TSX COMP,B
12032  -0 53400 2 11324        LXD CP0400,B
12033   1 00003 2 12034        TXI CP3770,B,3
12034  -3 77764 2 12037 CP3770 TXL CP3800,B,-12
12035  -0 53400 1 01117        LXD 3QBAR,A
12036   1 77775 1 11767        TXI CP3390,A,-3
12037  -0 63400 2 11324 CP3800 SXD CP0400,B
12040   1 77775 1 12015        TXI CP3620,A,-3
12041   0 50000 1 16646 CP3820 CLA SCRIPL-2,A
12042   0 76000 0 00001        LBT
12043   1 00006 1 12072        TXI CP4070,A,6
12044   0 50000 0 01521        CLA DECMI2
12045   0 60100 0 16161        STO P(CNTR
12046   0 50000 0 01541 CP3870 CLA L(CLA)
12047   0 60100 0 16165        STO CW+1
12050   0 07400 4 12627        TSX AC0000,C
12051   0 07400 2 12621        TSX COMP,B
12052   0 50000 0 01572        CLA L(STO)
12053   0 60100 0 16165        STO CW+1
12054   0 50000 0 01503        CLA P(
12055   0 60100 0 16166        STO CW+2
12056   0 50000 0 16161        CLA P(CNTR
12057   0 60100 0 16167        STO CW+3
12060   0 40200 0 01454        SUB 2E18
12061   0 60100 0 16161        STO P(CNTR
12062   0 07400 2 12621        TSX COMP,B
```

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                                                    4F15347
EXAMINE OP3(S(I))35                                 4F15348
0••• ARG2 STORED                                    4F15349
1••• ARG2 IN MQ                                     4F15350
                                                    4F15351
                                                    4F15352
ADDRESS COMPILE SYM2(S(I))                          4F15353
COMPILE CLA SYM2(S(I))                              4F15354
REST CW                                             4F15355
GO COMPILE LDQ,SXD,TSX,LXD SEQUENCE                 4F15356
CLOSED MULTIVARIATE FUNCTION                        4F15357
EXAMINE OP2(S(I))35                                 4F15358
0••• ARG1 STORED                                    4F15359
1••• ARG1 IN ACC                                    4F15360
                                                    4F15361
INITIALIZE P(CNTR TO -2                             4F15362
                                                    4F15363
                                                    4F15364
ADDRESS COMPILE SYMJ(S(I)) FOR J=4,5,•••            4F15365
COMPILE LDQ SYMJ(S(I))                              4F15366
                                                    4F15367
                                                    4F15368
                                                    4F15369
                                                    4F15370
                                                    4F15371
                                                    4F15372
                                                    4F15373
                                                    4F15374
COMPILE STQ 4•••0-(J-2)                             4F15375
                                                    4F15376
                                                    4F15377
                                                    4F15378
FINISHED WITH ARG VECTOR                            4F15379
                                                    4F15380
                                                    4F15381
GO PICK UP NEXT ARG•                                4F15382
                                                    4F15383
EXAMINE OP3(S(I))35                                 4F15384
0••• ARG2 STORED                                    4F15385
1••• ARG2 IN MQ                                     4F15386
                                                    4F15387
                                                    4F15388
                                                    4F15389
ADDRESS COMPILE SYMJ(S(I)) FOR J=4,5,•••            4F15390
COMPILE CLA SYMJ(S(I))                              4F15391
                                                    4F15392
                                                    4F15393
                                                    4F15394
                                                    4F15395
                                                    4F15396
                                                    4F15397
                                                    4F15398
                                                    4F15399
COMPILE STO 4•••0-(J-2)                             4F15400
```

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12063 -0 53400 2 11324         LXD CP0400,B                                    4F15401
12064  1 00003 2 12065         TXI CP4020,B,3                                  4F15402
12065 -3 77764 2 12070 CP4020  TXL CP4050,B,-12                                4F15403
12066 -0 53400 1 01117         LXD 3QBAR,A      FINISHED WITH ARG VECTOR       4F15404
12067  1 77775 1 11755         TXI CP3280,A,-3                                 4F15405
12070 -0 63400 2 11324 CP4050  SXD CP0400,B                                    4F15406
12071  1 77775 1 12046         TXI CP3870,A,-3  GO PICK UP NEXT ARG            4F15407
12072  0 50000 0 01541 CP4070  CLA L(CLA)                                      4F15408
12073  0 60100 0 16165         STO CW+1                                        4F15409
12074  0 07400 4 12627         TSX AC0000,C     ADDRESS COMPILE SYM2(S(I))     4F15410
12075  0 07400 2 12621         TSX COMP,B       COMPILE CLASYM2(S(I))          4F15411
12076  0 60000 0 16164         STZ CW           RESET CW                       4F15412
12077  1 77772 1 12013         TXI CP3600,A,-6                                 4F15413
12100 -0 76300 0 00033 CP4140  LGL 27           OP1(S(I))=**                   4F15414
12101  0 16200 0 12132         TQP CP4410       CLOSED SBRTN SINCE OP1(S(I))33=0 4F15415
12102  0 76000 0 00001         LBT              OPEN SBRTN SINCE OP1(S(I))33=1 4F15416
12103  0 02000 0 12106         TRA CP4200       BASE FIX PT SINCE OP1(S(I))32=0 4F15417
12104  0 50000 0 01525         CLA STRSTR       BASE FLO PT SINCE OP1(S(II))32=1 4F15418
12105  0 02000 0 12107         TRA CP4210                                      4F15419
12106  0 50000 0 01524 CP4200  CLA ADSTAR                                      4F15420
12107  0 60100 0 16165 CP4210  STO CW+1                                        4F15421
12110 -0 76300 0 00002         LGL 2            EXAMINE OP1(S(I))35            4F15422
12111  0 16200 0 12120         TQP CP4310       0••• BASE STORED               4F15423
12112  0 56000 0 01524         LDQ ADSTAR       1••• BASE NOT STORED           4F15424
12113  0 76000 0 00001         LBT              EXAMINE OP1(S(I))34            4F15425
12114  0 56000 0 01512         LDQ ADPLUS       0••• BASE IN ACC               4F15426
12115 -0 60000 0 16166         STQ CW+2         1•••BASE IN MQ                 4F15427
12116  0 60000 0 16167         STZ CW+3                                        4F15428
12117  0 02000 0 12121         TRA CP4320                                      4F15429
12120  0 07400 4 12627 CP4310  TSX AC0000,C     ADDRESS COMPILE SYM1(S(I))     4F15430
12121  0 50200 0 16164 CP4320  CLS CW                                         4F15431
12122  0 60100 0 16164         STO CW           CW TO -CW                      4F15432
12123  0 07400 2 12621         TSX COMP,B       COMPILE BASE                   4F15433
12124  0 60000 0 16164         STZ CW           RESET CW                       4F15434
12125  0 50000 1 16655         CLA SCRIPL+5,A                                  4F15435
12126  0 60100 0 16166         STO CW+2                                        4F15436
12127  0 07400 2 12621         TSX COMP,B       COMPILE FIX PT CONSTANT EXPONENT 4F15437
12130  0 60000 0 16165         STZ CW+1         RESET CW+1                     4F15438
12131  0 02000 0 12337         TRA ES0000                                      4F15439
12132 -0 76300 0 00003 CP4410  LGL 3            CLOSED EXP• SBRTN              4F15440
12133  0 76000 0 00001         LBT              EXAMINE OP1(S(I))35            4F15441
12134  0 02000 0 12177         TRA CP4860       0••• BASE STORED               4F15442
12135  0 50000 0 01556 CP4440  CLA L(LDQ)       1••• BASE IN ACC•              4F15443
12136  0 60100 0 16165         STO CW+1                                        4F15444
12137  1 77775 1 12140         TXI CP4470,A,-3                                 4F15445
12140  0 07400 4 12627 CP4470  TSX AC0000,C     ADDRESS COMPILE SYM2(S(I))     4F15446
12141  0 07400 2 12621         TSX COMP,B       COMPILE LDQ SYM2 (S(I))        4F15447
12142  0 50000 0 01575 CP4490  CLA L(SXD)                                      4F15448
12143  0 60100 0 16165         STO CW+1                                        4F15449
12144  0 50000 0 01505         CLA X(                                          4F15450
12145  0 60100 0 16166         STO CW+2                                        4F15451
12146  0 50000 0 01412         CLA L(4)                                        4F15452
12147  0 60100 0 16167         STO CW+3                                        4F15453
12150  0 07400 2 12621         TSX COMP,B       COMPILE SXD 7•••0,4            4F15454
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12151   0 50000 0 01602          CLA L(TSX)
12152   0 60100 0 16165          STO CW+1
12153   0 50000 1 16651          CLA SCRIPL+1,A
12154   0 77100 0 00003          ARS 3
12155   0 76000 0 00001          LBT
12156   1 00003 1 12164          TXI CP4660,A,3
12157   0 50000 0 01516          CLA FLFL
12160   0 56000 1 16646          LDQ SCRIPL-2,A
12161  -0 77300 0 00040          RQL 32
12162   0 16200 0 11216          TQP MC0310+2
12163   0 02000 0 12171          TRA CP4730
12164   0 56000 1 16651 CP4660   LDQ SCRIPL+1,A
12165  -0 77300 0 00040          RQL 32
12166   0 50000 0 01514          CLA FXFX
12167   0 16200 0 12171          TQP CP4730
12170   0 50000 0 01515          CLA FLFX
12171   0 60100 0 16166 CP4730   STO CW+2
12172   0 60100 0 01347          STO G
12173   0 07400 2 12621          TSX COMP,B
12174   0 07400 1 03321          TSX TET00,A
12175   0 00000 0 00011          HTR 9
12176   0 02000 0 12332          TRA CP5780
12177   0 50000 0 01541 CP4860   CLA L(CLA)
12200   0 60100 0 16165          STO CW+1
12201   0 07400 4 12627          TSX AC0000,C
12202   0 07400 2 12621          TSX COMP,B
12203   0 60000 0 16164          STZ CW
12204   0 50000 1 16654          CLA SCRIPL+4,A
12205   0 76000 0 00001          LBT
12206   1 00000 0 12135          TXI CP4440,0,0
12207   1 77775 1 12142          TXI CP4490,A,-3

12210   0 50000 0 00030 CP5000   CLA EIFNO
12211   0 40000 0 01454          ADD 2E18
12212   0 60100 0 00030          STO EIFNO
12213   0 60100 0 16160          STO FNSW
12214   0 62200 0 01105          STD 1C
12215   0 53400 4 01407          LXA L(1),C
12216   0 50000 1 16650 CP5050   CLA SCRIPL,A
12217  -0 12000 0 12233          TMI CP5180
12220  -0 63400 2 11664          SXD CP5830,B
12221  -0 63400 4 12314          SXD STACTR,C
12222   0 07400 4 12627          TSX AC0000,C
12223  -0 50000 0 16173          CAL TAGPRT
12224  -0 10000 0 12237          TNZ CP5220
12225  -0 50000 0 16167          CAL CW+3
12226   0 77100 0 00013          ARS 11
12227  -0 50100 0 01474          ORA NGTBIT
12230  -0 60200 1 16651          ORS SCRIPL+1,A
12231  -0 53400 4 12314 CP5160   LXD STACTR,C
12232  -0 53400 2 11664          LXD CP5830,B
12233   1 00003 2 12234 CP5180   TXI CP5190,B,3
12234   3 77772 2 12267 CP5190   TXH CP5460,B,-6
12235   1 00001 4 12236          TXI CP5210,C,1
```

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                                                                4F15455
                                                                4F15456
                                                                4F15457
                                                                4F15458
EXAMINE OP2(S(I))32                                             4F15459
0...                                                            4F15460
1... FLO**FLO                                                   4F15461
EXAMINE OP1(S(I))32 TO CHECK                                    4F15462
FOR MIXED EXPONENTIAL EXPRESSION                                4F15463
ERROR FIX PT BASE, FLOAT EXP.                                   4F15464
                                                                4F15465
                                                                4F15466
EXAMINE OP1(S(I))32                                             4F15467
                                                                4F15468
0...FX**FX                                                      4F15469
1... FL**FX                                                     4F15470
                                                                4F15471
                                                                4F15472
COMPILE TSX FXFX/FLEX/FLFL,4                                    4F15473
                                                                4F15474
                                                                4F15475
COMPILE FLOW TRACE INFO AND LXD 7(,4                            4F15476
                                                                4F15482
                                                                4F15483
ADDRESS COMPILE SYM1(S(I))                                      4F15484
COMPILE CLA SYM1(S(I))                                          4F15485
                                                                4F15486
                                                                4F15487
EXAMINE OP2(S(I))35                                             4F15488
0...EXP STORED                                                  4F15489
1... EXP IN MQ                                                  4F15490
                                                                4F15491
FN FUNCTION                                                     4F15492
UPDATE EIFNO                                                    4F15493
AND                                                             4F15494
SET FN SWITCH                                                   4F15495
KEEP 1C UPDATED FOR PENDING TIFGO ENTRY.                        4F15496
INITIALIZE STAIX TO 1                                           4F15497
EXAMINE TAGJ(S(I)), J=2,...                                     4F15498
NONSUBSCRIPTED                                                  4F15499
SUBSCRIPTED-IS THERE A GENERAL TAG                              4F15500
                                                                4F15501
                                                                4F15502
                                                                4F15503
GENERAL TAG PRESENT                                             4F15504
NO GENERAL TAG PRESENT,SO PLACE                                 4F15505
RELATIVE ADDRESS IN OPJ(S(I))14-28 AND                          4F15506
SET OPJ(S(I))10=1 FROM NGTBIT                                   4F15507
                                                                4F15508
                                                                4F15509
                                                                4F15510
                                                                4F15511
FINISHED WITH PRELUDE,IF ANY                                    4F15512
NOT FINISHED-STAIX=STAIX+1                                      4F15513
```

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12236  1 77775 1 12216 CP5210 TXI CP5050,A,-3     GO ON TO NEXT ARGUMENT                    4F15514
12237 -0 50000 0 01566 CP5220 CAL L(PXD)                                                    4F15515
12240  0 60200 0 16165        SLW CW+1                                                      4F15516
12241  0 07400 2 12621        TSX COMP,B          COMPILE PXD SYMJ(S(I)), TAGJ(S(I))        4F15517
12242  0 60000 0 16164        STZ CW              RESET CW                                  4F15518
12243  0 07400 4 01731        TSX CIT00,C         COMPILE ARS 18                            4F15519
12244  0 00000 0 01406        HTR L(0)                                                      4F15520
12245  0 00000 0 01535        HTR L(ARS)                                                    4F15521
12246  0 00000 0 01406        HTR L(0)                                                      4F15522
12247  0 00000 0 01466        HTR DEC18                                                     4F15523
12250  0 07400 4 01731        TSX CIT00,C         COMPILE ADD *-2                           4F15524
12251  0 00000 0 01406        HTR L(0)                                                      4F15525
12252  0 00000 0 01532        HTR L(ADD)                                                    4F15526
12253  0 00000 0 01511        HTR PROCTR                                                    4F15527
12254  0 00000 0 01521        HTR DECMI2                                                    4F15528
12255 -0 50000 0 01571        CAL L(STA)                                                    4F15529
12256  0 60200 0 16165        SLW CW+1                                                      4F15530
12257 -0 50000 0 00030        CAL EIFNO                                                     4F15531
12260 -0 32000 0 01527        ANA MASK1                                                     4F15532
12261  0 60200 0 16166        SLW CW+2                                                      4F15533
12262 -0 53400 4 12314        LXD STACTR,C                                                  4F15534
12263 -0 75400 4 00000        PXD 0,C                                                       4F15535
12264  0 60200 0 16167        SLW CW+3                                                      4F15536
12265  0 07400 2 12621        TSX COMP,B          COMPILE STA IFN+STAIX                     4F15537
12266  1 00000 0 12231        TXI CP5160,0,0      GO ON TO NEXT ARGUMENT,IF ANY             4F15538
12267 -0 53400 1 01117 CP5460 LXD 3QBAR,A                                                   4F15539
12270 -0 50000 0 01575        CAL L(SXD)                                                    4F15540
12271  0 60200 0 16165        SLW CW+1                                                      4F15541
12272 -0 50000 0 01505        CAL X(                                                        4F15542
12273  0 60200 0 16166        SLW CW+2                                                      4F15543
12274 -0 50000 0 01412        CAL L(4)                                                      4F15544
12275  0 60200 0 16167        SLW CW+3                                                      4F15545
12276  0 07400 2 12621        TSX COMP,B          COMPILE SXD 7,4                           4F15546
12277 -0 50000 0 00030        CAL EIFNO                                                     4F15547
12300 -0 32000 0 01527        ANA MASK1                                                     4F15548
12301  0 60200 0 16164        SLW CW                                                        4F15549
12302 -0 50000 0 01602        CAL L(TSX)                                                    4F15550
12303  0 60200 0 16165        SLW CW+1                                                      4F15551
12304 -0 50000 1 16652        CAL SCRIPL+2,A                                                4F15552
12305  0 60200 0 16166        SLW CW+2                                                      4F15553
12306  0 07400 2 12621        TSX COMP,B          COMPILE TSX SYM1(S(I)),4                  4F15554
12307  0 60000 0 16164        STZ CW              RESET CW                                  4F15555
12310  1 77775 1 12311        TXI CP5680,A,-3     POSITION XA TO SYM2(S(I))                 4F15556
12311  0 50000 1 16650 CP5680 CLA SCRIPL,A                                                  4F15557
12312  0 12000 0 12315        TPL CP5700                                                    4F15558
12313  0 07400 4 12627        TSX AC0000,C        NONSUBSCRIPTED                            4F15559
12314  1 00000 0 12324 STACTR TXI CP5720,0,0                                               4F15560
12315  0 56000 1 16651 CP5700 LDQ SCRIPL+1,A      SUBSCRIPTED                               4F15561
12316 -0 76300 0 00013        LGL 11                                                        4F15562
12317  0 76000 0 00001        LBT                                                           4F15563
12320  0 56000 0 01406        LDQ L(0)            GENERAL TAG PRESENT                       4F15564
12321 -0 60000 0 16167        STQ CW+3            NO GENERAL TAG PRESENT                    4F15565
12322 -0 50000 1 16652        CAL SCRIPL+2,A                                                4F15566
12323  0 60200 0 16166        SLW CW+2                                                      4F15567
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12324   0 07400 2 12621 CP5720 TSX COMP,B                  COMPILE TSX SYMJ(S(I)) , J=2,***          4F15568
12325  -0 53400 2 11324        LXD CP0400,B                                                         4F15569
12326   1 00003 2 12327        TXI CP5750,B,3                                                       4F15570
12327   3 77772 2 12332 CP5750 TXH CP5780,B,-6             FINISHED SCANNING                         4F15571
12330  -0 63400 2 11324        SXD CP0400,B                                                         4F15572
12331   1 77775 1 12311        TXI CP5680,A,-3                                                      4F15573
12332   0 07400 4 03401 CP5780 TSX FLTR00,4                COMPILE FLOW TRACE INFO AND LXD 7(,4      4F15574
12333   0 00000 0 01406        HTR L(0)                                                             4F15575
12334   0 00000 0 01561        HTR L(LXD)                                                           4F15576
12335   0 00000 0 01505        HTR X(                                                               4F15577
12336   0 00000 0 01412        HTR L(4)                                                             4F15578
12337  -0 53400 1 01117 ES0000 LXD 3QBAR,A                -3Q TO XA                                 4F15579
12340  -0 76000 0 00141        SLT 1                                                                4F15580
12341   0 02000 0 11271        TRA CP0130                  GO TO NEXT SEGMENT                       4F15581
12342  -0 50000 1 16650        CAL SCRIPL,A                                                         4F15582
12343  -0 32000 0 01452        ANA MASK2                                                            4F15583
12344   0 10000 0 12357        TZE ES0160                                                           4F15584
12345   0 50000 0 01120        CLA ARERAS                  S(I) NOT = S(0)                          4F15585
12346   0 60100 0 16166        STO CW+2                                                             4F15586
12347   0 50000 0 01363        CLA PHI(I)                                                           4F15587
12350   0 60100 0 16167        STO CW+3                                                             4F15588
12351   0 50000 0 01573        CLA L(STQ)                                                           4F15589
12352  -0 76000 0 00142        SLT 2                                                                4F15590
12353   0 50000 0 01572        CLA L(STO)                                                           4F15591
12354   0 60100 0 16165        STO CW+1                                                             4F15592
12355   0 07400 2 12621        TSX COMP,B                  COMPILE STO/STQ 1*** TYPE NO + PHI(I)    4F15593
12356   0 02000 0 11271        TRA CP0130                  GO TO NEXT SEGMENT                       4F15594
12357   0 56000 0 01356 ES0160 LDQ LEFT+2                  S(I)=S(0)                                4F15595
12360  -0 76300 0 00014        LGL 12                                                               4F15596
12361   0 34000 0 01450        CAS IFSYM                   IS THIS AN IF STATEMENT                  4F15597
12362   0 02000 0 12364        TRA ES0200                                                           4F15598
12363   0 02000 0 12556        TRA ES1500                                                           4F15599
12364   0 34000 0 01451 ES0200 CAS CALLER                  IS THIS A CALL STATEMENT                  4F15600
12365   0 02000 0 12367        TRA ES0210                                                           4F15601
12366   0 02000 0 12561        TRA ES1520                                                           4F15602
12367   0 34000 0 01447 ES0210 CAS SAPSYM                                                           4F15603
12370   0 02000 0 12372        TRA ES0220                                                           4F15604
12371   0 02000 0 12615        TRA ES1710                                                           4F15605
12372   0 77100 0 00006 ES0220 ARS 6                                                               4F15606
12373  -0 53400 4 01122        LXD ARGCTR,C                IS THIS A FUNCTION STATEMENT             4F15607
12374   3 00000 4 12533        TXH ES1300,C,0              YES                                      4F15608
12375   0 34000 0 01423        CAS L(H)                    NOT A FUNCTION STATEMENT                 4F15609
12376   0 34000 0 01425        CAS L(0)                                                             4F15610
12377   0 02000 0 12465        TRA ES0300                                                           4F15611
12400   0 02000 0 12465        TRA ES0300                                                           4F15612
12401  -0 76000 0 00144        SLT 4                                                                4F15613
12402   0 02000 0 12420        TRA ES0870                                                           4F15614
12403   0 50000 0 01573 ES0710 CLA L(STQ)                  FX(FLO) PT ON LEFT, FX(FLO) PT ON RIGHT   4F15615
12404  -0 76000 0 00142        SLT 2                                                                4F15616
12405   0 50000 0 01572 ES0730 CLA L(STO)                                                           4F15617
12406   0 60100 0 16165        STO CW+1                                                             4F15618
12407   0 50000 0 01354        CLA LEFT                                                             4F15619
12410   0 60100 0 16170        STO TAGWRD                                                           4F15620
12411   0 50000 0 01355        CLA LEFT+1                                                           4F15621
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12412   0 60100 0 16171          STO OPWORD
12413   0 50000 0 01356          CLA LEFT+2
12414   0 60100 0 16172          STO SYMWRD
12415   0 07400 4 12635          TSX AC0060,C      ADDRESS COMPILE VARIABLE ON LEFT
12416   0 07400 2 12621          TSX COMP,B        COMPILE STO/STQ LEFT+2
12417   0 02000 0 12601          TRA ES1590        EXIT TO FETCH STATE A
12420  -0 76000 0 00142 ES0870   SLT 2             FX PT ON LEFT, FLO PT ON RIGHT
12421   0 02000 0 12433          TRA ES0990
12422   0 50000 0 01573          CLA L(STQ)        RESULT ON RIGHT APPEARS IN MQ
12423   0 60100 0 16165          STO CW+1
12424   0 50000 0 01505          CLA X(
12425   0 60100 0 16166          STO CW+2
12426   0 60000 0 16167          STZ CW+3
12427   0 07400 2 12621          TSX COMP,B        COMPILE STQ 700000
12430   0 50000 0 01541          CLA L(CLA)
12431   0 60100 0 16165          STO CW+1
12432   0 07400 2 12621          TSX COMP,B        COMPILE CLA 700000
12433   0 07400 4 01731 ES0990   TSX CIT00,C       COMPILE FIXING INSTRUCTIONS, WHEN
12434   0 00000 0 01406          HTR L(0)          RESULT ON RIGHT IS IN ACC.
12435   0 00000 0 01603          HTR L(UFA)
12436   0 00000 0 01504          HTR O(
12437   0 00000 0 01406          HTR L(0)
12440   0 07400 4 01731          TSX CIT00,C
12441   0 00000 0 01406          HTR L(0)
12442   0 00000 0 01560          HTR L(LRS)
12443   0 00000 0 01406          HTR L(0)
12444   0 00000 0 01406          HTR L(0)
12445   0 07400 4 01731          TSX CIT00,C
12446   0 00000 0 01406          HTR L(0)
12447   0 00000 0 01534          HTR L(ANA)
12450   0 00000 0 01504          HTR O(
12451   0 00000 0 01454          HTR 2E18
12452   0 07400 4 01731          TSX CIT00,C
12453   0 00000 0 01406          HTR L(0)
12454   0 00000 0 01557          HTR L(LLS)
12455   0 00000 0 01406          HTR L(0)
12456   0 00000 0 01406          HTR L(0)
12457   0 07400 4 01731          TSX CIT00,C
12460   0 00000 0 01406          HTR L(0)
12461   0 00000 0 01533          HTR L(ALS)
12462   0 00000 0 01406          HTR L(0)
12463   0 00000 0 01466          HTR DEC18
12464   0 02000 0 12521          TRA ES0610
12465  -0 76000 0 00144 ES0300   SLT 4
12466   0 02000 0 12403          TRA ES0710
12467  -0 76000 0 00142 ES0320   SLT 2             FLO PT ON LEFT, FX PT ON RIGHT
12470   0 02000 0 12502          TRA ES0440
12471   0 50000 0 01573          CLA L(STQ)        RESULT ON RIGHT APPEARS IN MQ
12472   0 60100 0 16165          STO CW+1
12473   0 50000 0 01505          CLA X(
12474   0 60100 0 16166          STO CW+2
12475   0 60000 0 16167          STZ CW+3
12476   0 07400 2 12621          TSX COMP,B        COMPILE STQ 700000
12477   0 50000 0 01541          CLA L(CLA)
```

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4F15622
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12500   0 60100 0 16165          STO CW+1                                  4F15676
12501   0 07400 2 12621          TSX COMP,B                                4F15677
12502   0 07400 4 01731 ES0440   TSX CIT00,C    COMPILE CLA 700000         4F15678
12503   0 00000 0 01406          HTR L(0)       COMPILE FLOATING INSTRUCTIONS, WHEN 4F15679
12504   0 00000 0 01560          HTR L(LRS)     RESULT ON RIGHT IS IN ACC  4F15680
12505   0 00000 0 01406          HTR L(0)                                  4F15681
12506   0 00000 0 01466          HTR DEC18                                 4F15682
12507   0 07400 4 01731          TSX CIT00,C                               4F15683
12510   0 00000 0 01406          HTR L(0)                                  4F15684
12511   0 00000 0 01564          HTR L(ORA)                                4F15685
12512   0 00000 0 01504          HTR O(                                    4F15686
12513   0 00000 0 01406          HTR L(0)                                  4F15687
12514   0 07400 4 01731          TSX CIT00,C                               4F15688
12515   0 00000 0 01406          HTR L(0)                                  4F15689
12516   0 00000 0 01550          HTR L(FAD)                                4F15690
12517   0 00000 0 01504          HTR O(                                    4F15691
12520   0 00000 0 01406          HTR L(0)                                  4F15692
12521  -0 53400 4 01122 ES0610   LXD ARGCTR,C  IS THIS A FUNCTION STATEMENT 4F15693
12522  -3 00000 4 12405          TXL ES0730,C,0 NO                         4F15694
12523   0 50000 0 01601 ES0630   CLA L(TRA)     YES                        4F15695
12524   0 60100 0 16165          STO CW+1                                  4F15696
12525   0 60000 0 16166          STZ CW+2                                  4F15697
12526  -0 50000 0 01454          CAL 2E18                                  4F15698
12527  -0 50100 0 01412          ORA L(4)                                  4F15699
12530   0 60200 0 16167          SLW CW+3                                  4F15700
12531   0 07400 2 12621          TSX COMP,B     COMPILE TRA 1,4            4F15701
12532   0 02000 0 12601          TRA ES1590     EXIT TO FETCH STATE A      4F15702
12533   0 40200 0 01433 ES1300   SUB L(X)                                  4F15703
12534   0 10000 0 12540          TZE ES1360                                4F15704
12535  -0 76000 0 00144          SLT 4                                     4F15705
12536   0 02000 0 12542          TRA ES1380                                4F15706
12537   0 02000 0 12467          TRA ES0320                                4F15707
12540  -0 76000 0 00144 ES1360   SLT 4                                     4F15708
12541   0 02000 0 12420          TRA ES0870                                4F15709
12542  -0 76000 0 00142 ES1380   SLT 2                                     4F15710
12543   0 02000 0 12523          TRA ES0630                                4F15711
12544   0 50000 0 01573          CLA L(STQ)                                4F15712
12545   0 60100 0 16165          STO CW+1                                  4F15713
12546   0 50000 0 01505          CLA X(                                    4F15714
12547   0 60100 0 16166          STO CW+2                                  4F15715
12550   0 60000 0 16167          STZ CW+3                                  4F15716
12551   0 07400 2 12621          TSX COMP,B     COMPILE STQ 700000         4F15717
12552   0 50000 0 01541          CLA L(CLA)                                4F15718
12553   0 60100 0 16165          STO CW+1                                  4F15719
12554   0 07400 2 12621          TSX COMP,B     COMPILE CLA 700000         4F15720
12555   0 02000 0 12523          TRA ES0630                                4F15721
12556   0 07400 1 03321 ES1500   TSX TET00,1          * GO TO PROGRAM TET TO ENTER 1C,1C+1 4F15722
12557   0 00000 0 00002          PZE 2                  INTO TIFGO TABLE (TABLE 2). 4F15723
12560   0 02000 0 12565          TRA ES1530                                4F15724
12561  -0 53400 4 00030 ES1520   LXD EIFNO,4                               4F15725
12562  -0 63400 4 01123          SXD CALLNM,4   PREPARE ENTRY FOR TABLE OF CALL FIRST AND 4F15726
12563   0 07400 1 03321          TSX TET00,1    LAST IFN NUMBERS.          4F15727
12564   0 00000 0 00020              16                                    4F15728
12565  -0 76000 0 00142 ES1530   SLT 2                                     4F15729
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12566   0 02000 0 12601         TRA ES1590          EXIT TO FETCH STATE A                    4F15730
12567   0 07400 4 01731         TSX CIT00,C         COMPILE LLS 37                           4F15731
12570   0 00000 0 01406             L(0)                                                     4F15732
12571   0 00000 0 01573             L(STQ)                                                   4F15733
12572   0 00000 0 01505             X(                                                       4F15734
12573   0 00000 0 01406             L(0)                                                     4F15735
12574   0 07400 4 01731         TSX CIT00,4                                                  4F15736
12575   0 00000 0 01406             L(0)                                                     4F15737
12576   0 00000 0 01541             L(CLA)                                                   4F15738
12577   0 00000 0 01505             X(                                                       4F15739
12600   0 00000 0 01406             L(0)                                                     4F15740
12601   0 50000 0 16160 ES1590  CLA FNSW                                                     4F15741
12602   0 10000 0 03440         TZE MTR000                                                   4F15742
12603   0 50000 0 01151         CLA F-1                                                      4F15743
12604   0 40200 0 01477         SUB 5BLANS                                                   4F15744
12605   0 10000 0 03440         TZE MTR000                                                   4F15745
12606   0 50200 0 00030         CLS EIFNO                                                    4F15746
12607   0 60100 0 00030         STO EIFNO                                                    4F15747
12610   0 07400 1 03321         TSX TET00,A                                                  4F15748
12611   0 00000 0 00000         HTR 0                                                        4F15749
12612   0 50200 0 00030         CLS EIFNO                                                    4F15750
12613   0 60100 0 00030         STO EIFNO                                                    4F15751
12614   0 02000 0 03440         TRA MTR000                                                   4F15752
12615  -0 53400 2 00637 ES1710  LXD BBOX,B                                                   4F15753
12616   0 50000 0 01362         CLA OPNWRD                                                   4F15754
12617   0 60100 2 00635         STO CIB-3,B                                                  4F15755
12620   0 02000 0 03440         TRA MTR000                                                   4F15756
                                                                                             4F15757
12621   0 07400 4 01731 COMP    TSX CIT00,C                                                  4F15758
12622   0 00000 0 16164         HTR CW                                                       4F15759
12623   0 00000 0 16165         HTR CW+1                                                     4F15760
12624   0 00000 0 16166         HTR CW+2                                                     4F15761
12625   0 00000 0 16167         HTR CW+3                                                     4F15762
12626   0 02000 2 00001         TRA 1,B                                                      4F15763
                                                                                             4F15764
12627   0 50000 1 16650 AC0000  CLA SCRIPL,A                                                 4F15765
12630   0 60100 0 16170         STO TAGWRD                                                   4F15766
12631   0 50000 1 16651         CLA SCRIPL+1,A                                               4F15767
12632   0 60100 0 16171         STO OPWORD                                                   4F15768
12633   0 50000 1 16652         CLA SCRIPL+2,A                                               4F15769
12634   0 60100 0 16172         STO SYMWRD                                                   4F15770
12635  -0 50000 0 16170 AC0060  CAL TAGWRD                                                  4F15771
12636  -0 32000 0 01527         ANA MASK1          EXTRACT TAGS IN ACC.                      4F15772
12637  -0 76000 0 00001         PBT                                                          4F15773
12640   0 02000 0 12721         TRA AC0540                                                   4F15774
12641  -0 75400 0 00000         PXD 0,0            NON-SUBSCRIPTED SYMBOL                    4F15775
12642   0 56000 0 16172         LDQ SYMWRD                                                   4F15776
12643  -0 76300 0 00001         LGL 1                                                        4F15777
12644   0 76000 0 00001         LBT                                                          4F15778
12645   0 16200 0 12712         TQP AC0460         SYMBOL IS SOME S(K)                       4F15779
12646  -0 76300 0 00013         LGL 11             NON-SUBSCRIPTED EX/INTERNAL VARIABLE      4F15780
12647   0 40200 0 01444         SUB L(A()          IS THIS A FLO PT CONSTANT                 4F15781
12650   0 10000 0 12705         TZE AC0410         YES                                       4F15782
12651   0 40000 0 01444         ADD L(A()          NO                                        4F15783
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12652   0 40200 0 01446          SUB L(I()                  IS THIS A FIX PT CONSTANT                    4F15784
12653   0 10000 0 12703          TZE AC0390                 YES                                          4F15785
12654   0 40000 0 01446          ADD L(I()                  NO                                           4F15786
12655   0 40200 0 01445          SUB L(H()                  IS THIS A HOLLERITH FIELD                    4F15787
12656   0 10000 0 12701          TZE AC0350                 YES                                          4F15788
12657   0 56000 0 16171          LDQ OPWORD                 NON-SUBSCRIPTED EXTERNAL VARIABLE            4F15789
12660  -0 76300 0 00015          LGL 13                     IS THIS A FREE VARIABLE                      4F15790
12661   0 16200 0 12676          TQP AC0340                 NO                                           4F15791
12662   0 76300 0 00017          LLS 15                     YES                                          4F15792
12663   0 76000 0 00006          COM                                                                     4F15793
12664   0 40200 0 01407          SUB L(1)                                                                4F15794
12665   0 73400 2 00000          PAX 0,B                                                                 4F15795
12666  -0 75400 2 00000          PXD 0,B                                                                 4F15796
12667   0 60200 0 16167          SLW CW+3                   STORE ARGUMENT BUFFER RELATIVE ADDRESS       4F15797
12670  -0 53400 2 00470          LXD BK,B                                                                4F15798
12671  -0 50000 2 00470          CAL FORSUB-1,B                                                          4F15799
12672  -0 32000 0 01452          ANA MASK2                  EXTRACT FUNCTION STATEMENT TYPE              4F15800
12673  -0 50100 0 01503          ORA P(                                                                  4F15801
12674   0 60200 0 16166 AC0320   SLW CW+2                                                                4F15802
12675   0 02000 4 00001          TRA 1,C                    RETURN                                       4F15803
12676   0 60000 0 16167 AC0340   STZ CW+3                   NON-SUBSCRIPTED, REAL VARIABLE               4F15804
12677  -0 50000 0 16172          CAL SYMWRD                                                              4F15805
12700   0 02000 0 12674          TRA AC0320                                                              4F15806
12701  -0 50000 0 01522 AC0350   CAL H(                                                                  4F15807
12702   0 02000 0 12706          TRA AC0420                                                              4F15808
12703   0 50000 0 01501 AC0390   CLA I(                     FIX PT INTERNAL VARIABLE                     4F15809
12704   0 02000 0 12706          TRA AC0420                                                              4F15810
12705   0 50000 0 01502 AC0410   CLA A(                     FLO PT INTERNAL VARIABLE                     4F15811
12706   0 60100 0 16166 AC0420   STO CW+2                                                                4F15812
12707  -0 77300 0 00006          RQL 6                                                                   4F15813
12710  -0 60000 0 16167          STQ CW+3                                                                4F15814
12711   0 02000 4 00001          TRA 1,C                    RETURN                                       4F15815
12712  -0 76300 0 00043 AC0460   LGL 35                     SYMBOL IS SOME S(K).                         4F15816
12713   0 73400 2 00000 TDRADD   PAX 0,B                                                                 4F15817
12714  -0 50000 2 16174          CAL CPBETA,B                                                            4F15818
12715  -0 32000 0 01527          ANA MASK1                  EXTRACT PHI(K)                               4F15819
12716   0 60200 0 16167          SLW CW+3                                                                4F15820
12717  -0 50000 0 01120          CAL ARERAS                                                              4F15821
12720   0 02000 0 12674          TRA AC0320                                                              4F15822
12721   0 60200 0 16170 AC0540   SLW TAGWRD                 SUBSCRIPTED VARIABLE                         4F15823
12722   0 56000 0 16170          LDQ TAGWRD                                                              4F15824
12723  -0 75400 0 00000          PXD ,0                     CLEAR AC.                                    4F15825
12724  -0 76300 0 00014          LGL 12                     I-TAU TAGS TO AC.                            4F15826
12725   0 60200 0 16167          SLW CW+3                   STORE FOR NEXT CIT ENTRY.                    4F15827
12726   0 16200 0 12731          TQP *+3                                                                 4F15828
12727   0 60000 0 16167          STZ CW+3                                                                4F15829
12730  -0 50000 0 01454          CAL 2E18                   REPLACE NULL TAG.                            4F15830
12731   0 60200 0 16173          SLW TAGPRT                 SAVE FOR LATER USE.                          4F15831
12732  -0 76300 0 00001          LGL 1                                                                   4F15832
12733  -0 75400 0 00000          PXD ,0                     CLEAR AC.                                    4F15833
12734  -0 76300 0 00010          LGL 8                      FORM TWICE SIGMA TAG.                        4F15834
12735   0 76700 0 00001          ALS 1                                                                   4F15835
12736   0 40100 0 00446          ADM SIG1IX-2               FORM BASE OF TABLE + SIGMA TAG.              4F15836
12737   0 62100 0 12740          STA SDRADD                                                              4F15837
```

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12740 -0 75400 0 00000 SDRADD PXD **,0                                                  4F15838
12741  0 76200 0 00302         RDR 2                                                   4F15839
12742  0 46000 0 12740         LDA SDRADD                                              4F15840
12743 -0 70000 0 02365         CAD DUMP                                                4F15841
12744  0 76000 0 00006         COM                                                     4F15842
12745 -0 70000 0 02365         CAD DUMP                                                4F15843
12746  0 76000 0 00006         COM                                                     4F15844
12747  0 10000 0 12751         TZE *+2              CHECK SUM TEST.                    4F15845
12750  0 07400 4 03400         TSX DIAG,4           ERROR SIGMA1 CKSUM FAILS           4F15846
12751 -0 50000 0 02365         CAL DUMP                                                4F15847
12752 -0 60200 0 16167         ORS CW+3             ADD RELATIVE ADDRESS TO I-TAU TAG. 4F15848
12753  0 50000 0 16172         CLA SYMWRD           MOVE VARIABLE NAME FOR NEXT CIT ENTRY. 4F15849
12754  0 60100 0 16166         STO CW+2                                                4F15850
12755  0 02000 4 00001         TRA 1,4              RETURN TO CALLER                   4F15851
                                                                                       4F158511
12756  0 07400 4 03401 CP6000  TSX FLTR00,4         COMPILE FLOW TRACE INFORMATION AND THEN 4F158512
12757  0 00000 0 16164             CW               COMPILE LXD 7(TYPE =,4             4F158513
12760  0 00000 0 16165             CW+1                                                4F158514
12761  0 00000 0 16166             CW+2                                                4F158515
12762  0 00000 0 16167             CW+3                                                4F158516
12763  0 02000 0 12337         TRA ES0000                                              4F158517
                               * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F15852
                 12764 ENDD    BSS 0                                                   4F158525
                                                                                       4F15853
                 16160         ORG 3184+4096                                           4F15854
                 16160 FNSW    BSS 1                                                   4F15855
                 16161 P(CNTR  BSS 1                                                   4F15856
                 16162 ARGORG  BSS 1                                                   4F15857
                 16163 XRSAVE  BSS 1                                                   4F15858
                 16164 CW      BSS 4                                                   4F15859
                 16170 TAGWRD  BSS 1                                                   4F15860
                 16171 OPWORD  BSS 1                                                   4F15861
                 16172 SYMWRD  BSS 1                                                   4F15862
                 16173 TAGPRT  BSS 1                                                   4F15863
                 16174 CPBETA  BSS 300                                                 4F15864
                 16650 SCRIPL  BSS 600                                                 4F15865
                                END OF ARITHMETIC / STATE D.                           4F15866
                               * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F15867
                                                                                       4F15868
                               SYNONYMS USED BY SECTION ONE.                           4F15869
                 01100 1E      SYN ERASE                  COMMON WORKING STORAGE.    4F15870
                 00004 1TOCS   SYN 4                      ENTRY TO SYSTEM TAPE MONITOR. 4F15871
                 01101 2E      SYN ERASE+1                COMMON WORKING STORAGE.    4F15872
                 01501 2P      SYN I(                                                4F15873
                 01531 36ONES  SYN ALL1                                              4F15874
                 01102 3E      SYN ERASE+2                COMMON WORKING STORAGE.    4F15875
                 01117 3QBAR   SYN 3LBAR                                             4F15876
                 01103 4E      SYN ERASE+3                COMMON WORKING STORAGE.    4F15877
                 00001 A       EQU 1                                                 4F15878
                 01430 ABLANK  SYN BLANK                                             4F15879
                 01376 ACOMMA  SYN COMMA                                             4F15880
                 01532 ADD     SYN L(ADD)                                            4F15881
                 01400 AEQUAL  SYN EQUAL                                             4F15882
                 01375 ALPAR   SYN OPEN                                              4F15883
```

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06323 ARITH   SYN STATEB
01377 ARPAR   SYN CLOS
01535 ARS     SYN L(ARS)
00002 B       EQU 2
00004 C       EQU 4
01537  CAL    SYN L(CAL)
01731 CIT     SYN CIT00
01150 CITMQR  SYN E1C
00223 CITTAP  SYN 147
01101 CITXR1  SYN ERASE+1
01102 CITXR2  SYN ERASE+2
01544  CPY    SYN L(CPY)
01454 D1      SYN 2E18
01101 D12     SYN ERASE+1
01466  D18    SYN DEC18
01102 D3      SYN ERASE+2
01546  DED    SYN L(DED)
00310 DIM1    SYN 0200
00764 DIM2    SYN 0500
01440 DIM3    SYN 0800
01100 DIMCTR  SYN ERASE
01500 DMP     SYN E(
01100 DOE     SYN ERASE
01103 DRCKSM  SYN ERASE+3
01104 DRMADR  SYN ERASE+4
01413 DRMERC  SYN L(5)
01100 DRSYM   SYN ERASE
01100 E1TDR   SYN ERASE
01101 E2C     SYN ERASE+1
01101 E2TDR   SYN ERASE+1
01102 E3C     SYN ERASE+2
01102 E3TDR   SYN ERASE+2
01101 EKE     SYN ERASE+1
01103 ENOND   SYN ERASE+3
01104 FEOD    SYN ERASE+4
00002 FIXCON  SYN 0002
00312 FLOCON  SYN 202
00002 FXCODR  SYN 2
01102 H       SYN ERASE+2
01522 H(      SYN ADSPOP
01554 HPR     SYN L(HPR)
01555  LDA    SYN L(LDA)
01561 LXD     SYN L(LXD)
01373 L(10)   SYN TEN
01400 L(11)   SYN EQUAL
01420 L(12)   SYN MINUS
01454 L(1D)   SYN 2E18
01374 L(63)   SYN ENDMK
03440 MEMORG  SYN 1824
01452 MSK     SYN MASK2
03440 MTR000  SYN STATEA
01103 N       SYN ERASE+3
01404 PLUS    SYN 12Z
01566 PXD     SYN L(PXD)
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                                                    4F15885
                                                    4F15886
                                                    4F15887
                                                    4F15888
                                                    4F15889
                                                    4F15890
                                                    4F15891
ERASABLE STORAGE.                                   4F15892
COMPILED INSTRUCTION TAPE.                          4F15893
ERASABLE STORAGE.                                   4F15894
ERASABLE STORAGE.                                   4F15895
                                                    4F15896
                                                    4F15897
COMMON WORKING STORAGE.                             4F15898
                                                    4F15899
COMMON WORKING STORAGE.                             4F15900
                                                    4F15905
DRUM TABLE ORIGIN -DRTABS,DIM.SR.                   4F15906
DRUM TABLE ORIGIN -DRTABS,DIM.SR.                   4F15907
DRUM TABLE ORIGIN -DRTABS,DIM.SR.                   4F15908
COMMON WORKING STORAGE.                             4F15909
                                                    4F15910
COMMON WORKING STORAGE.                             4F15911
COMMON WORKING STORAGE.                             4F15912
ERASABLE STORAGE.                                   4F15913
NUMBER OF DRUM READING ATTEMPTS.                    4F15914
COMMON WORKING STORAGE.                             4F15915
COMMON WORKING STORAGE.                             4F15916
COMMON WORKING STORAGE.                             4F15917
COMMON WORKING STORAGE.                             4F15918
COMMON WORKING STORAGE.                             4F15919
COMMON WORKING STORAGE.                             4F15920
COMMON WORKING STORAGE.                             4F15921
COMMON WORKING STORAGE.                             4F15922
DRUM TABLE ORIGIN -DRTABS.                          4F15923
DRUM TABLE ORIGIN -DRTABS.                          4F15924
                                                    4F15925
                                                    4F15926
COMMON WORKING STORAGE.                             4F15927
                                                    4F15928
                                                    4F15929
                                                    4F15930
                                                    4F15931
                                                    4F15932
                                                    4F15933
                                                    4F15934
                                                    4F15935
                                                    4F15936
MEMORY ORIGIN FOR ALL STATES.                       4F15937
                                                    4F15938
                                                    4F15943
COMMON WORKING STORAGE.                             4F15945
                                                    4F15946
```

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01100 RAXR4   SYN ERASE                    COMMON WORKING STORAGE.                  4F15947
01226 SIGMA1  SYN 0662                     DRUM TABLE ORIGIN -DRTABS.               4F15948
01101 SR6WRK  SYN ERASE+1                  ERASABLE STORAGE.                        4F15949
01416  ST     SYN L(8)                                                             4F15950
01571 STA     SYN L(STA)                                                           4F15951
01104 STCKSM  SYN ERASE+4                  COMMON WORKING STORAGE.                  4F15952
00224 TABTAP  SYN 148                      TABLE TAPE.                              4F15953
01453 TAG4    SYN 2E17                                                             4F15954
00000 TAU1    SYN 0000                     DRUM TABLE ORIGIN -DRTABS.               4F15955
00454 TAU2    SYN 0300                     DRUM TABLE ORIGIN -DRTABS.               4F15956
01356 TAU3    SYN 0750                     DRUM TABLE ORIGIN -DRTABS.               4F15957
01413 TERC    SYN L(5)                     TAPE ERROR COUNTER.                      4F15958
01103 TETMQR  SYN ERASE+3                  ERASABLE STORAGE.                        4F15959
01102 TETWRK  SYN ERASE+2                  ERASABLE STORAGE.                        4F15960
01100 TETXR2  SYN ERASE                    ERASABLE STORAGE.                        4F15961
01101 TETXR4  SYN ERASE+1                  ERASABLE STORAGE.                        4F15962
01576  TIX    SYN L(TIX)                                                           4F15963
01504 ZER     SYN 0(                                                               4F15964
00000 **      EQU 0                                                                4F15965
                   END OF SYNONYMS USED BY SECTION ONE.                            4F15966
                  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *4F15967
                                                                                   4F15968
                   END OF SECTION ONE.                                             4F15969
                                                                                   4F15970
00000              END
```

A

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1          REM .704 FORTRAN II, SECTION V, TAG ANALYSIS, 8-1-6-2              F5G00010
1                                704 FORTRAN II, SECTION V, TAG ANALYSIS, 8-1-6-2          F5G00010
                                 DAVID STERNLIGHT      I.B.M. WORLD HEADQUARTERS  5 NOV 58.  F5G00020
                                                    INTRODUCTION                            F5G00030
                                 THE GENERAL PHILOSOPHY OF SECTION 5 IS TO REDUCE A PROGRAM  F5G00040
                                 USING AS MANY INDEX REGISTERS AS NEEDED TO ONE USING 3 INDEX F5G00050
                                 REGISTERS IN AS EFFICIENT A MEANS AS POSSIBLE, CALLING ON   F5G00060
                                 INDEX CELLS WHICH ARE STORAGE LOCATIONS, TO RETAIN DISPLACED F5G00070
                                 INFORMATION WHEN THE CONTENTS OF AN INDEX REGISTER MUST BE  F5G00080
                                 REPLACED.  THUS THE INDEX CELLS CORRESPOND TO ORIGINAL INDEX F5G00090
                                 REGISTERS USED IN THE FORTRAN OBJECT PROGRAM BEFORE SECTION5.F5G00100
                                 THE MAIN PROBLEMS SECTION 5 HANDLES ARE THOSE OF KEEPING    F5G00110
                                 INDEX CELLS UP TO DATE, AND EFFICIENTLY SEEING TO IT THAT THEF5G00120
                                 3 INDEX REGISTERS CONTAIN THE PROPER INFORMATION AT ALL      F5G00130
                                 TIMES FOR THE CORRECT EXECUTION OF TAGGED INSTRUCTIONS.      F5G00140
                                 GENERALLY, SECTION 5 COMPILES SX,S WHENEVER AN INDEX CELL    F5G00150
                                 MUST BE UPDATED SO THAT IF AN INDEX QUANTITY IS NEEDED AND   F5G00160
                                 NOT PRESENT IN AN INDEX REGISTER, AN LX CAN BE USED WITHOUT  F5G00170
                                 CONCERN ABOUT WHAT IS WIPED OUT.  THE SKILLFUL PLACEMENT OF  F5G00180
                                 THESE SX,S IS ONE OF THE MAJOR JOBS OF SECTION 5.            F5G00190
                                 THE PROGRAM IS ANALYZED USING THE CONCEPT OF BASIC BLOCKS,   F5G00200
                                 PROGRAM UNITS HAVING A SINGLE ENTRY AND EXIT POINT, AS DEFIN-F5G00210
                                 ED BY SECTION 4.  THE LINKS BETWEEN BASIC BLOCKS ARE LABELED F5G00220
                                 BY FREQUENCY IN SECTION 4, BY ACTUAL PROGRAM SIMULATION.     F5G00230
                                 SECTION 5 ANALYSES THE OBJECT PROGRAM BY STARTING WITH THE   F5G00240
                                 HIGHEST FREQUENCY LINK BETWEEN BB,S AND EXPANDING OUTWARD    F5G00250
                                 ALONG PREDECESSOR AND SUCCESSOR BASIC BLOCKS.  THE AREA FORM-F5G00260
                                 ED IN THIS MANNER IS A PORTION OF THE OBJECT PROGRAM AND IS  F5G00270
                                 CALLED A LOOPLIST.  THIS IS TREATED TO REDUCE THE NUMBER OF  F5G00280
                                 INDEX REGISTERS TO 3, IS THEN CALLED A REGION, AND CAN ENTER F5G00290
                                 FUTURE LOOPLISTS.  THE LOOPLIST PROCESS IS CONTINUED,        F5G00300
                                 CONSTANTLY EXPANDING THE TREATED AREA OF THE OBJECT PROGRAM  F5G00310
                                 BY THE INCLUSION OF ALREADY TREATED REGIONS IN  THE CURRENT  F5G00320
                                 LOOPLIST WHERE APPROPRIATE TO THE FLOW OF THE PROGRAM.  THESEF5G00330
                                 REGIONS BECOME A PART OF THIS LATEST LOOPLIST,S REGION AT THEF5G00340
                                 END OF THE LOOPLIST TREATMENT, FORMING A NEW, SINGLE REGION. F5G00350
                                 FINALLY THE ENTIRE PROGRAM HAS BEEN TREATED.  A FURTHER PRIN-F5G00360
                                 CIPLE USED BY SECTION 5 IS TO COMPILE THE UPDATING SX,S AS   F5G00370
                                 LATE AS POSSIBLE TO TRADE OBJECT PROGRAM SPACE FOR TIME,     F5G00380
                                 SINCE THE LATER THE SX IS COMPILED, THE LOWER THE FREQUENCY  F5G00390
                                 OF TRANSFERS BETWEEN BLOCKS, HENCE THE FEWER THE EXECUTIONS  F5G00400
                                 OF THE SX.                                                   F5G00410
                                 LPLST IS FORMED IN CORES BY SECTION 5 PART 1.  IT SUMMARIZES F5G00420
                                 EACH NEW REGION TO BE TREATED.  PREFIX CODES ARE 2=OPAQUE    F5G00430
                                 REGION, 1=TRANSPARENT REGION (AT LEAST ONE INDEX REGISTER    F5G00440
                                 FREE) AND PREFIX CODE 0=BASIC BLOCKS.  THE BB NUMBER         F5G00450
                                 IS CONTAINED IN THE DECREMENT OR ADDRESS.  77777 INDICATES   F5G00460
                                 LPLST ENTRY IS AT END OF REGION OR LPLST EXIT IS AT BEGINNINGF5G00470
                                 OF REGION, SPECIFIED BY BB NUMBER.  000000 INDICATES NOTHING F5G00480
                                 INTERVENING BETWEEN THAT POINT AND THE NEXT DECREMENT OR     F5G00490
                                 ADDRESS.  A WORD OF FULL SEVENS, CALLED SENTINEL, TERMINATES F5G00500
                                 LPLST.  THUS A NEW REGION TO BE TREATED MIGHT HAVE A LPLST   F5G00510
                                 BEFORE TREATMENT LIKE                                        F5G00520
                                 277777 000014                                                F5G00530
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000023 000000                                                          F5G00540
100026 000033                                                          F5G00550
200003 777777                                                          F5G00560
777777 777777.                                                         F5G00570
THIS MEANS ENTRY IN OPAQUE REGION ENDING IN BB 14, THEN COMESF5G00580
BB23, THEN IMMEDIATELY FOLLOWS A TRANSPARENT REGION FROM       F5G00590
BB 26 TO BB 33, THEN AN OPAQUE REGION ENTERING AT BB 3,        F5G00600
TERMINATING THIS LPLST.  WHEN TREATED, THIS ENTIRE LPLST       F5G00610
BECOMES A NEW, SINGLE REGION, ENCOMPASSING THE OLD REGIONS     F5G00620
AND BB,S IN IT, WHICH WILL DISAPPEAR.                          F5G00630
REG TABLE, IN CORES, HAS 1 WORD PER EXISTING REGION.  PREFIX   F5G00640
INDICATES EXISTENCE IN REGION OF LX,S TO THE IR,S ,            F5G00650
DECREMENT=FIRST BB NO. IN REGION,  TAG BITS=EMPTINESS          F5G00660
THROUGHOUT REGION OF IR,S.                                     F5G00670
     INPUT TABLES INCLUDE PRED, SUCC, BBB, ALL ON DRUM.        F5G00680
SUCC IS FIRST DRUM TABLE.  IT IS PREPARED BY SECTION 4,        F5G00690
ORDERED ON BB NUMBER.  IT IS PING PONGED BETWEEN DRUM AND      F5G00700
CORES BY THE SE6 ROUTINE.                                      F5G00710
THE WORD FORMAT IS SIGN BIT MADE NEGATIVE BY X89 WHEN A LINK   F5G00720
IS TREATED.  BITS 1-14=FREQUENCY OF LINK,  ADDRESS=NO. OF      F5G00730
SUCCESSOR BASIC BLOCK.                                         F5G00740
PRED IS THE SECOND DRUM TABLE.  IT IS PREPARED BY SECTION 4.   F5G00750
PRED IS ORDERED ON BB NUMBER AND PING PONGED BETWEEN DRUM ANDF5G00760
CORES BY THE SE5 ROUTINE.                                      F5G00770
WORD FORMAT IS SIGN BIT NEGATIVE WHEN LINK TREATED.            F5G00780
BITS 1-14=FREQUENCY OF LINK.  BITS 15-17 CALL FOR LX,S TO      F5G00790
THE 3 INDEX REGISTERS AND BITS 18-20 CALL FOR SX,S TO APPRO-   F5G00800
PRIATE INDEX CELLS.  THESE SX,S WILL LATER BE COMPILED         F5G00810
BETWEEN BASIC BLOCKS BY PART 4 OF SECTION 5.  THE ADDRESS      F5G00820
CONTAINS THE NUMBER OF THE PREDECESSOR BASIC BLOCK.            F5G00830
BBB IS THE THIRD DRUM TABLE, AND IS PREPARED BY SECTION 4.     F5G00840
THERE IS A 6 WORD ENTRY FOR EACH BB, AND A FINAL DUMMY ENTRY.F5G00850
THE SE AND SE1 ROUTINES PING PONG BBB BETWEEN DRUM AND CORES.F5G00860
WORD FORMAT FROM SECTION 4.  FIRST WORD DECR=STARTING POINT    F5G00870
IN SUCC,  ADDRESS=STARTING POINT IN PRED OF ENTRIES            F5G00880
REFERRING TO THIS BASIC BLOCK.  FIRST WORD PREFIX CONTAINS     F5G00890
CODE DESCRIBING TYPE OF ENDING BB HAS.  CODING IS....          F5G00900
000=DO WITH AN IF,  001=MSE,  010=PROBABILITY BRANCH           F5G00910
011=CERTAINTY BRANCH,  100=DO WITHOUT AN IF,  101=GO TO N,     F5G00920
110=STOP.  SECOND WORD, BITS 12-17=PERMUTATION NUMBERS,        F5G00930
INITIALIZED TO 33 BY SECTION 4.  ADDRESS=ORDINAL NUMBER OF     F5G00940
FIRST TAGLIST ENTRY BELONGING TO THIS BB.  REMAINING WORDS     F5G00950
INITIALIZED TO ZEROES BY SECTION 4.                            F5G00960
IN SECTION 5 PART 1, FURTHER ENTRIES ARE MADE.  SECOND WORD    F5G00970
BITS S-2 INDICATE IR ACTIVITY IN THIS BB.  PERMUTATION NOS.    F5G00980
MAY UNDERGO CHANGE.  WORDS 3-5 RECORD ENTRY AND EXIT CONDS.    F5G00990
FOR THE 3 INDEX REGISTERS IN THE DECREMENT AND ADDRESS.        F5G01000
WORD 6 DECR=REGION NUMBER BB CURRENTLY BELONGS TO.             F5G01010
ADDRESS=NUMBER OF NEXT BB IN REGION.                           F5G01020
STAG IS THE FOURTH DRUM TABLE.  INITIALIZED TO ZEROES AT SEC.F5G01030
5 PART 1 START.  ONE 4 BIT ENTRY FOR EACH TAGLIST INSTRUCTIONF5G01040
IS MADE IN SECTION 5 PART 1 AND READ IN PART 4.  BITS S-8      F5G01050
CALL FOR AN SX PRECEDING THE TAGLIST INSTRUCTION,  BITS 9-17 F5G01060
FOR AN LX FOLLOWING.  BITS 18-35 IN PAIRS SPECIFY THE INDEX    F5G01070
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REGISTER TAGLIST INSTRUCTION IS TO USE.  THUS PRED RECORDS    F5G01080
INTER BB LX,S AND SX,S AND STAG RECORDS INTRA-BB LX,S AND     F5G01090
SX,S.  STAG IS HANDLED BY THE SE4 ROUTINE.                    F5G01100
CMTAG, THE CORE BUFFER FOR TAGLIST, HAS THE SAME WORD         F5G01110
FORMAT, THAT IS, THE DECREMENT CONTAINS THE INSTRUCTION       F5G01120
CLASS, CODED FROM 0 TO 6, AND THE ADDRESS CONTAINS THE        F5G01130
SYMBOLIC ADDRESS, AS FOLLOWS,   BITS 24-26 CONTAIN TAU 1,2,   F5G01140
OR 3, AND BITS 27-35 CONTAIN THE NUMBER OF THE ENTRY IN THAT F5G01150
TAU TABLE.  NOTE THAT IN THE OUTPUT, THE SYMBOLIC ADDRESS OF F5G01160
INDEX CELLS IS, TAU 1=G,  TAU 2=10, TAU 3=1G, AND THIS        F5G01170
SYMBOL IS FOLLOWED BY THE NUMBER OF THE ENTRY.  THUS A        F5G01180
TAGLIST ENTRY IN THE ADDRESS OF 003005 BECOMES 1G5, THAT IS,  F5G01190
TAU 3, ENTRY 5.  THE INSTRUCTION CLASSES AS FOLLOWS,  IN DECRF5G01200
L=LXA,LXD,PAX,PDX.   2=LXP.  3=DED.  4 IS UNUSED BUT AVAIL.   F5G01210
FOR TNX.  5=ACTIVE INSTR LIKE TIX AND TXI.  6=PASSIVE INSTR.  F5G01220
A PASSIVE INSTR IS A TAGGED INSTR THAT DOES NOT CHANGE THE    F5G01230
CONTENTS OF THE INDEX REGISTER.  7=UNUSED BUT AVAIL. FOR TIX. F5G01240
WHEN 7 IS USED FOR A TIX, IT REPRESENTS A TIX USED AS A       F5G01250
TRANSFER, NOT AN ACTIVE TIX.  ACTIVE INSTRUCTIONS MAY         F5G01260
BE RECOGNIZED BY THEIR ADDRESSES, WHICH ARE OF THE FORM *+Q   F5G01270
WHERE Q IS SOME CONSTANT.                                     F5G01280
CORE INFORMATION TRANSFERRED BETWEEN SECTION 4 AND SECTION 5  F5G01290
IS IN THE LAST 4 CORE LOCATIONS, CALLED KEYS.                 F5G01300
GIVING DRUM TABLE LENGTHS.  TAPE TABLES USED FOR INPUT        F5G01310
INCLUDE TAGLIST AND CIT.  INTERMEDIATE TABLES INCLUDE THE     F5G01320
ABOVE AND STAG, LPLST, CMTAG, AND REG.  CMTAG IS A CORE       F5G01330
BUFFER FOR TAGLIST.  THE DRUM TABLES ALSO APPEAR IN CORE      F5G01340
IN BUFFER LOADS WHEN THE SOURCE PROGRAM EXCEEDS A CERTAIN     F5G01350
COMBINATION OF THE FACTORS OF LENGTH AND COMPLEXITY OF        F5G01360
TRANSFER STRUCTURE.  OUTPUT TABLES INCLUDE CIT ON TAPE.       F5G01370
TAGLIST, ON TAPE 3, IS HANDLED BY THE S4 SUBROUTINE.  IT IS AF5G01380
SEQUENTIAL LIST OF ALL TAGGED OBJECT PROGRAM INSTRUCTIONS     F5G01390
RESULTING FROM SECTION 3.  EACH ENTRY IS ONE WORD.  THE       F5G01400
PREFIX DESCRIBES THE TYPE OF INSTRUCTION AND THE ADDRESS      F5G01410
CONTAINS SYMBOLIC INDEX REGISTER,S NAME.                      F5G01420
     BY USING LARGER MACHINE SIZE THAN 4K, THE PROGRAM        F5G01430
TABLE SPACE IN CORE CAN BE INCREASED, PROVIDING FASTER        F5G01440
COMPILING AND REDUCING THE AMOUNT OF DRUM PING PONGING.       F5G01450
IN ADDITION, SENSE SWITCH 4, WHEN DOWN, PROVIDES UP TO        F5G01460
20 PER CENT FASTER COMPILING ON LARGER SOURCE PROGRAMS, AT     F5G01470
A NEGLIGIBLE LOSS, IN MOST CASES, IN OBJECT PROGRAM           F5G01480
EFFICIENCY.  THIS SENSE SWITCH HAS NO EFFECT ON SHORTER       F5G01490
PROGRAMS.                                                     F5G01500
     IN ORDER TO INCREASE TABLE SPACE AS DESCRIBED ABOVE,     F5G01510
SECTION IV OF FORTRAN, THE FLOW PASS OF TAG ANALYSIS, MUST    F5G01520
BE ADJUSTED AS TO LENGTHS OF DRUM TABLE BUFFER LOADS PASSED   F5G01530
ON TO SECTION V, AND THE POSITION OF INFORMATION AT THE END   F5G01540
OF CORES , HERE SAID TO BE IN KEYS, MUST BE CHANGED.          F5G01550
IN SECTION V, MSIZE AS WELL AS OTHER ITEMS SPECIFIED IN       F5G01560
THE FOLLOWING PARAMETER LIST MUST BE CHANGED.                 F5G01570
                    8-1-6-2 PARAMETER LIST                    F5G01580
20000  MSIZE EQU 8192          8-1-6-2 MEMORY SIZE            F5G01590
00226    FP1 EQU 150           8-1-6-2 REG TABLE SIZE         F5G01600
00074   S3P1 EQU 60            8-1-6-2 LPLST TABLE SIZE       F5G01610
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                    00360     STL EQU 240              8-1-6-2 STAG LENGTH                                F5G01620
                                                 FIXED PARAMETER LIST, INDEP. OF CORESIZE                F5G01670
                    17774    KEYS SYN MSIZE-4          CONSTANTS TO RELATE PROGRAM TO TABLES              F5G01680
                                      ORDER OF DRUM TABLES IS SUCC STARTING AT ZERO, FOLLOWED BY         F5G01690
                                      PRED, BBB, AND STAG, WHICH IS FILLED IN BY SECTION V.              F5G01700
                                      THE ORDER OF INFORMATION IN KEYS IS ... KEYS=NUMBER OF BBS,        F5G01710
                                      KEYS+1=START OF PRED, KEYS+2=START OF BBB, AND KEYS+3=STAG.        F5G01720
                    00004 INSTTP EQU 4                 COMPILED INST ON TAPE 4                            F5G01730
                    00003   TAPE EQU 3                 OUTPUT TAPE IS 3                                   F5G01740
                    00003  OTAPE EQU 3                 OUTPUT TAPE IS 3                                   F5G01750
                    00003    BLT EQU 3                 BLOCK LIST ON TAPE 3                               F5G01760
                    00002  ACTPE EQU 2                 ASSIGN CONSTANTS ON TAPE 2                         F5G01770
                    00001  RECNO EQU 1                 NO OF CIT RECORDS IN AT ONE TIME                   F5G01780
                    00144  ZINST EQU RECNO*100         LENGTH OF INST TABLE                               F5G01790
                    00144  LCLST EQU 100               LENGTH OF OUTPUT BLOCK, COMPILED INSTR             F5G01800
                    00200   NSXD EQU 128               NO. OF SXD CASES IN SXD LIST                       F5G01810
                    00024   PTL1 EQU 20                SPACE FOR PATCHES, PART 1                          F5G01811
                    00051   PTL2 EQU 41                SPACE FOR PATCHES, PART 2.                         F5G01812
                    00052   PTL3 EQU 42                SPACE FOR PATCHES, PART 3                          F5G01813
                    00042  PTL4  EQU 34                SPACE FOR PATCHES, PART 4.                         F5G01814
                    00000    SET EQU 0                 INITIAL DRUM ADDRESS                               F5G01820
                    00000      K EQU 0                 INITIAL DRUM ADDRESS                               F5G01830
                                                 EDITOR RECORD NO. 75                                    F5G01840
                                      FOR CONTROL CARD INFORMATION, SEE END OF ASSEMBLY.                  F5G01850
                                            NO DIAGNOSTIC CALLER FOLLOWS                                  F5G01870
                                                 PART 1A                                                  F5G01880
                                      OPTIMIZE INDEXING EXCEPT FOR PERMUTATION, GO TO N,                  F5G01890
                                      INSTRUCTION COMPILATION.                                            F5G01900
                    00030          ORG 24                                                                 F5G01910
                                       ROUTINE TO TRANSFER NEXT                                           F5G01920
                                         PROGRAM PART                                                     F5G01930
00030  0 76200 0 00221 R       RTB 1  SKIP DIAGNOSTIC                                                     F5G01940
00031  0 02000 0 00004         TRA 4   READ NEXT PROGRAM RECORD                                           F5G01950
                                      THE ROUTINES SE, SE1, SE4, SE5, SE6 MANIPULATE DRUM TABLES         F5G01960
                                      SUCC, PRED, BBB, AND STAG.  THEY ARE ENTERED WITH THE WANTED       F5G01970
                                      ITEM IN THE AC.  THEY LOAD IX1 FOR IMMEDIATE REFERENCE TO THE      F5G01980
                                      STATED ITEM.  AFTER SAVING CORES ON THE DRUM WHERE NECESSARY,      F5G01990
                                      THEY BRING IN THE APPROPRIATE PART OF DRUM TABLES.  IF THE         F5G02000
                                      ITEM IS ALREADY IN CORES, OF COURSE NO SAVING OR DRUM              F5G02010
                                      MANIPULATION IS NECESSARY.                                         F5G02020
                                                                                                         F5G02030
00032  0 76700 0 00022 SE4     ALS 18                                                                     F5G02040
00033 -0 32000 0 00303         ANA SEK4                                                                   F5G02050
00034  0 07400 2 00101         TSX SE21,2                                                                 F5G02060
                                       PARAMETERS FOR STAG TABLE                                         F5G02070
00035  0 00000 0 00000 STAGP   HTR 0 N(0)                                                                 F5G02080
00036  0 00000 0 00000         HTR 0 N(1)                                                                 F5G02090
00037  0 00360 0 00000         HTR 0,0,STAGL N(S)                                                         F5G02100
00040  0 00000 0 00000         HTR 0,0,SET N(L)                                                           F5G02110
00041  0 00000 0 00001         HTR 1 S                                                                    F5G02120
00042  0 00000 0 00000         HTR SET D(0)                                                               F5G02130
00043  0 00000 0 05263         HTR STAG A                                                                 F5G02140
                                       PARAMETERS FOR SUCC. TABLE                                        F5G02150
00044 -0 32000 0 00303 SE6     ANA SEK4                                                                   F5G02160
00045  0 07400 2 00101         TSX SE21,2
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00046  0 00000 0 00000  SUCCP HTR 0                N(0)                          F5G02170
00047 -000000000001            OCT -1 N(1)                                       F5G02180
00050  0 01037 0 00000         HTR 0,0,SUCCL N(S)                                F5G02190
00051  0 00000 0 00000         HTR SET N(L)                                      F5G02200
00052  0 00000 0 00001         HTR 1 S                                           F5G02210
00053  0 00000 0 00000         HTR 0 D(0)                                        F5G02220
00054  0 00000 0 16734         HTR SUCC A                                        F5G02230
                                PARAMETERS FOR PRED. TABLE                       F5G02240
                                                                                 F5G02250
00055  0 76700 0 00022 SE5     ALS 18                                            F5G02260
00056 -0 32000 0 00303         ANA SEK4                                          F5G02270
00057  0 07400 2 00101         TSX SE21,2                                        F5G02280
00060  0 00000 0 00000  PREDP  HTR 0                N(0)                          F5G02290
00061 -000000000001            OCT -1 N(1)                                       F5G02300
00062  0 01037 0 00000         HTR 0,0,PREDL N(S)                                F5G02310
00063  0 00000 0 00000         HTR SET N(L)                                      F5G02320
00064  0 00000 0 00001         HTR 1 S                                           F5G02330
00065  0 00000 0 00000         HTR SET D(0)                                      F5G02340
00066  0 00000 0 15674         HTR PRED A                                        F5G02350
                                PARAMETERS FOR BBB TABLE                         F5G02360
00067  0 76700 0 00022 SE1     ALS 18 BB NO. IN ADDR.                            F5G02370
00070 -0 32000 0 00303 SE      ANA SEK4 BB NO. IN DECR.                          F5G02380
00071  0 07400 2 00101         TSX SE21,2                                        F5G02390
00072  0 00000 0 00000  BBBP   HTR 0                N(0) IN DECR. 1ST BB IN CM    F5G02400
00073 -000000000001            OCT -1 N(1) IN DECR,LAST BB IN CM +1              F5G02410
00074  0 00420 0 00000         HTR 0,0,BBBL N(S) IN DECR,NO.+ BBS POS. IN CM     F5G02420
00075  0 00000 0 00000         HTR SET N(L) IN DECR,NO. OF BBS                   F5G02430
00076  0 00000 0 00006         HTR 6 S IN ADDR.,NO. OF WDS PER BB                F5G02440
00077  0 00000 0 00000         HTR SET D(0) IN ADDR.,INITIAL DRUM ADDR.          F5G02450
00100  0 00000 0 12533         HTR BBB A IN ADDR.,INITIAL CM ADDR                F5G02460
                                2 ED PARAMETER IS + OR - ACCORDING               F5G02470
                                AS CM BLOCK IS FULL OR EMPTY                     F5G02480
                                SR FOR SHUFFLING TABLES TO AND FROM DRUM         F5G02490
00101  0 60100 0 00306 SE21    STO SEV2 STORE ITEM NO.,N                         F5G02500
00102  0 34000 2 00002         CAS 2,2 IS N IN CM                                F5G02510
00103  3 00000 0 00000         TXH -,-,-                                         F5G02520
00104 -3 00000 0 00106         TXL SE42,0,-                                      F5G02530
00105  0 02000 0 00156         TRA SE41 POSSIBLY                                 F5G02540
00106 -0 63400 4 00311 SE42    SXD SEV5,4 NO,STORE RETURN INDEX                  F5G02550
00107  0 50000 2 00002         CLA 2,2                                           F5G02560
00110 -0 12000 0 00120         TMI SE35 IS CM BLOCK EMPTY                        F5G02570
00111  0 07400 4 00262         TSX SE22,4 NO,FORM CHECK SUM                      F5G02580
00112  0 50000 0 00273         CLA SE23                                          F5G02590
00113  0 62100 0 00115         STA SE24 STORE                                    F5G02600
00114  0 50000 0 00307         CLA SEV3 CHECK                                    F5G02610
00115  0 60100 0 00000 SE24    STO SET SUM                                       F5G02620
00116  0 50000 0 00277         CLA SEK                                           F5G02630
00117  0 07400 4 00166         TSX SE26,4                                        F5G02640
00120  0 50000 0 00314 SE35    CLA ZERO                                          F5G02650
00121  0 56000 0 00306         LDQ SEV2 N(0)=(INT. PT. (N/N(S)).N(S)             F5G02660
00122  0 22100 2 00003         DVP 3,2                                           F5G02670
00123  0 20000 2 00003         MPY 3,2                                           F5G02680
00124 -0 60000 2 00001         STQ 1,2 N(1)=MIN (N (0)+N(S),N(L))                F5G02690
00125  0 50000 2 00001         CLA 1,2                                           F5G02700
00126  0 40000 2 00003         ADD 3,2
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00127  0 56000 2 00004          LDQ 4,2                                                                F5G02710
00130 -0 60000 2 00002          STQ 2,2                                                                F5G02720
00131  0 04000 0 00133          TLQ SE36                                                               F5G02730
00132  0 60100 2 00002          STO 2,2                                                                F5G02740
00133  0 50000 0 00300 SE36     CLA SEK1 TRANSFER IN A                                                 F5G02750
00134  0 07400 4 00166          TSX SE26,4 BLOCK OF THE TABLE                                          F5G02760
00135  0 07400 4 00262          TSX SE22,4 CHECK SUM                                                   F5G02770
00136  0 50000 0 00273          CLA SE23 COMPARE                                                       F5G02780
00137  0 62100 0 00140          STA SE37 CHECK                                                         F5G02790
00140  0 50000 0 00000 SE37     CLA SET SUMS                                                           F5G02800
00141  0 34000 0 00307          CAS SEV3                                                               F5G02810
00142  0 02000 0 00144 SE45     TRA SE43                                                               F5G02820
00143  0 02000 0 00152          TRA SE40 AGREE                                                         F5G02830
00144 -0 53400 4 00151 SE43     LXD TPCT,4     REPEAT 5 TIMES                                          F5G02840
00145  1 00001 4 00146          TXI SE44,4,1                                                           F5G02850
00146 -0 63400 4 00151 SE44     SXD TPCT,4                                                             F5G02860
00147 -3 00004 4 00133          TXL SE36,4,4           TRY AGAIN                                       F5G02870
00150  0 07400 4 00004          TSX 4,4      TRIED 5 TIMES GO TO DIAGNOSTIC                            F5G02880
                                NOTE ON THIS 150 STOP.  THIS DRUM CHECKSUM STOP MAY BE CAUSED          F5G02890
                                BY MACHINE ERROR.                                                      F5G02900
                                IF IX 2 CONTAINS       TABLE IS  AND CHECK                             F5G02910
                                77744                  STAG      40                                    F5G02920
                                77732                  SUCC      51          ALL                       F5G02930
                                77721                  PRED      63        OCTAL                       F5G02940
                                77707                  BBB       75                                    F5G02950
                                TO SEE IF THE CHECKED LOCATION CONTENTS ARE LESS                       F5G02960
                                THAN THE CONTENTS OF 306 OCTAL.  IF SO, SOURCE PROGRAM, RATH-          F5G02970
                                ER THAN MACHINE ERROR IS LIKELY.  THE ERROR COULD BE                   F5G02980
                                A.  TRANSFER TO A NON-EXECUTABLE INSTRUCTION.                          F5G02990
                                B.  UNREACHABLE EXECUTABLE INSTRUCTION IN PROGRAM.                     F5G03000
                                C.  LAST STATEMENT OF A DO IS A TRANSFER.                              F5G03010
                                D.  INCORRECT NUMBER OF ENTRIES IN A FREQUENCY STATEMENT.              F5G03020
00151 -0 00000 0 00000  TPCT    HTR -                                                                  F5G03030
00152 -0 63400 0 00151 SE40     SXD TPCT,0     RESET TAPECOUNT                                         F5G03040
00153 -0 53400 4 00311          LXD SEV5,4 RESTORE RETURN INDEX                                        F5G03050
00154  0 50000 0 00306          CLA SEV2 GET N AGANIN                                                  F5G03060
00155  0 02000 0 00156          TRA SE41                                                               F5G03070
                                 THE ITEM MIGHT BE IN STORAGE                                          F5G03080
00156  0 40200 2 00001 SE41     SUB 1,2 N-N(0)                                                         F5G03090
00157 -0 12000 0 00106          TMI SE42 DOES IT LIE IN STORAGE                                        F5G03100
00160  0 76500 0 00043          LRS 35 YES,INDEX=                                                      F5G03110
00161  0 20000 2 00005          MPY 5,2 COM((N-N(0).S)                                                 F5G03120
00162  0 76300 0 00021          LLS 17                                                                 F5G03130
00163  0 40200 0 00304          SUB SEK5                                                               F5G03140
00164  0 73400 1 00000          PAX 0,1                                                                F5G03150
00165  0 02000 4 00001          TRA 1,4                                                                F5G03160
                                 DRUM TRANSFER SUBROUTINE PROPER                                       F5G03170
00166 -0 63400 4 00310 SE26     SXD SEV4,4 STORE RETURN INDEX AND ITEM NO. TO BE TRANSFERRED           F5G03180
00167  0 60100 0 00260          STO SE25 STORE READ-WRITE INDICATOR                                    F5G03190
00170  0 56000 2 00003          LDQ 3,2 FORM                                                           F5G03200
00171  0 20000 2 00005          MPY 5,2 N(S)*S+1                                                       F5G03210
00172  0 76300 0 00021          LLS 17 AND                                                             F5G03220
00173  0 40000 0 00315          ADD ONEA STORE                                                         F5G03230
00174  0 60100 0 00305          STO SEV1 IT                                                            F5G03240
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00175   0 50000 0 00314         CLA ZERO FORM                                F5G03250
00176   0 56000 2 00001         LDQ 1,2 ((N(0)/N(S))                         F5G03260
00177   0 22100 2 00003         DVP 3,2      (N(S)(S+1))                     F5G03270
00200   0 20000 0 00305         MPY SEV1                                     F5G03280
00201  -0 60000 0 00305         STQ SEV1 INITIAL DRUM ADDRESS                F5G03290
00202   0 50000 2 00006         CLA 6,2 =D(0)+(NON(S))$(N(S)•S=1)            F5G03300
00203   0 40000 0 00305         ADD SEV1                                     F5G03310
00204   0 60100 0 00313         STO SEV7 SET LDA INSTRUCTIONS                F5G03320
00205   0 76700 0 00007         ALS 7 COMPUTE THE                            F5G03330
00206   0 76000 0 00006         COM  DRUM SELECTION                          F5G03340
00207  -0 73400 1 00000         PDX 0,1 INDEX                                F5G03350
00210   0 07400 4 00260         TSX SE25,4 SELECT DRUM                       F5G03360
00211   0 50000 2 00002         CLA 2,2                                      F5G03370
00212   0 40200 2 00001         SUB 1,2 (N(1)-N(0))S                         F5G03380
00213   0 76500 0 00065         LRS 53 INTO MQ.                              F5G03390
00214   0 20000 2 00005         MPY 5,2                                      F5G03400
00215   0 50000 0 00313         CLA SEV7 FORM NO• OF                         F5G03410
00216  -0 32000 0 00301         ANA SEK2 WORDS LEFT ON                       F5G03420
00217   0 40200 0 00302         SUB SEK3 DRUM GROUP                          F5G03430
00220   0 76000 0 00003         SSP                                          F5G03440
00221   0 04000 0 00247         TLQ SE31 MUST BLOCK BE SPLIT                 F5G03450
00222   0 73400 4 00000         PAX 0,4 YES                                  F5G03460
00223   0 40000 2 00007         ADD 7,2 SET INDEX AND                        F5G03470
00224   0 62100 0 00236         STA SE27 COMPUTE ADDRESS OF 1ST CPY          F5G03480
00225   0 40200 2 00007         SUB 7,2 COMPUTE NO•                          F5G03490
00226  -0 60000 0 00305         STQ SEV1 OF WORDS IN                         F5G03500
00227   0 40200 0 00305         SUB SEV1 2 ED TRANSFER                       F5G03510
00230   0 40200 0 00315         SUB ONEA                                     F5G03520
00231   0 76000 0 00003         SSP                                          F5G03530
00232   0 60100 0 00305         STO SEV1                                     F5G03540
00233   0 40000 0 00236         ADD SE27                                     F5G03550
00234   0 62100 0 00243         STA SE29 SET 2 ED CPY                        F5G03560
00235   0 46000 0 00313 SE28    LDA SEV7                                     F5G03570
00236   0 70000 4 00000 SE27    CPY SET,4 TRANSFER                           F5G03580
00237   2 00001 4 00236         TIX SE27,4,1 1ST BLOCK OF WORDS              F5G03590
00240   2 00001 1 00241         TIX SE30,1,1 DECREASE C(1) BY 1              F5G03600
00241   0 07400 4 00260 SE30    TSX SE25,4 SELECT DRUM                       F5G03610
00242   0 53400 4 00305         LXA SEV1,4                                   F5G03620
00243   0 70000 4 00000 SE29    CPY SET,4 TRANSFER                           F5G03630
00244   2 00001 4 00243         TIX SE29,4,1 2 EDBLOCK                       F5G03640
00245  -0 53400 4 00310 SE34    LXD SEV4,4                                   F5G03650
00246   0 02000 4 00001         TRA 1,4 RETURN                               F5G03660
00247   0 76300 0 00043 SE31    LLS 35 (N(1)-N(0)).S+1                       F5G03670
00250   0 40000 0 00315         ADD ONEA WORDS ARE TO                        F5G03680
00251   0 73400 4 00000         PAX 0,4 BE TRANSFERED                        F5G03690
00252   0 40000 2 00007         ADD 7,2•                                     F5G03700
00253   0 62100 0 00255         STA SE32                                     F5G03710
00254   0 46000 0 00313 SE33    LDA SEV7                                     F5G03720
00255   0 70000 4 00000 SE32    CPY SET,4                                    F5G03730
00256   2 00001 4 00255         TIX SE32,4,1                                 F5G03740
00257   0 02000 0 00245         TRA SE34                                     F5G03750
00260   0 76200 1 00300 SE25    RDS 192,1 (OR WRS) DRUM                      F5G03760
00261   0 02000 4 00001         TRA 1,4 SELECTION SUBROUTINE•                F5G03770
                                     CHECK SUM SUBROUTINE                    F5G03780
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00262   0 50000 2 00002 SE22    CLA 2,2                                                                  F5G03790
00263   0 40200 2 00001         SUB 1,2 COMPUTE                                                          F5G03800
00264   0 76500 0 00043         LRS 35 (N(1)-N(0)).S                                                     F5G03810
00265   0 20000 2 00005         MPY 5,2 THE NUMBER OF WORDS                                              F5G03820
00266   0 76300 0 00021         LLS 17 TO BE SUM                                                         F5G03830
00267   0 73400 1 00000         PAX 0,1 CHECKED                                                          F5G03840
00270   0 40000 2 00007         ADD 7,2 COMPUTE AND STORE                                                F5G03850
                                 ADDRESS OF WORD                                                       F5G03860
00271   0 62100 0 00273         STA SE23 FOLLOWING LAST TABLE WORD.                                      F5G03870
00272   0 50000 0 00314         CLA ZERO CLEAR SUM CHECK.                                                F5G03880
00273   0 36100 1 00000 SE23    ACL -,1      FORM THE                                                    F5G03890
00274   2 00001 1 00273         TIX SE23,1,1 SUM CHECK.                                                  F5G03900
00275   0 60200 0 00307         SLW SEV3                                                                 F5G03910
00276   0 02000 4 00001         TRA 1,4                                                                  F5G03920
00277   0 76600 1 00300 SEK     WRS 192,1 WRS,192,1                                                      F5G03930
00300   0 76200 1 00300 SEK1    RDS 192,1 RDS,192,1                                                      F5G03940
00301   0 00000 0 03777 SEK2    HTR 2047 MASK TO EXTRACT LAST 11 BIT                                     F5G03950
00302   0 00000 0 04000 SEK3    HTR 2048 2048 IN ADDR.                                                   F5G03960
00303   0 77777 0 00000 SEK4    HTR 0,0,-1          IN DECR. PART                                        F5G03970
00304   0 00000 1 00000 SEK5    HTR 0,1 2 15                                                             F5G03980
00305   0 00000 0 00000  SEV1        NS.S+1 TEMP STORAGE                                                F5G03990
00306   0 00000 0 00000  SEV2        STORAGE OF N (DECR.)                                               F5G04000
00307   0 00000 0 00000  SEV3        STORAGE OF CK SUM.                                                 F5G04010
00310   0 00000 0 00000  SEV4        RETURN FROM SE 26                                                  F5G04020
00311   0 00000 0 00000  SEV5        RETURN FROM SE                                                     F5G04030
00312   0 00000 0 00000  SEV6        STORE N TO BE TRANSFERRED                                          F5G04040
00313   0 00000 0 00000  SEV7        INITIAL DRUM ADDR.                                                 F5G04050
00314 +000000000000      ZERO   OCT 0                                                                   F5G04060
00315   0 00000 0 00001 ONEA    HTR 1                                                                    F5G04070
00316   0 00001 0 00000 ONED    HTR 0,0,1                                                                F5G04080
                                 CONSTANTS USED IN S1                                                  F5G04090
00317   0 00006 0 00000 S1K2    HTR 0,0,6 CONSTANT WHICH LOOKS LIKE PASS. REF.                           F5G04100
00320   0 00000 0 00010 S1K3    HTR 8 NO. OF S3 VARIABLES SAVED.                                         F5G04110
                  00317 C       SYN S1K2                                                               F5G04120
00321   0 77777 0 00000 S2K1    HTR 0,0,-1 ONES IN DECR. PART.                                           F5G04130
00322   0 00001 0 00000 S2K2    HTR 0,0,1 CONST. USED TO TEST FOR LX.                                    F5G04140
00323 -377777777777      S3K1   OCT -377777777777 END LOOP LIST SENTENIAL                              F5G04150
00324   0 77777 7 77777 S3K2    HTR -1,-1,-1 USED FOR CF TO FIND OUT IF THIS      IS BB                F5G04160
00325   0 00074 0 00000 S3K3    HTR 0,0,S3P1 INITIALIZING CONST. FOR LOOP LIST                           F5G04170
00326 +000000777777      S3K4   OCT 777777 MASK TO EXTRACT LAST 1/2 WORD.                               F5G04180
00327   0 77777 0 00000 S3K5    HTR 0,0,-1 MASK TO EXTRACT INST. TYPE                                    F5G04190
                                 CONSTANTS OF S4                                                       F5G04200
00330   0 00000 0 04615 S4K1        CMTL SIZE OF STORAGE FOR TAG TABLE.                                F5G04210
00331   0 00000 0 00017 S4K2    HTR 15 NO OF TAGS PER RECORD.                                            F5G04220
00332   0 00000 0 05716 S4K3    HTR CMTAG                                                                F5G04230
                                 THE L CONSTANTS MUST BE AHEAD OF THOSE FOR S5                         F5G04240
00333 +000000777776      LK1    OCT 777776 E,HASH SYMBOL                                               F5G04250
00334 -200000000000      LK2    OCT -200000000000 CONSTANTS FOR EXTRACTING                             F5G04260
00335 -300000000000      LK3    OCT -300000000000 1ST 2,3 BITS OF WORD RESPT.                          F5G04270
                                 CONSTANTS FOR MATCHING SUBROUTINE                                     F5G04280
00336 +000000777777      S5K1   OCT 777777 PHI,EMPTINESS                                               F5G04290
00337 +000000777775      S5K2   OCT 777775 CONSTANT USED TO TEST FOR REAL TAGS                          F5G04300
00340 -000000000000      S5K3   OCT -0 -0                                                              F5G04310
00341   0 00000 0 00002 S5K4    HTR 2 +2                                                                 F5G04320
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00342   0 00000 0 00003 S5K5    HTR 3 +3                                                F5G04330
00343   0 00000 0 00010 S5K6    HTR 8 +8                                                F5G04340
00344   0 00000 0 00004 S9K1    HTR 4 +4                                                F5G04350
00345   0 00000 1 00000 S9K2        0,1 MASK FOR PHI DIGIT NO. 1                        F5G04360
00346   0 00000 2 00000             0,2 MASK FOR PHI DIGIT NO. 2                        F5G04370
00347   0 00000 4 00000             0,4 MASK FOR PHI DIGIT NO. 3                        F5G04380
00350   0 00003 0 00000 S9K3    HTR 0,0,3 MASK TO EXTRACT 2 BITS IN DECR.               F5G04390
00351   0 00000 0 07776 SAK1        4094            CONST  USED TO TEST NON EXISTENT BB F5G04400
                                    CONSTANTS OF SB                                     F5G04410
00352 +001000000000     SBK1    OCT +001000000000 CONST. USED TO GENERATE SX BIT. AD.   F5G04420
00353   0 00000 0 77777 SBK2    HTR -1 USED TO EXTRACT ADDR.                            F5G04430
00354   0 00004 0 00000 SBK3    HTR 0,0,4 CONST. TO GENERATE SX BIT FOR TRANSFER        F5G04440
00355   0 04741 0 00000 SCK1    HTR 0,0,LPLST                                           F5G04450
00356 +177777077777     FK1     OCT 177777077777          TRANSPARANT REGION CONST      F5G04460
00357 +277777077777     FK2     OCT 277777077777       OPAQUE REGION CONST              F5G04470
00360   0 00000 7 00000 FK3     HTR 0,7 MASK TO EXTRACT TAG.                            F5G04480
00361 +177777777777     FK4     OCT 177777777777 CONST TO TEST FOR OPAQUE REG.          F5G04490
00362   0 00000 0 00226 FK5     HTR FP1 LENGTH OF REGION LIST                           F5G04500
00363 -000000000000     XK3     OCT -0 3 CONSTANTS USED TO                              F5G04510
00364 +200000000000             OCT 200000000000 CHANGE REGION WDS.                     F5G04520
00365 +100000000000             OCT 100000000000 TO INDICATE IRS LX ED.                 F5G04530
00366 -377776000000     XK4     OCT -377776000000 E,HASH SYMBOL,IN LQT HALF             F5G04540
00367 -300000000000     XK5     OCT -300000000000 MASK FOR PREFIX                       F5G04550
00370 +200000000000     XK6     OCT 200000000000                                        F5G04560
00371   0 00000 0 00011 XK9     HTR 9                                                   F5G04570
                  00363 XK10    SYN XK3 MASK TO EXTRACT 1ST IN BB FIT.                  F5G04580
00372 +000001000000     XK11    OCT 1000000 CONST. TO GENERAGE LX BIT.                  F5G04590
00373   0 00005 0 00000 XK12    HTR 0,0,5 4 CONSTS. USED TO TEST FOR ACTIVE             F5G04600
00374   0 00004 0 00000 XK13    HTR 0,0,4 TNX                                           F5G04610
00375   0 00007 0 00000 XK14    HTR 0,0,7 TIX                                           F5G04620
00376   0 00002 0 00000 XK15    HTR 0,0,2 LXP                                           F5G04630
00377   0 00000 4 00000 XK16    HTR 0,4 CONST. TO GENERATE LX BIT.                      F5G04640
00400   1 00000 0 00000 XK17    PON             CONST. TO SEPARATE TYPES                F5G04650
                  00366 XK18    SYN XK4 E IN LEFT HALF WORD.                            F5G04660
00401 -377777000000     XK19    OCT -377777000000 MASK LEFT HALF WORD.                  F5G04670
00402 -377700777777     XK20    OCT -377700777777 CONST. TO DELETE PERM. NOS.           F5G04680
00403   0 00003 0 00000 XK21    HTR 0,0,3 CONST. TO TEST FOR DED INST.                  F5G04690
00404 -377777077777     XK22    OCT -377777077777 CONST. TO DELETE PHIS.                F5G04700
00405   0 00000 1 00000 XK23    HTR 0,1                                                 F5G04710
00406   0 00000 2 00000         HTR 0,2                                                 F5G04720
00407   0 00000 4 00000         HTR 0,4                                                 F5G04730
00410   0 00000 0 00000  S1V1       TEMP. STORAGE FOR                                   F5G04740
00411   0 00000 0 00000         HTR -                                                   F5G04750
00412   0 00000 0 00000         HTR -           1ST 9 VARIABLES                         F5G04760
00413   0 00000 0 00000         HTR -           IN S3                                   F5G04770
00414   0 00000 0 00000         HTR -                                                   F5G04780
00415   0 00000 0 00000         HTR -                                                   F5G04790
00416   0 00000 0 00000         HTR -                                                   F5G04800
00417   0 00000 0 00000         HTR -                                                   F5G04810
00420   0 00000 0 00000  S1V3                   THE CLA IN S3                           F5G04820
00421   0 00000 0 00000  S1V4                   RETURN INDEX                            F5G04830
00422   0 00000 0 00000  S1V5                   (+/-)=DECIDE ON (MOST/LEAST) REPL. I.R. F5G04840
00423   0 00000 0 00000  S1V6                   TEMP                                    F5G04850
00424   0 00000 0 00000  S1V7                   STORAGE                                 F5G04860
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00425  0 00000 0 00000  IR1
00426  0 00000 0 00000  IR2
00427  0 00000 0 00000  IR3
00430  0 00000 0 00000  IRR
00431  0 00000 0 00000 IND1
00432  0 00000 0 00000 IND2
00433  0 00000 0 00000 IND3
00434  0 00000 0 00000  IN4

00435  0 00000 0 00000  S3V1
00436  0 00000 0 00000  S3V2
00437  0 00000 0 00000  S3V3
00440  0 00000 0 00000  S3V4
00441  0 00000 0 00000  1TAG
00442  0 00000 0 00000  TPE
00443  0 00000 0 00000  INTAG
00444  0 00000 0 00000  S3V5
00445  0 00000 0 00000  S3V8
00446  0 00000 0 00000  S3V6
00447  0 00000 0 00000  S3V7
00450  0 00000 0 00000  S3V9

00451  0 00000 0 00000  S4V1
00452  0 00000 0 00000  S4V2
00453  0 00000 0 00000  S4V3

00454  0 00000 0 00000  S4V4

00455  0 00000 0 00000 IR4
00456  0 00000 0 00000 IR5
00457  0 00000 0 00000 IR6
00460  0 00000 0 00000 ENC
00461  0 00000 0 00000 IRC

00462  0 00000 0 00000 IN1
00463  0 00000 0 00000 IN2
00464  0 00000 0 00000 IN3
00465  0 00000 0 00000 EN4
00466  0 00000 0 00000 EN5
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THE IR1,2,3 CELLS SIMULATE OBJECT MACHINE INDEX REGISTERS,    F5G04870
AND CONTAIN A REAL TAG, THE EMPTY SYMBOL 777777, OR THE HASH F5G04880
SYMBOL 777776. (HASH MEANS THE REGISTER IS NOT EMPTY BUT      F5G04890
ITS CONTENTS HAVE NO VALUE, I.E. LXP COMPILED IN SECTION 3 ORF5G04900
DED COMPILED IN SECTION 2. (LXP IS A WARNING THAT ALTHOUGH IRF5G04910
IS VALUELESS, IT WILL BE LOADED VERY SOON WITH A NEW VALUE.))F5G04920
                                                              F5G04930
              THE 3 I.R.S IN                                  F5G04940
              THE LAST 1/2 OF REGISTER                        F5G04950
                                                              F5G04960
              HOLDS 3,2,1 IF IR1,2,3 SELECTED                 F5G04970
 + OR - ACCORDING AS IR1 FOUND OR IR1 NOT FOUND               F5G04980
+ OR - ACCORDING AS IR2 FOUND OR IR2 NOT FOUND                F5G04990
+ OR - ACCORDING AS IR3 FOUND OR IR3 NOT FOUND                F5G05000
          +F OR - IF IR HAS OR HASNT BEEN FOUND               F5G05010
 VARIABLES OF S3 SUBROUTINE                                   F5G05020
 LOCATION OF 1ST TAG IN BB                                    F5G05030
 TAG COUNTER,IN DECR. PART.                                   F5G05040
 + NO. OF TAGS LEFT IN BB AFTER T1X,OR-                       F5G05050
 LOOP LIST INDEX.                                             F5G05060
 THE TAN-TAG                                                  F5G05070
 THE TYPE OF INSTR.                                           F5G05080
 TAG + INSTR. TYPE (ENTRY IN TAG LIST)                        F5G05090
 LOOP LIST QUANTITY                                           F5G05100
 RETURN INDEX                                                 F5G05110
 (1ST TAG IN BB-1ST TAG IN C.M.)                              F5G05120
 NO. OF WORDS LEFT IN C.M.                                    F5G05130
 (+/-)= (THIS IS NOT NEW BB/THIS IS NEW BB)                   F5G05140
 VARIABLES OF S4                                              F5G05150
 LOC OF 1ST TAG IN CMTAG                                      F5G05160
 LOC OF 1ST TAG IN NEXT RECORD (TAPE POS.)                    F5G05170
 (LOC OF LAST TAG)+ 1                                         F5G05180
 ABOVE MUST BE SET AT START.                                  F5G05190
 (LOC. OF 1ST TAG IN BB-POS OF TAPE)                          F5G05200
 VARIABLES FOR MATCHING SUBROUTINE S5                         F5G05210
 TEMP. STORAGE FOR C (IR1)                                    F5G05220
 TEMP. STORAGE FOR C (IR2)                                    F5G05230
 TEMP. STORAGE FOR C (IR3)                                    F5G05240
 COUNTER OF =                                                 F5G05250
 COUNTER OF =                                                 F5G05260
THE IN 1,2,3,  EN4,5,6 CELLS ARE LOADED BY THE S5 ROUTINE     F5G05270
FOR PERMUTATION OF INDEX REGISTER ASSIGNMENT THROUGHOUT AN     F5G05280
ALREADY TREATED REGION UPON ENTRY TO THIS REGION IN LPLST.    F5G05290
OPTIMIZED MATCH TO CURRENT CONTENTS OF IR1,2,3 IS SECURED BY  F5G05300
PERMUTING THE ENTIRE REGION AS NECESSARY.  THE IN1,2,3        F5G05310
AND EN4,5,6 CELLS LINK THE OUTMODED SYSTEM EN1,2,3,  EX1,2,3  F5G05320
ACT1,2,3 FOR THIS REGION WITH THE ABSOLUTE SYSTEM IR1,2,3,    F5G05330
AC1,2,3,  LX1,2,3.  FOR EXAMPLE EN4 IS 3,2,OR1 DEPENDING ON  F5G05340
WHETHER THE CORRESPONDENT OF EN1 IS IR 1,2,OR 3.  INVERSELY, F5G05350
IN1 IS 3,2,OR1 FOR THE CORRESPONDENT OF IR1 EQUAL TO EN1,2,3. F5G05360
 INDEX OF CORRES OF IR1                                       F5G05370
 INDEX OF CORRES OF IR2                                       F5G05380
 INDEX OF CORRES OF IR3                                       F5G05390
 INDEX OF CORRES OF EN1                                       F5G05400
 INDEX OF CORRES OF EN2
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00467  0 00000 0 00000 EN6        INDEX OF CORRES OF EN3                                                    F5G05410
00470  0 00000 0 00000 EN1        THE ENTRANCE REQUIREM                                                     F5G05420
00471  0 00000 0 00000 EN2        ENTS EN1,ENZ,EN3.                                                         F5G05430
00472  0 00000 0 00000 EN3                                                                                  F5G05440
00473  0 00000 0 00000 S5V1       TEMP. STORE FOR RETURN INDEX.                                             F5G05450
00474  0 00000 0 00000 S5V2       TEMP STORE FOR LOOP LIST QUANT.                                           F5G05460
00475  0 00000 0 00000 S9V1       TEMP. STORE FOR BB NO.                                                    F5G05470
00476  0 00000 0 00000 S9V2       TEMP. STORE FOR RETURN INDEX                                              F5G05480
00477  0 00000 0 00000 S9V4       TEMP. STORE FOR REGION WORD.                                              F5G05490
                                  VARIABLES OF SA SUBROUTINE (WHICH GETS EXIT CONDTITIONS)                  F5G05500
00500  0 00000 0 00000 SAV1       TEMP STORE FOR PERMUTATION NOS.                                           F5G05510
00501  0 00000 0 00000 SAV2       RETURN INDEX.                                                             F5G05520
00502  0 00000 0 00000 SAV3       TEMP. STORE FOR REGION WORD.                                              F5G05530
                                 THE EX1,2,3 CELLS CONTAIN THE EXIT REQUIREMENTS FOR A BB THAT             F5G05540
                                 HAS ALREADY BEEN TREATED.                                                 F5G05550
00503  0 00000 0 00000 EX1        3 EXIT CONDITIONS                                                         F5G05560
00504  0 00000 0 00000 EX2                                                                                  F5G05570
00505  0 00000 0 00000 EX3                                                                                  F5G05580
                                 THE ACT 1,2,3 CELLS CONTAIN ACTIVITY OF AN ALREADY TREATED BB             F5G05590
00506  0 00000 0 00000 ACT1       3 ACTIVE                                                                  F5G05600
00507  0 00000 0 00000       HTR -              INDICATORS                                                  F5G05610
00510  0 00000 0 00000       HTR -                                                                         F5G05620
                                  VARIABLES OF SB                                                          F5G05630
00511  0 00000 0 00000 SBV1       RETURN INDEX                                                              F5G05640
00512  0 00000 0 00000 SBV2       TEMP. STORAGE.                                                            F5G05650
00513  0 00000 0 00000 SBV3       TEMP. STORAGE.                                                            F5G05660
00514  0 00000 0 00000 SBV4       INDEX OF REGISTER WHICH IS ACTIVE.                                        F5G05670
00515  0 00000 0 00000 SBV5       STORAGE FOR PERMUTATION NOS.                                              F5G05680
00516  0 00000 0 00000 SCV1       RETURN INDEX                                                              F5G05690
00517  0 00000 0 00000 SCV2       INDEX OF BB.                                                              F5G05700
00520  0 00000 0 00000 SCV3       INDEX OF POSITION IN LOOP LIST                                            F5G05710
00521  0 00000 0 00000 ACIND             + OR - MEANS 2ED OR ACTIVE PASS                                    F5G05720
00522  0 00000 0 00000 SDV1       STORE FOR RETURN INDEX.                                                   F5G05730
00523  0 00000 0 00000 SDV2       INDEX OF ACTIVE I.R.                                                      F5G05740
00524  0 00000 0 00000 SDV3       THE PERMUTATION NOS.                                                      F5G05750
00525  0 00000 0 00000 SDV4       TEMP. STORE FOR INDEX OF BB                                               F5G05760
00526  0 00000 0 00000 SFV1       ACTIVE INDICATOR FORMED HERE.                                             F5G05770
00527  0 00000 0 00000 SFV2       RETURN INDEX.                                                             F5G05780
00530  0 00000 0 00000 SGV1                  RETURN INDEX                                                   F5G05790
00531  0 00000 0 00000 SGV2                  PERMUTED REGION WORD                                           F5G05800
00532  0 00000 0 00000 FV1        HIGHEST FREQ. IN REGION (I.C. PRED. TABLE ENTRY)                          F5G05810
00533  0 00000 0 00000 FV2        BB NO. OF BB HAVING HIGHEST FREQ. (ADDR.)                                 F5G05820
00534  0 00000 0 00000 FV3        PRED. NO. (I.C. 0TH WORD FROM BB. (ADDR.)                                 F5G05830
00535  0 00000 0 00000 FV4        WORD HAVING REGION NO. (5TH BB WORD)                                      F5G05840
00536  0 00000 0 00000 FV5        CURRENT BB NO. BEING CONSIDERED. (ADDR.)                                  F5G05850
00537  0 00000 0 00000 FV6        RETURN INDEX OF F1,F80                .                                   F5G05860
00540  0 00000 0 00000 FV7        PRED. NO. BEING CONSIDERED IN B.B. (ADDR.)                                F5G05870
00541  0 00000 0 00000 FV8        FIRST PRED. FROM NEXT B.B. (ADDR.)                                        F5G05880
00542  0 00000 0 00000 FV9       0,0,-     TEMP STORE FORCURRENT SUCC IN DECR ONLY                         F5G05890
00543  0 00000 0 00000 FV10      0,0,-      TEMP STORE IN DECR ONLY, CURRENT SUCC                          F5G05900
00544  0 00000 0 00000 FV101      HIGHEST FREQ. IN BB (PRED. TABLE ENTRY)                                   F5G05910
00545  0 00000 0 00000 FV102      BB NO. BEING CONSIDERED. (ADDR.)                                          F5G05920
00546  0 00000 0 00000 FV103      PRED. NO. (0TH WORD FROM BB) (ADDR.)                                      F5G05930
00547  0 00000 0 00000 FV104      WORD HAVING REGION. NO.                                                   F5G05940
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00550  0 00000 0 00000 LPIND          + OR - IF IT ISNT OF IS A LOOP                    F5G05950
00551  0 00000 0 00000 LV1      THE CONDITIONS OF THE I.R.S                             F5G05960
00552  0 00000 0 00000 LV2      AT END OF THE                                           F5G05970
00553  0 00000 0 00000 LV3      1ST LXING PASS.                                         F5G05980
00554  0 00000 0 00000 LV4      THE LOOP LIST QUANTITY                                  F5G05990
00555  0 00000 0 00000 LV5      WORD FROM BB WITH PRED. AND SUCC. LOCS                  F5G06000
                                VARIABLES OF 2ED LXING PASS.                          F5G06010
                               ACTIVITY. WHEN SIMULATING A NEW BB IN THE 2ND LXING PASS, F5G06020
                               IF AN LX, TXI, OR TIX IS ENCOUNTERED, THE APPROPRIATE INDEX F5G06030
                               REGISTER BECOMES ACTIVE. THIS IS PLUS ACTIVITY. IF THE SAMEF5G06040
                               REGISTER MUST BE DISPLACED IN THE SAME LPLST, SB IS ENTERED F5G06050
                               TO RECORD AN SX NECESSARY. SINCE THE ACTIVITY IS PLUS, THE F5G06060
                               SX WILL BE COMPILED IN STAG IMMEDIATELY AFTER THE ACTIVE   F5G06070
                               INSTRUCTION. THIS SX ENDS THE ACTIVITY, COMPLETELY TAKING  F5G06080
                               CARE OF THE PROBLEM. AT THE END OF LPLST, IF THE INDEX     F5G06090
                               REGISTER IS STILL ACTIVE, OR IF, DURING LPLST, AN ACTIVE   F5G06100
                               REGISTER FALLS OBSOLETE BY A DED OR LXD, THEN ALL THE BLOCKS F5G06110
                               IN WHICH IT IS ACTIVE ARE MARKED BY SC, MAKING THIS ACTIVITY F5G06120
                               MINUS. THIS, UNLIKE PLUS ACTIVITY, CAN NEVER BE ENDED. THE F5G06130
                               APPEARANCE OF A MINUS BB IN A FUTURE LPLST CAUSES THE      F5G06140
                               APPROPRIATE AC1,2,OR3 TO CONTAIN MINUS ACTIVITY AND WHENEVER F5G06150
                               THE CORRESPONDING INDEX REGISTER MUST BE DISPLACED, AN SB  F5G06160
                               ENTRY WILL CAUSE AN SX TO BE COMPILED IN THE PRED LINK FROM F5G06170
                               THAT BB. THIS POSTPONEMENT OF SX COMPILATION AFTER AN ACTIVEF5G06180
                               INSTRUCTION FOR AS LONG AS POSSIBLE PRODUCES A LARGER NUMBER F5G06190
                               OF SX,S THAN STRICTLY NECESSARY, BUT PLACES THEM IN LOW    F5G06200
                               FREQUENCY PATHS, TRADING OBJECT PROGRAM SPACE FOR OBJECT   F5G06210
                               PROGRAM TIME.                                             F5G06220
                               THE AC1,2,3 CELLS DESCRIBE THE ACTIVITY STATUS OF IR1,2,3. F5G06230
                               ZERO...NOT ACTIVE, PLUS ACTIVITY...ACTIVE INSTRUCTION IN A F5G06240
                               BB NOT TREATED UNTIL THIS LPLST. AC1,2,3 CONTAINS INFO.    F5G06250
                               FOR SB TO MAKE A STAG ENTRY AT THE ACTIVE INSTRUCTION.     F5G06260
                               MINUS ACTIVITY...ACTIVE INSTR. IN BB ALREADY IN A REGION.  F5G06270
                               AC1,2,3 CONTAINS INFO. FOR SB TO MAKE A PRED ENTRY AT LINK F5G06280
                               OUT OF THE REGION.                                        F5G06290
00556  0 00000 0 00000 AC1      3 ACTIVE INDICATORS,+0 MEANS NOT ACTIVE                 F5G06300
00557  0 00000 0 00000 AC2      IF + VE,THEN ACTIVE THING IS INSTR., DECR. IS           F5G06310
00560  0 00000 0 00000 AC3      LOC. OF BB IN LOOP LIST,ADDR. IS LOC. OF Y-TAG. IF-VE,  F5G06320
00561  0 00000 0 00000      HTR 0 ACTIVE THING IS TRANSFER, LOC. IN LP LST IN DECR.     F5G06330
                               THE LX1,2,3 CELLS CONTAIN THE ENTRANCE REQUIREMENTS FOR A BB.F5G06340
00562  0 00000 0 00000 LX1      3 ENTRANCE REQUIREMENTS OF A BB                         F5G06350
00563  0 00000 0 00000 LX2      BUILT UP HERE. +0 MEANS                                 F5G06360
00564  0 00000 0 00000 LX3      NO ENTRANCE REQU. DETERMINED.                           F5G06370
00565  0 00000 0 00000 XV1      IN DECR., INDEX OF CURRENT REGION                       F5G06380
00566  0 00000 0 00000 XV2      THE NEW REGION WORD.                                    F5G06390
00567  0 00000 0 00000 XV3      THE WORD POSITION IN STAG                               F5G06400
00570  0 00000 0 00000 XV4      THE DIGIT INDEX WITHIN THE WORD.                        F5G06410
00571  0 00000 0 00000 XV5      THE LOCATION OF CURRENT TAG (INSTR.)                    F5G06420
00572  0 00000 0 00000 XV6      NEAR X07,C.F. OF TNX BRANCH,NEAR X85, TAG               F5G06430
00573  0 00000 0 00000 XV7      X07 TO X09+,INDEX OF BB,NEAR X85,TAG                    F5G06440
00574  0 00000 0 00000 XV8      INDEX OF BB NEAR X33                                    F5G06450
                               PERMUTATION. WHEN INDEX REGISTER ASSIGNMENTS THROUGHOUT AN F5G06460
                               ALREADY TREATED REGION ARE PERMUTED, STAG, PRED AND BBB MUST F5G06470
                               BE UPDATED. INSTEAD, WORD 2 OF BBB CONTAINS PERMUTATION   F5G06480
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                                                NUMBERS THROUGH WHICH THESE TABLES ARE READ, AND UPDATING     F5G06490
                                                REQUIRES ONLY THESE NUMBERS TO BE CHANGED.  IN SECTION 5 PARTF5G06500
                                                2 WHEN THE FINAL CONFIGURATION HAS BEEN REACHED, THE TABLES  F5G06510
                                                THEMSELVES ARE ACTUALLY UPDATED.                             F5G06520
00575   0 00000 0 00000 XV9                      THE PERMUTATION NOS.                                        F5G06530
00576   0 00000 0 00000 XV10                     INDEX OF I.R. IN BB CONSIDERED.                             F5G06540
00577   0 00000 0 00000 XV11                                                                                F5G06550
00600   0 00000 0 00000 XV12                                                                                F5G06560
00601   0 00000 0 00000 XV13                     INDEX OF PARTICULAR BB X40 ON                               F5G06570
00602   0 00000 0 00000 XV14                     TEMP. STORE FOR 2 INDEXES                                   F5G06580
00603   0 00000 0 00000 XV15                     WHILE USING SUBROUTINE.                                     F5G06590
00604   0 00000 0 00000 XV16                     TEMP. STORE FOR PRED.=,X91-2+X90,X92 X97 ON                 F5G06600
00605   0 00000 0 00000 XV17                     TEMP. STORE FOR OLD REGION WD.,X74                          F5G06610
00606   0 00000 0 00000 XV18                     IN ADDR.,X111,NO. OF SUCC. WE SEARCH FOR.                   F5G06620
00607   0 00000 0 00000 XV19                        TEMP STORE FOR PREVIOUS LPLST QUANTITY                   F5G06630
00610   0 00000 0 00000 XV20                           TEMP STORE IN DECR. ONLY                              F5G06640
00611   0 00000 0 00000 XV21                           TEMP STORE FOR TAG NEAR X43                           F5G06650
00612   0 00000 0 00000 XV22                         NUMBER OF LAST BB FOR WHICH REGION NO. WAS ADDED        F5G06660
00613   0 00000 0 00000 XV23                        DECR ONLY , TEMP STORE FOR REGION INDEX                  F5G06670
00614   0 00000 0 00000 XV24                              0 OR NOT0 IF IS OR ISNT SAME AS 1ST REGION         F5G06680
00615   0 00000 0 00000 AV1                      TEMP. STORE FOR PRED. TABLE ENTRY.                          F5G06690
00616   0 00000 0 00000 AV2                      TEMP. STORE FOR INDEX OF I.R.                               F5G06700
00617   0 00000 0 00000 AV3                      TEMP. STORE FOR PERM. NOS.                                  F5G06710
                                                THE S1 AND S111 ROUTINES SELECT THE MOST (S1) OR THE LEAST   F5G06720
                                                (S111) REPLACEABLE INDEX REGISTERS BY SCANNING AHEAD         F5G06730
                                                THROUGH LPLST.  THE IR WHOSE CONTENTS ARE REQUIRED AGAIN     F5G06740
                                                SOONEST (LAST) IS THE LEAST (MOST) REPLACEABLE.  THESE       F5G06750
                                                ROUTINES USE THE S2 SUBROUTINE, WHICH ACTUALLY TRIES TO      F5G06760
                                                SELECT AN IR.                                                F5G06770
00620  -0 76000 0 00003 S111    SSM  SET INDICATOR TO-MEANING                                                F5G06780
00621   0 02000 0 00623          TRA S109 SEARCH FOR LEAST REPLACEABLE I.R.                                   F5G06790
00622   0 76000 0 00003 S1       SSP  SET INDICATOR TO + MEANING                                              F5G06800
00623   0 60100 0 00422 S109     STO S1V5 SEARCH FOR MOST REPLACEABLE I.R.                                    F5G06810
00624  -0 63400 4 00421          SXD S1V4,4 STORE RETURN INDEX.                                               F5G06820
00625  -0 76000 0 00003          SSM  SET                                                                     F5G06830
00626   0 60100 0 00431          STO IND1 INDICATORS                                                          F5G06840
00627   0 60100 0 00432          STO IND2 TO                                                                  F5G06850
00630   0 60100 0 00433          STO IND3 NOT                                                                 F5G06860
00631   0 60100 0 00434          STO IN4 FOUND.                                                               F5G06870
00632  -0 53400 2 00641          LXD S123,2 SET TO LOOP FOR EMPTY I.R.                                        F5G06880
00633   0 53400 1 00342 S119     LXA S5K5,1        SET COUNT TO 3, N TO 1                                     F5G06890
00634   0 50000 1 00430 S120     CLA IR1+3,1 IS IRN EMPTY OR                                                  F5G06900
00635   0 34000 2 00000          CAS 0,2 (FILLED WITH HASH)                                                   F5G06910
00636  -3 77445 0 00640 S121     TXL S122,0,-LK1 NO, COM(LOC. OF HASH) IN DECR.                               F5G06920
00637   0 02000 0 00644          TRA S124 YES,                                                                F5G06930
00640   2 00001 1 00634 S122     TIX S120,1,1 NO,COUNT TO 3,N=N+1                                             F5G06940
00641   3 77442 2 00662 S123     TXH S127,2,-S5K1 HAVE WE LOOKED FOR HASH                                     F5G06950
00642  -0 53400 2 00636          LXD S121,2 NO,SET TO LOOP FOR HASH.                                          F5G06960
00643   0 02000 0 00633          TRA S119                                                                     F5G06970
00644   0 50200 0 00422 S124     CLS S1V5 LOOKING FOR MOST REPLACEABLE                                        F5G06980
00645  -0 12000 0 00656          TMI S129 I.R.                                                                F5G06990
00646   0 60100 1 00434          STO IND1+3,1 NO, RECORD IRN ELIMINATED                                       F5G07000
00647   0 56000 0 00434          LDQ IN4                                                                      F5G07010
00650   0 60100 0 00434          STO IN4 RECORD SOME IR ELIMINATED                                            F5G07020
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00651   0 16200 0 00653         TQP S128 HAS AN IR BEEN ELIMINATED BEFORE                F5G07030
00652   0 02000 0 00640         TRA S122                                  NO,            F5G07040
00653   0 53400 1 00342 S128    LXA S5K5,1 SET COUNT TO 3,N=1                            F5G07050
00654   0 50000 1 00434 S126    CLA IND1+3,1 HAS IRN                                     F5G07060
00655   0 12000 0 00660         TPL S125 BEEN ELIMINATED                                 F5G07070
00656  -0 63400 1 00430 S129    SXD IRR,1 NO,SELECT IRN                                  F5G07080
00657   0 02000 4 00001         TRA 1,4 AND RETURN.                                      F5G07090
00660   2 00001 1 00654 S125    TIX S126,1,1 COUNT TO 3,N=N+1                            F5G07100
00661   0 07400 4 00004 S130    TSX 4,4 DIAGNOSTIC, THERE IS AN ERROR.                   F5G07110
00662   0 50000 0 01122 S127    CLA S39                                                  F5G07120
00663   0 60100 0 00420         STO S1V3 STORE ASIDE                                     F5G07130
00664   0 53400 4 00320         LXA S1K3,4 THE                                           F5G07140
00665   0 50000 4 00445 S112    CLA S3V1+8,4 STATE                                       F5G07150
00666   0 60100 4 00420         STO S1V1+8,4 OF THE                                      F5G07160
00667   2 00001 4 00665         TIX S112,4,1 S3 ROUTINE.                                 F5G07170
00670   0 07400 4 01023 S11     TSX S3,4 GET NEXT TAG                                    F5G07180
00671   0 02000 0 00706         TRA S103 COME HERE IF TAG NOT GOT.                       F5G07190
00672   0 50000 0 00410         CLA S1V1                                                 F5G07200
00673   0 34000 0 00435         CAS S3V1 IS THE LOOP COMPLETED                           F5G07210
00674   0 02000 0 00676         TRA S104 NO                                              F5G07220
00675   0 02000 0 00701         TRA S135 PERHAPS                                         F5G07230
00676   0 07400 4 00766 S104    TSX S2,4 NO                                              F5G07240
00677   0 02000 0 00745         TRA S16 COME HERE IF IR DECIDED ON                       F5G07250
00700   0 02000 0 00670         TRA S11 COME HERE IF NOT DECIDED ON                      F5G07260
00701   0 50000 0 00411 S135    CLA S1V1+1 IS THE LOOP COMPLETED                         F5G07270
00702   0 34000 0 00436         CAS S3V2                                                 F5G07280
00703   0 02000 0 00676         TRA S104                                                 F5G07290
00704   0 02000 0 00741         TRA S102 YES                                             F5G07300
00705   0 02000 0 00676         TRA S104                                                 F5G07310
00706   0 34000 0 00323 S103    CAS S3K1 IS THIS AN END LOOP LIST                        F5G07320
00707   0 02000 0 00711         TRA S105 NO                                              F5G07330
00710   0 02000 0 00763         TRA S101 YES                                             F5G07340
00711   0 50000 0 00444 S105    CLA S3V5 GET LOOP LIST QUANTITY AGAIN.                   F5G07350
00712   0 34000 0 00324         CAS S3K2 IS IT A BB                                      F5G07360
00713   0 76100 0 00000         NOP  NO,IT IS EITHER A TRANSPARENT                       F5G07370
00714   0 02000 0 00716         TRA P001                OR OPAQUE REGION                 F5G07380
00715   0 02000 0 00670         TRA S11 YES                                              F5G07390
00716   0 34000 0 00417   P001  CAS S1V1+7                                               F5G07400
00717   0 02000 0 00721         TRA S136                                                 F5G07410
00720   0 02000 0 00741         TRA S102                                                 F5G07420
00721   0 07400 4 00070 S136    TSX SE,4 GET BB WHICH CONTAINS ENTR. REQU.               F5G07430
00722   0 56000 0 00317         LDQ S1K2 MAKE THIS LOOK LIKE A                           F5G07440
00723  -0 60000 0 00442         STQ TPE PASSIVE REFERENCE.                               F5G07450
00724   0 53400 4 00342         LXA S5K5,4 SET COUNT TO 3.                               F5G07460
00725  -0 50000 1 12535 S115    CAL BBB+2,1     PUT THIS TAU TAG                         F5G07470
00726   0 77100 0 00022         ARS 18 IN LOCATION                                       F5G07480
00727   0 60200 0 00441         SLW 1TAG           TAG                                   F5G07490
00730  -0 63400 1 00423         SXD S1V6,1 STORE THE                                     F5G07500
00731  -0 63400 4 00424         SXD S1V7,4 INDEXES.                                      F5G07510
00732   0 07400 4 00766         TSX S2,4 TRY TO SELECT AN I.R.                           F5G07520
00733   0 02000 0 00745         TRA S16 COME HERE IF I.R. SELECTED.                      F5G07530
00734  -0 53400 1 00423         LXD S1V6,1 AND HERE IF NOT. RESTORE                      F5G07540
00735  -0 53400 4 00424         LXD S1V7,4 THE INDEXES.                                  F5G07550
00736   1 77777 1 00737         TXI S114,1,-1     DECREASE ENTR. INDEX                   F5G07560
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00737  2 00001 4 00725 S114   TIX S115,4,1 COUNT TO 3.                                F5G07570
00740  0 02000 0 00670        TRA S11                                                F5G07580
00741  0 50000 0 00431 S102   CLA IND1 HAS C(IR1) BEEN                               F5G07590
00742  0 12000 0 00756        TPL S13 FOUND (ELIMINATED)                             F5G07600
00743  0 53400 4 00342 S18    LXA S5K5,4 NO,SELECT                                   F5G07610
00744 -0 63400 4 00430 S15    SXD IRR,4 IR1.                                         F5G07620
00745  0 53400 4 00320 S16    LXA S1K3,4 RESTORE S3 (GET NEXT TAG SR)                F5G07630
00746  0 50000 4 00420 S113   CLA S1V1+8,4 TO STATE                                  F5G07640
00747  0 60100 4 00445        STO S3V1+8,4 BEFORE                                    F5G07650
00750  2 00001 4 00746        TIX S113,4,1 S1 WAS USED.                              F5G07660
00751  0 50000 0 00420        CLA S1V3                                               F5G07670
00752  0 60100 0 01122        STO S39                                                F5G07680
00753  0 07400 4 01133        TSX S4,4 MAKE SURE SAME TAGS ARE IN CM.                F5G07690
00754 -0 53400 4 00421        LXD S1V4,4                                             F5G07700
00755  0 02000 4 00001 S14    TRA 1,4 RETURN                                         F5G07710
00756  0 50000 0 00432 S13    CLA IND2 HAS IR2 BEEN                                  F5G07720
00757  0 12000 0 00762        TPL S107 FOUND (ELIMINATED)                            F5G07730
00760  0 53400 4 00341 S108   LXA S5K4,4 NO,SELECT                                   F5G07740
00761  0 02000 0 00744        TRA S15 IR2.                                           F5G07750
00762  0 07400 4 00004 S107   TSX 4,4 DIAGNOSTIC, THERE IS AN ERROR                  F5G07760
                                OF SOME KIND.                                      F5G07770
                                                                                   F5G07780
00763  0 56000 0 00550 S101   LDQ LPIND IS THIS                                      F5G07790
00764  0 16200 0 00741        TQP S102 A LOOP                                        F5G07800
00765  0 02000 0 00670        TRA S11 YES                                            F5G07810
00766  0 50000 0 00441  S2    CLA 1TAG            PUT TAU-TAG IN AC.                 F5G07820
00767  0 53400 1 00342        LXA S5K5,1 SET COUNT TO 3.                             F5G07830
00770  0 56000 1 00434 S22    LDQ IND1+3,1                                           F5G07840
00771  0 16200 0 00775        TQP S21 BEEN FOUND                                     F5G07850
00772  0 34000 1 00430        CAS IR1+3,1     NO, IS TAU TAG EQUAL                   F5G07860
00773  0 02000 0 00775        TRA S21 NO,TO C(IRN)                                   F5G07870
00774  0 02000 0 00777        TRA S24 YES                                            F5G07880
00775  2 00001 1 00770 S21    TIX S22,1,1 NO.                                        F5G07890
00776  0 02000 4 00002        TRA 2,4 RETURN TO L(TSX)+2                             F5G07900
00777  0 50000 0 00442    S24 CLA TPE                 IS IT A DED, LXP, OR LX CLASS. F5G07910
01000  0 34000 0 00403        CAS XK21                IF SO, MAKE P=1, MAKING TEST=TMI S25 F5G07920
01001 -0 50100 0 00340        ORA S5K3                WHILE IF SO MAKE TEST TPL S25. F5G07930
01002  0 76100 0 00000        NOP                     THUS GO TO S23 AND USE IT IF LXP,DED,LX F5G07940
01003  0 63000 0 01005        STP TEST                AND TAGS LEFT IN BB AFTER TIX, OR F5G07950
01004  0 50200 0 00422        CLS S1V5                IF OTHER AND NO TAGS LEFT IN BB AFTER TIX. F5G07960
01005 -0 12000 0 01010  TEST  TMI S25                 THIS MIGHT BE A TPL S25.       F5G07970
01006 -0 63400 1 00430 S23    SXD IRR,1 RECORD IRN INDEX.                            F5G07980
01007  0 02000 4 00001        TRA 1,4                                                F5G07990
01010  0 56000 0 00314 S25    LDQ ZERO      RECORD IRN FOUND OR ELIM                 F5G08000
01011 -0 60000 1 00434        STQ IND1+3,1                                           F5G08010
01012  0 50200 0 00434        CLS IN4       HAS ONE OTHER I R BEEN                   F5G08020
01013 -0 12000 0 01016        TMI S26 (FOUND/ELIM)                                   F5G08030
01014  0 60100 0 00434        STO IN4                                                F5G08040
01015  0 02000 4 00002        TRA 2,4                                                F5G08050
01016  0 53400 1 00342 S26    LXA S5K5,1 SEARCH FOR THE                              F5G08060
01017  0 50000 1 00434 S27    CLA IND1+3,1 I.R. WHICH HASNT                          F5G08070
01020 -0 12000 0 01006        TMI S23 BEEN (FOUND/ELIM) YET.                         F5G08080
01021  2 00001 1 01017        TIX S27,1,1                                            F5G08090
01022  0 07400 4 00004        TSX 4,4   NOT FOUND, DIAGNOSTIC                        F5G08100
                              THE S3 SUBROUTINE EXISTS IN FEED TAG OR FEED LPLST STATES.
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                                IN THE FORMER IT FEEDS THE NEXT ITEM FROM TAGLIST AND TAKES  F5G08110
                                THE TAG FEED EXIT.  IN THE LATTER IT FEEDS THE NEXT ITEM FROMF5G08120
                                LPLST AND TAKES THE LPLST FEED EXIT.  WHEN IT COMES TO A     F5G08130
                                LPLST ITEM  WHICH IS A BB AND NOT IN A REGION, IT GOES TO    F5G08140
                                FEED TAG STATE AND STAYS THERE UNTIL THE LAST TAGLIST ITEM INF5G08150
                                THAT BB HAS BEEN FED.  THEN IT RETURNS TO LPLST FEED.  WHEN  F5G08160
                                SENTINEL IS FED THE ROUTINE RE-INITIALIZES ITSELF TO THE     F5G08170
                                BEGINNING OF LPLST AND STAYS IN FEED LPLST STATE.  IT USES   F5G08180
                                THE S4 SUBROUTINE FOR HANDLING TAPE 3 DURING TAGLIST FEEDING.F5G08190
                                                                                             F5G08200
01023 -0 53400 1 00436 S3       LXD S3V2,1 ARE THERE ANY                                     F5G08210
01024  2 00001 1 01122          TIX S39,1,1                                                  F5G08220
01025 -0 63400 4 00445          SXD S3V8,4 NO,STORE RETURN INDEX                             F5G08230
01026  0 50000 0 00437          CLA S3V3                                                     F5G08240
01027  0 60100 0 00450          STO S3V9                                                     F5G08250
01030  0 12000 0 01114          TPL S300 ARE THERE ANY MORE TAGS IN BB                       F5G08260
01031 -0 53400 1 00440          LXD S3V4,1 NO                                                F5G08270
01032  0 50000 0 00444          CLA S3V5        WAS THE LAST THING                           F5G08280
01033  0 12000 0 01035          TPL S306        AN END LPLST                                 F5G08290
01034 -0 53400 1 00325          LXD S3K3,1      YES, RESET LPLST INDEX                       F5G08300
01035  0 50000 1 05035 S306     CLA LPLST+S3P1,1      GET LOOP LIST QUANTITY                 F5G08310
01036  0 60100 0 00444          STO S3V5 QUANTITY.                                           F5G 8320
01037  1 77777 1 01040          TXI S31,1,-1                                                 F5G08330
01040 -0 63400 1 00440 S31      SXD S3V4,1 THE INDEX.                                        F5G08340
01041  0 34000 0 00323          CAS S3K1 IS THIS END OF LOOP LIST                            F5G08350
01042  0 02000 0 01044          TRA S32 NO,                                                  F5G08360
01043  0 02000 0 01052          TRA S35 YES,                                                 F5G08370
01044  0 34000 0 00324 S32      CAS S3K2                                                     F5G08380
01045  0 76100 0 00000          NOP  NO                                                      F5G08390
01046  0 02000 0 01050          TRA S305                                                     F5G08400
01047  0 02000 0 01053          TRA S34 YES                                                  F5G08410
01050 -0 53400 4 00445 S305     LXD S3V8,4                                                   F5G08420
01051  0 50000 0 00444          CLA S3V5 RETURN WITH LOOP                                    F5G08430
01052  0 02000 4 00001 S35      TRA 1,4         LIST QUANTITY                                F5G08440
01053  0 07400 4 00070 S34      TSX SE,4 GET INDEX OF BB                                     F5G08450
01054  0 50000 1 12534          CLA BBB+1,1                                                  F5G08460
01055 -0 32000 0 00326          ANA S3K4 GET AND STORE THE                                   F5G08470
01056  0 60100 0 00435 S303     STO S3V1 TAG LOCATION.                                       F5G08480
01057  0 07400 4 01133          TSX S4,4 GO TO PUT TAG IN CM.                                F5G08490
01060  0 60100 0 00446          STO S3V6 STORE (1ST BB TAG-1ST TAG IN C.M.)                  F5G08500
01061  0 40200 0 00330          SUB S4K1 FORM NO. OF                                         F5G08510
01062  0 76000 0 00003          SSP  WDS LEFT IN C.M.                                        F5G08520
01063  0 60100 0 00447          STO S3V7                                                     F5G08530
01064  0 50000 0 00444          CLA S3V5 GET THE                                             F5G08540
01065  0 40000 0 00316          ADD ONED LOC. OF 1ST                                         F5G08550
01066  0 07400 4 00070          TSX SE,4 TAG IN                                              F5G08560
01067  0 50000 1 12534          CLA BBB+1,1 NEXT BB.                                         F5G08570
01070 -0 32000 0 00326          ANA S3K4                                                     F5G08580
01071  0 40200 0 00435          SUB S3V1 IS NO. OF TAGS IN BB LESS                           F5G08590
01072  0 34000 0 00447          CAS S3V7 THAN OR EQUAL TO SPACE IN C.M.                      F5G08600
01073  0 02000 0 01076          TRA S304                                                     F5G08610
01074  0 02000 0 01117          TRA S36 YES,                                                 F5G08620
01075  0 02000 0 01117          TRA S36 YES,                                                 F5G08630
01076  0 40200 0 00447 S304     SUB S3V7        STORE S  EXCESS OF TAGS                      F5G08640
01077  0 60100 0 00437          STO S3V3
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01100   0 50000 0 00447         CLA S3V7                                    F5G08650
01101   0 73400 1 00000 S302    PAX 0,1 SET COUNT OF NO. OF TAGS.           F5G08660
01102   1 00001 1 01103 S37     TXI S38,1,1                                 F5G08670
01103  -0 63400 1 00436 S38     SXD S3V2,1                                  F5G08680
01104   0 40000 0 00332         ADD S4K3 SET ADDRESS OF                     F5G08690
01105   0 40000 0 00446         ADD S3V6 CLA                                F5G08700
01106   0 62100 0 01122         STA S39 INSTRUCTION.                        F5G08710
01107  -0 53400 4 00445         LXD S3V8,4                                  F5G08720
01110   0 50000 0 00450         CLA S3V9 IS THIS A                          F5G08730
01111   0 12000 0 01023         TPL S3 NEW BB                               F5G08740
01112   0 50000 0 00444         CLA S3V5 YES,RETURN WITH                    F5G08750
01113   0 02000 4 00001         TRA 1,4 LOOP LIST QUANTITY.                 F5G08760
01114   0 50000 0 00451 S300    CLA S4V1 NEXT TAG NEEDED HAS                F5G08770
01115   0 40000 0 00330         ADD S4K1 LOC. (S+1ST TAG IN C.M.)           F5G08780
01116   0 02000 0 01056         TRA S303                                    F5G08790
01117   0 56000 0 00323 S36     LDQ S3K1                                    F5G08800
01120  -0 60000 0 00437         STQ S3V3                                    F5G08810
01121   0 02000 0 01101         TRA S302                                    F5G08820
01122   0 50000 1 00000 S39     CLA -,1 GET TAG WORD                        F5G08830
01123  -0 63400 1 00436         SXD S3V2,1                                  F5G08840
01124   0 60100 0 00443         STO INTAG AND                               F5G08850
01125  -0 32000 0 00326         ANA S3K4 SEPARATE TYPE                      F5G08860
01126   0 60100 0 00441         STO 1TAG           FROM                     F5G08870
01127  -0 50000 0 00327         CAL S3K5 TAU-TAG.                           F5G08880
01130  -0 32000 0 00443         ANA INTAG                                   F5G08890
01131   0 60100 0 00442         STO TPE                                     F5G08900
01132   0 02000 4 00002         TRA 2,4                                     F5G08910
01133   0 50000 0 00435 S4      CLA S3V1 FORM (LOC. OF 1ST TAG IN BB        F5G08920
01134   0 40200 0 00451         SUB S4V1 -LOC. OF 1ST TAG IN CM)            F5G08930
01135  -0 12000 0 01142         TMI S41 IS TAG IN C.M.                      F5G08940
01136   0 34000 0 00330         CAS S4K1 POSSIBLY,IS IT FOR SURE            F5G08950
01137   0 76100 0 00000         NOP  NO                                     F5G08960
01140   0 02000 0 01142         TRA S41       NO                            F5G08970
01141   0 02000 4 00001         TRA 1,4 YES. RETURN.                        F5G08980
01142   0 50000 0 00435 S41     CLA S3V1 NO,FORM (LOC. OF 1ST TAG IN BB     F5G08990
01143   0 40200 0 00452         SUB S4V2 -POSITION OF TAPE)                 F5G09000
01144  -0 12000 0 01166         TMI S42 MUST WE RUN TAPE BACK WORDS         F5G09010
01145   0 60100 0 00454         STO S4V4 NO,                                F5G09020
01146   0 50000 0 00453         CLA S4V3 CAN ALL THE FOLLOWING TAGS         F5G09030
01147   0 40200 0 00452         SUB S4V2 BE PUT IN C.M.                     F5G09040
01150   0 34000 0 00330         CAS S4K1                                    F5G09050
01151   0 02000 0 01154         TRA S401    NO                              F5G09060
01152   0 02000 0 01173         TRA S45 YES,GO. TO SET COUNT                F5G09070
01153   0 02000 0 01173         TRA S45 YES,TO NO. OF TAGS IN BB.           F5G09080
01154   0 50000 0 00454 S401    CLA S4V4                                    F5G09090
01155   0 34000 0 00331         CAS S4K2 IS TAG IN NEXT RECORD              F5G09100
01156   0 76100 0 00000         NOP  NO                                     F5G09110
01157   0 02000 0 01161         TRA S47                                     F5G09120
01160   0 02000 0 01172         TRA S44 YES                                 F5G09130
01161   0 76200 0 00223 S47     RTB TAPE       NO, SPACE FWD 1 REC.         F5G09140
01162   0 50000 0 00452         CLA S4V2 ADJUST TAPE POSITION               F5G09150
01163   0 40000 0 00331         ADD S4K2                                    F5G09160
01164   0 60100 0 00452 S43     STO S4V2                                    F5G09170
01165   0 02000 0 01142         TRA S41                                     F5G09180
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01166   0 76400 0 00203 S42    BST TAPE ADJUST TAPE POSITION                                                    F5G09190
01167   0 50000 0 00452        CLA S4V2 AFTER BACKSPACING                                                       F5G09200
01170   0 40200 0 00331        SUB S4K2 ONE RECORD.                                                             F5G09210
01171   0 02000 0 01164        TRA S43                                                                          F5G09220
01172   0 50000 0 00330 S44    CLA S4K1 SET COUNT TO STORAGE SIZE.                                              F5G09230
01173   0 73400 2 00000 S45    PAX 0,2                                                                          F5G09240
01174   0 40000 0 00332        ADD S4K3 SET CPY                                                                 F5G09250
01175   0 62100 0 01207        STA S46 ADDRESS.                                                                 F5G09260
01176   0 50000 0 00452        CLA S4V2                                                                         F5G09270
01177   0 60100 0 00451        STO S4V1                                                                         F5G09280
01200   0 76200 0 00223 S49    RTB TAPE                                                                         F5G09290
01201  -0 63400 2 01210        SXD S407,2 STORE (2) IN CASE OF TAPE CHECK                                       F5G09300
01202  -0 76000 0 00012        RTT  TURN OFF TAPE                                                               F5G09310
01203   0 76100 0 00000        NOP  CHECK.                                                                      F5G09320
01204   0 50000 0 00452        CLA S4V2 ADJUST                                                                  F5G09330
01205   0 40000 0 00331        ADD S4K2 TAPE                                                                    F5G09340
01206   0 60100 0 00452        STO S4V2 POSITION                                                                F5G09350
01207   0 70000 2 00000 S46    CPY -,2                                                                          F5G09360
01210   1 00000 0 01216 S407   TXI S48,0,- VALUE OF (2) STORED HERE                                            F5G09370
01211   0 07400 4 00004        TSX 4,4 END OF FILE OCCURRED,DIAGNOSTIC                                          F5G09380
01212  -0 63400 4 01244        SXD S405,4                                                                       F5G09390
01213   0 07400 4 01226        TSX S406,4 CHECK REDUNDANCY BITS                                                 F5G09400
01214  -0 53400 4 01244        LXD S405,4                                                                       F5G09410
01215   0 02000 0 01200        TRA S+9                                                                          F5G09420
01216   2 00001 2 01207 S48    TIX S46,2,1 COUNT NO. OF WORDS CPYED.                                            F5G09430
01217   0 70000 0 00454 S409   CPY S4V4 COPY OUT TO                                                             F5G09440
01220   0 02000 0 01217        TRA S409 END OF RECORD.                                                          F5G09450
01221   0 07400 4 00004        TSX 4,4 ERRONEOUS END OF FILE,DIAGNOSTIC                                         F5G09460
01222  -0 63400 4 01244        SXD S405,4 CHECK REDUNDANCY BITS                                                 F5G09470
01223   0 07400 4 01226        TSX S406,4                                                                       F5G09480
01224  -0 53400 4 01244        LXD S405,4                                                                       F5G09490
01225   0 02000 0 01133        TRA S4                                                                           F5G09500
01226   0 76600 0 00333 S406   IOD                                                                             F5G09510
01227  -0 76000 0 00012        RTT                                                                              F5G09520
01230   0 02000 0 01233        TRA S402  TRY AGAIN                                                              F5G09530
01231  -0 63400 0 00151        SXD TPCT,0   RESETS REPEAT COUNT                                                 F5G09540
01232   0 02000 4 00001 S404   TRA 1,4 RETURN                                                                   F5G09550
01233   0 76400 0 00203 S402   BST TAPE PREPARE TO READ AGAIN                                                   F5G09560
01234  -0 53400 2 00151        LXD TPCT,2 FIVE TIMES                                                            F5G09570
01235   1 00001 2 01236        TXI S402A,2,1                                                                    F5G09580
01236  -0 63400 2 00151 S402A  SXD TPCT,2                                                                      F5G09590
01237  -3 00004 2 01241        TXL S402B,2,4 GO ON                                                              F5G09600
01240   0 07400 4 00004        TSX 4,4  NO GOOD,DIAGNOSTIC                                                      F5G09610
01241  -0 53400 2 01210 S402B  LXD S407,2 RESET INDEX                                                           F5G09620
01242   0 76200 0 00223        RTB TAPE                                                                         F5G09630
01243  -0 53400 4 01244        LXD S405,4                                                                       F5G09640
01244   1 00000 0 01207 S405   TXI S46,0,- RETURN ADDR. STORED HERE                                            F5G09650
                               THE S5 SUBROUTINE LOADS EN1,2,3 FROM THE ENTRANCE CONDITIONS                     F5G09660
                               OF THE ENTRY BB IN A REGION WHEN THE REGION IS ENCOUNTERED                       F5G09670
                               IN LPLST.  IN ADDITION, THE PERMUTATION OF INDEX REGISTERS IN                    F5G09680
                               THE REGION PROVIDING THE BEST MATCH BETWEEN IR1,2,3 AND                          F5G09690
                               EN1,2,3 IS LEFT IN CELLS IN1,2,3 AND EN4,5,6 BY S5.  S5 USES                     F5G09700
                               S1,S111,S6,S7,S9, AS SUBROUTINES.                                                F5G09710
01245  -0 63400 4 00473 S5     SXD S5V1,4      STORE RETURN INDEX                                               F5G09720
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01246  0 60100 0 00474         STO S5V2 STORE LOOP LIST QUANTITY                    F5G09730
01247  0 07400 4 01466         TSX S9,4 GET THE ENTRANCE                            F5G09740
                                  REQUIREMENTS                                    F5G09750
01250  0 50000 0 00340         CLA S5K3                                             F5G09760
01251  0 53400 2 00343         LXA S5K6,2 STORE -0S IN THE COUNTER OF PHIS + OF REAL F5G09770
01252  0 60100 2 00470 S51     STO ENC+8,2        STORE -0S IN THE                  F5G09780
01253  2 00001 2 01252         TIX S51,2,1 REGISTERS.                               F5G09790
01254  0 53400 1 00342         LXA S5K5,1 SET INDEX FOR EN1,N=1                     F5G09800
01255  0 53400 2 00342 S54     LXA S5K5,2       SET INDEX FOR IR1, M EQUALS 1       F5G09810
01256  0 50000 1 00473         CLA EN1+3,1                                          F5G09820
01257  0 34000 0 00336         CAS S5K1 IS ENN EMPTY                                F5G09830
01260  0 02000 0 01262         TRA S55 NO                                           F5G09840
01261  0 02000 0 01427         TRA S58 YES                                          F5G09850
01262  0 56000 2 00465 S55     LDQ IN1+3,2 NO                                       F5G09860
01263  0 16200 0 01267         TQP S56 IS IRM ASSIGNED                              F5G09870
01264  0 34000 2 00430         CAS IR1+3,2 NO,IS C(ENM)=C(IRM)                      F5G09880
01265  0 02000 0 01267         TRA S56 NO.                                          F5G09890
01266  0 02000 0 01433         TRA S59 YES.                                         F5G09900
01267  2 00001 2 01262 S56     TIX S55,2,1 NO. THRU WITH IRS                        F5G09910
01270  2 00001 1 01255 S57     TIX S54,1,1 YES. THRU WITH ENS                       F5G09920
01271  0 53400 2 00342         LXA S5K5,2 YES,SET INDEX FOR IR1,M=1                 F5G09930
01272  0 53400 1 00342 S510    LXA S5K5,1 SET INDEX FOR EN1,N=1                     F5G09940
01273  0 50000 2 00430         CLA IR1+3,2                                          F5G09950
01274  0 34000 0 00336         CAS S5K1 IS IRM EMPTY                                F5G09960
01275  0 02000 0 01277         TRA S511 NO                                          F5G09970
01276  0 02000 0 01310         TRA S513 YES                                         F5G09980
01277  0 56000 2 00465 S511    LDQ IN1+3,2 NO                                       F5G09990
01300  0 16200 0 01320         TQP S514 IS IRM ASSIGNED                             F5G10000
01301  0 34000 0 00337         CAS S5K2 NO,IS C(IRM)REAL                            F5G10010
01302  0 02000 0 01320         TRA S514 NO,                                         F5G10020
01303  0 02000 0 01320         TRA S514 NO,                                         F5G10030
01304  0 50000 0 00461 S512    CLA IRC INCREASE REAL                                F5G10040
01305  0 40000 0 00315         ADD ONEA UNASSIGNED TAG                              F5G10050
01306  0 60100 0 00461         STO IRC COUNTER.                                     F5G10060
01307  0 02000 0 01320         TRA S514                                             F5G10070
01310  0 50000 1 00470 S513    CLA EN4+3,1 HAS ENN                                  F5G10080
01311  0 12000 0 01317         TPL S537 BEEN ASSIGNED                               F5G10090
01312  0 56000 0 00337         LDQ S5K2 NO,IS C(ENN)                                F5G10100
01313  0 50000 1 00473         CLA EN1+3,1 REAL                                     F5G10110
01314  0 04000 0 01317         TLQ S537                                             F5G10120
01315  0 07400 4 01443         TSX S6,4 YES,MAKE IRM=ENN                            F5G10130
01316  0 02000 0 01320         TRA S514                                             F5G10140
01317  2 00001 1 01310 S537    TIX S513,1,1 ARE WE THRU WITH EN S                   F5G10150
01320  2 00001 2 01272 S514    TIX S510,2,1 YES, ARE WE THRU WITH IRS               F5G10160
01321  0 50000 0 00460         CLA ENC YES.                                         F5G10170
01322 -0 12000 0 01327         TMI S515 ARE THERE NO EMPTY ENS                      F5G10180
01323  0 34000 0 00341         CAS S5K4 HOW MANY EMPTY ENS.                         F5G10190
01324  0 02000 0 01327         TRA S515      3  OR 0                                F5G10200
01325  0 02000 0 01343         TRA S520 2 EMPTY EN                                  F5G10210
01326  0 02000 0 01366         TRA S526 1 EMPTY EN                                  F5G10220
01327  0 53400 1 00342 S515    LXA S5K5,1 3 OR 0 EMPTY EN,N=1                       F5G10230
01330  0 53400 2 00342 S519    LXA S5K5,2 M=1                                       F5G10240
01331  0 50000 1 00470         CLA EN4+3,1                                          F5G10250
01332  0 12000 0 01340         TPL S516 ENN ASSIGNED                                F5G10260
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01333  0 50000 2 00465 S518   CLA IN1+3,2 NO,IRM                                                    F5G10270
01334  0 12000 0 01337        TPL S517 ASSIGNED                                                    F5G10280
01335  0 07400 4 01443        TSX S6,4 NO,MAKE IRM=IRN                                             F5G10290
01336  0 02000 0 01340        TRA S516                                                             F5G10300
01337  2 00001 2 01333 S517   TIX S518,2,1                                                         F5G10310
01340  2 00001 1 01330 S516   TIX S519,1,1                                                         F5G10320
01341 -0 53400 4 00473        LXD S5V1,4                                                           F5G10330
01342  0 02000 4 00001        TRA 1,4 RETURN                                                       F5G10340
01343  0 50000 0 00461 S520   CLA IRC                                                              F5G10350
01344  0 34000 0 00341        CAS S5K4 ARE THERE 3 REAL UNASSNED TAGS IN THE IRS                   F5G10360
01345  0 02000 0 01350        TRA S536                                                             F5G10370
01346  0 02000 0 01405        TRA S531 1,NO,GO MATCH EMPTY ENS                                     F5G10380
01347  0 02000 0 01405        TRA S531 2,NO. WITH ANY REAL UNASS. IRS                              F5G10390
01350  0 07400 4 01450 S536   TSX S7,4    3, YES, TO COPY  IRS, ETC.                               F5G10400
01351  0 07400 4 00622        TSX S1,4 SELECT MOST REPLACEABLE I.R.                                F5G10410
01352  0 53400 1 00342        LXA S5K5,1                                                           F5G10420
01353  0 07400 4 01435        TSX S595,4                                                           F5G10430
01354  0 50000 1 00473 S521   CLA EN1+3,1 IS EN                                                    F5G10440
01355  0 34000 0 00336        CAS S5K1 EMPTY                                                       F5G10450
01356  0 02000 0 01360        TRA S522 NO                                                          F5G10460
01357  2 00001 1 01354        TIX S521,1,1 INDEX COUNTER OF IR S                                   F5G10470
01360  0 07400 4 01443 S522   TSX S6,4 MADE ENN = IRM                                              F5G10480
01361  0 53400 1 00342 S529   LXA S5K5,1                                                           F5G10490
01362  0 50000 1 00460 S525   CLA IR4+3,1    REPLACE THE IRS                                       F5G10500
01363  0 60100 1 00430        STO IR1+3,1                                                          F5G10510
01364  2 00001 1 01362        TIX S525,1,1                                                         F5G10520
01365  0 02000 0 01327        TRA S515                                                             F5G10530
01366  0 56000 0 00461 S526   LDQ IRC                                                              F5G10540
01367  0 50000 0 00341        CLA S5K4 ARE THERE 2 OR 3 REAL                                       F5G10550
01370  0 04000 0 01403        TLQ S530 UNASSNED TAGS                                               F5G10560
01371  0 07400 4 01450        TSX S7,4 YES,COPY IRS                                                F5G10570
01372  0 07400 4 00620        TSX S111,4 LOOK FOR LEAST REPLACEABLE I.R.                           F5G10580
01373  0 07400 4 01435        TSX S595,4                                                           F5G10590
01374  0 53400 1 00342        LXA S5K5,1 ASSIGN THE EMPTY                                          F5G10600
01375  0 50000 1 00473 S527   CLA EN1+3,1 EN TO THE IR                                             F5G10610
01376  0 34000 0 00336        CAS S5K1 SELECTED                                                    F5G10620
01377  0 02000 0 01401        TRA S528                                                             F5G10630
01400  0 07400 4 01443        TSX S6,4 BY                                                          F5G10640
01401  2 00001 1 01375 S528   TIX S527,1,1 S111.                                                   F5G10650
01402  0 02000 0 01361        TRA S529                                                             F5G10660
01403  0 16200 0 01405 S530   TQP S531 IS THERE ONE REAL TAG                                       F5G10670
01404  0 02000 0 01327        TRA S515 NO,GO MATCH ARBITRARILY.                                    F5G10680
01405  0 53400 1 00342 S531   LXA S5K5,1 SET COUNT TO 3,N=1                                        F5G10690
01406  0 53400 2 00342        LXA S5K5,2 SET COUNT TO 3,M=1                                        F5G10700
01407  0 50000 1 00473 S532   CLA EN1+3,1 IS ENN                                                   F5G10710
01410  0 34000 0 00336        CAS S5K1 EMPTY                                                       F5G10720
01411  0 02000 0 01413        TRA S533 NO,                                                         F5G10730
01412  0 02000 0 01415        TRA S534 YES,                                                        F5G10740
01413  2 00001 1 01407 S533   TIX S532,1,1 NO,THRU WITH ENS                                       F5G10750
01414  0 02000 0 01327        TRA S515 YES.                                                        F5G10760
01415  0 50000 2 00465 S534   CLA IN1+3,2                                                          F5G10770
01416  0 12000 0 01425        TPL S535                                                             F5G10780
01417  0 50000 2 00430        CLA IR1+3,2 NO                                                       F5G10790
01420  0 34000 0 00337        CAS S5K2 IS C (IRM) REAL                                             F5G10800
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01421   0 76100 0 00000          NOP  NO                                    F5G10810
01422   0 02000 0 01425          TRA S535                                   F5G10820
01423   0 07400 4 01443          TSX S6,4 YES                               F5G10830
01424   0 02000 0 01327          TRA S515                                   F5G10840
01425   2 00001 2 01415 S535     TIX S534,2,1 NO                            F5G10850
01426   0 02000 0 01413          TRA S533                                   F5G10860
01427   0 50000 0 00460 S58      CLA ENC YESENM EMPTY                       F5G10870
01430   0 40000 0 00315          ADD ONEA INCREASE COUNTER                  F5G10880
01431   0 60100 0 00460          STO ENC OF NO. OF EMPTY ENS.               F5G10890
01432   0 02000 0 01270          TRA S57                                    F5G10900
01433   0 07400 4 01443 S59      TSX S6,4 MAKE IRM=ENN                      F5G10910
01434   0 02000 0 01270          TRA S57                                    F5G10920
01435  -0 53400 2 00430 S595     LXD IRR,2                                  F5G10930
01436   0 50000 2 00430          CLA IR1+3,2                                F5G10940
01437   0 34000 0 01465          CAS S7K1                                   F5G10950
01440   0 02000 4 00001          TRA 1,4                                    F5G10960
01441   0 02000 0 01361          TRA S529                                   F5G10970
01442   0 02000 4 00001          TRA 1,4                                    F5G10980
01443  -0 75400 1 00000 S6       PXD 0,1                                    F5G10990
01444   0 60100 2 00465          STO IN1+3,2                                F5G11000
01445  -0 75400 2 00000          PXD 0,2                                    F5G11010
01446   0 60100 1 00470          STO EN4+3,1                                F5G11020
01447   0 02000 4 00001          TRA 1,4                                    F5G11030
01450   0 53400 1 00342 S7       LXA S5K5,1 SET COUNT TO 3,M=1              F5G11040
01451   0 50000 1 00430 S71      CLA IR1+3,1 COPY ASIDE C(IRM)              F5G11050
01452   0 60100 1 00460          STO IR4+3,1                                F5G11060
01453   0 56000 1 00465          LDQ IN1+3,1 IRM ASSIGNED                   F5G11070
01454   0 16200 0 01461          TQP S72                                    F5G11080
01455   0 34000 0 00337          CAS S5K2 NO, IS C(IRM) REAL                F5G11090
01456   0 76100 0 00000          NOP                                        F5G11100
01457   0 02000 0 01461          TRA S72 NO                                 F5G11110
01460   0 02000 0 01463          TRA S73 YES.                               F5G11120
01461   0 50000 0 01465 S72      CLA S7K1 NO,REPLACE C(IRM)                 F5G11130
01462   0 60100 1 00430          STO IR1+3,1 BY IMPOSSIBLE TAG.             F5G11140
01463   2 00001 1 01451 S73      TIX S71,1,1 COUNT TO 3,M=M+1               F5G11150
01464   0 02000 4 00001          TRA 1,4 RETURN                             F5G11160
01465 +000000777760     S7K1     OCT 777760 IMPOSSIBLE TAG VALUE.          F5G11170
                                  THE S9 SUBROUTINE LOADS EN1,2,3.         F5G11180
01466  -0 63400 4 00476 S9       SXD S9V2,4 STORE RETURN INDEX.             F5G11190
01467   0 07400 4 00070          TSX SE,4 MAKE SURE BB IS IN C+M+           F5G11200
01470   0 50000 1 12540          CLA BBB+5,1 GET AND                        F5G11210
01471  -0 73400 2 00000          PDX 0,2 STORE THE                          F5G11220
01472   0 50000 2 05263          CLA REG,2 REGION                           F5G11230
01473   0 60100 0 00477          STO S9V4 WORD+                             F5G11240
01474   0 53400 2 00342          LXA S5K5,2 SET COUNT TO 3,N=1              F5G11250
01475   0 50000 1 12534          CLA BBB+1,1 STORE THE WORD                 F5G11260
01476   0 60100 0 00475          STO S9V1 CONTAINING THE PERMATATION NOS.   F5G11270
01477   0 50000 0 00475 S92      CLA S9V1 EXTRACT THE N TH                  F5G11280
01500   0 77100 2 00003          ARS 3,2 PERMUTATION NO.                    F5G11290
01501   0 77100 2 00003          ARS 3,2 AND PUT IT                         F5G11300
01502  -0 32000 0 00350          ANA S9K3 IN                                F5G11310
01503  -0 73400 4 00000          PDX 0,4 INDEX 4.                           F5G11320
01504  -0 50000 0 00477          CAL S9V4 IS THIS                           F5G11330
01505  -0 32000 4 00350          ANA S9K2+3,4 AN EMPTY                      F5G11340
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01506   0 10000 0 01515          TZE S93 I.R.                                                F5G11350
01507   0 50000 0 00336          CLA S5K1 YES,STORE EMPTINESS SYMBOL                         F5G11360
01510   0 60100 4 00473 S94      STO EN1+3,4                                                 F5G11370
01511   1 77777 1 01512          TXI S91,1,-1       DOWN THE ENTR. INDEX                     F5G11380
01512   2 00001 2 01477 S91      TIX S92,2,1 COUNT TO 3                                      F5G11390
01513  -0 53400 4 00476          LXD S9V2,4                                                  F5G11400
01514   0 02000 4 00001          TRA 1,4 RETURN                                              F5G11410
01515  -0 50000 1 12535 S93      CAL BBB+2,1 SET THE                                         F5G11420
01516   0 77100 0 00022          ARS 18 ENTRANCE REQUIREMENT.                                F5G11430
01517   0 34000 0 00336          CAS S5K1 IS IT AN EMPTINESS SYMBOL                          F5G11440
01520   0 02000 0 01510          TRA S94 NO,                                                 F5G11450
01521   0 50000 0 00333          CLA LK1 YES,STORE E,(HASH SYMBOL).                          F5G11460
01522   0 02000 0 01510          TRA S94 NO,                                                 F5G11470
                                 THE SA SUBROUTINE LOADS EX1,2,3 AND ACT1,2,3 FROM EXIT      F5G11480
                                 CONDITIONS AND ACTIVITY BITS (PREFIX, WORD 2, BBB) OF THE   F5G11490
                                 EXIT BB IN A REGION.                                        F5G11500
                                                                                             F5G11510
01523  -0 63400 4 00501 SA       SXD SAV2,4 STORE RETURN INDEX.                              F5G11520
01524  -0 32000 0 00353          ANA SBK2           IF THIS IS AN IMPOSSIBLE BB,             F5G11530
01525   0 56000 0 00351          LDQ SAK1           RETURN AT ONCE, DOING NOTHING            F5G11540
01526   0 04000 4 00001          TLQ 1,4                                                     F5G11550
01527   0 07400 4 00067          TSX SE1,4 MAKE SURE BB IS IN CM.                            F5G11560
01530   0 50000 1 12540          CLA BBB+5,1 GET AND                                         F5G11570
01531  -0 73400 2 00000          PDX 0,2 STORE                                               F5G11580
01532   0 50000 2 05263          CLA REG,2 REGION                                            F5G11590
01533   0 60100 0 00502          STO SAV3 WORD.                                              F5G11600
01534   0 50000 1 12534          CLA BBB+1,1 GET AND STORE THE                               F5G11610
01535   0 60100 0 00500          STO SAV1 WORD HAVING PERMUTATION NOS.                       F5G11620
01536   0 53400 2 00342          LXA S5K5,2 SET COUNT TO 3,N=N+1                             F5G11630
01537  -0 50000 0 00500 SA1      CAL SAV1 PUT PERMUTATION                                    F5G11640
01540   0 77100 2 00003          ARS 3,2 NUMBER                                              F5G11650
01541   0 77100 2 00003          ARS 3,2 IN                                                  F5G11660
01542  -0 32000 0 00350          ANA S9K3 INDEX 4                                            F5G11670
01543  -0 73400 4 00000          PDX 0,4                                                     F5G11680
01544  -0 50000 0 00502          CAL SAV3 IS THIS                                            F5G11690
01545  -0 32000 4 00350          ANA S9K2+3,4 AN EMPTY                                       F5G11700
01546   0 10000 0 01560          TZE SA2 EXIT                                                F5G11710
01547   0 50000 0 00336          CLA S5K1 YES,STORE EMPTINESS SYMBOL.                        F5G11720
01550   0 60100 4 00506 SA4      STO EX1+3,4                                                 F5G11730
01551  -0 50000 0 00500 SA5      CAL SAV1           STORE THE                                F5G11740
01552   0 76700 2 00003          ALS 3,2 ACTIVE                                              F5G11750
01553   0 60200 4 00511          SLW ACT1+3,4           INDICATOR                            F5G11760
01554   1 77777 1 01555          TXI SA3,1,-1                                                F5G11770
01555   2 00001 2 01537 SA3      TIX SA1,2,1 COUNT TO 3                                      F5G11780
01556  -0 53400 4 00501          LXD SAV2,4                                                  F5G11790
01557   0 02000 4 00001          TRA 1,4            RETURN                                   F5G11800
01560  -0 50000 1 12535 SA2      CAL BBB+2,1                                                 F5G11810
01561  -0 32000 0 00326          ANA S3K4 IS THIS                                            F5G11820
01562   0 34000 0 00336          CAS S5K1 AN EMPTY SYMBOL                                    F5G11830
01563   0 02000 0 01550          TRA SA4 NO                                                  F5G11840
01564   0 50000 0 00333          CLA LK1 YES REPLACE BY E.                                   F5G11850
01565   0 02000 0 01550          TRA SA4 NO                                                  F5G11860
                                 THE SB SUBROUTINE ENTERS A BIT IN PRED OR STAG TO REQUEST SX F5G11870
                                 COMPILATION.  THE APPROPRIATE ACTIVITY CELL AC1,2, OR 3 IS  F5G11880
                                 EXAMINED.  IF IT IS NEGATIVE (ACTIVE INSTRUCTION IN A BB    F5G11890
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                                ALREADY IN A REGION), THE SX BIT IS PLACED IN PRED IN THE    F5G11890
                                LINK OUT OF THE REGION.  IF IT IS POSITIVE (ACTIVE INSTRUC.  F5G11900
                                IN A BB IN THIS LPLST), THE SX BIT IS PLACED IN THE STAG     F5G11910
                                TABLE AT THE ACTIVE INSTRUCTION.  THE APPROPRIATE AC1,2, OR 3F5G11920
                                IS ALSO TURNED OFF BY SB.                                    F5G11930
                                                                                             F5G11940
01566 -0 63400 1 00514 SB       SXD SBV4,1 STORE INDEX OF ACTIVE I.R+                        F5G11950
01567 -0 63400 4 00511          SXD SBV1,4 STORE INDEX OF RETURN,                            F5G11960
01570  0 50000 1 00561          CLA AC1+3,1 IS THE ACTIVE THING                              F5G11970
01571  0 12000 0 01641          TPL SB1 AN INSTRUCTION                                       F5G11980
01572 -0 73400 1 00000          PDX 0,1 NO                                                   F5G11990
01573  0 50000 1 05035          CLA LPLST+S3P1,1 GET + STORE                                 F5G12000
01574  0 34000 0 00324          CAS S3K2 PRED. BB                                            F5G12010
01575  0 76100 0 00000          NOP                                                          F5G12020
01576  0 02000 0 01600          TRA SB01                                                     F5G12030
01577  0 77100 0 00022          ARS 18 NO                                                    F5G12040
01600  0 62100 0 00513 SB01     STA SBV3                                                     F5G12050
01601  0 50000 1 05036          CLA LPLST+S3P1+1,1                                           F5G12060
01602  0 34000 0 00323          CAS S3K1 END LOOP LIST SENTINEL                              F5G12070
01603  0 02000 0 01605          TRA SB7 NO,                                                  F5G12080
01604  0 50000 0 04741          CLA LPLST YES,SUCCESSOR IS 1ST ENTRY.                        F5G12090
01605  0 07400 4 00070 SB7      TSX SE,4 NO,GET ADDR. OF                                     F5G12100
01606  0 50000 1 12534          CLA BBB+1,1 PRED.                                            F5G12110
01607  0 60100 0 00515          STO SBV5 STORE PERMUTATION NOS.                              F5G12120
01610  0 50000 1 12533          CLA BBB,1 GET ADDR OF 1ST PRED.                              F5G12130
01611  0 60200 0 00512 SB4      SLW SBV2                                                     F5G12140
01612  0 07400 4 00055          TSX SE5,4                                                    F5G12150
01613 -0 50000 1 15674          CAL PRED,1                                                   F5G12160
01614 -0 32000 0 00353          ANA SBK2                                                     F5G12170
01615  0 34000 0 00513          CAS SBV3 IS THIS THE RIGHT TRANSFER                          F5G12180
01616  0 02000 0 01620          TRA SB2 NO                                                   F5G12190
01617  0 02000 0 01623          TRA SB5 YES                                                  F5G12200
01620  0 50000 0 00512 SB2      CLA SBV2 NO TRY NEXT PRED.                                   F5G12210
01621  0 40000 0 00315          ADD ONEA                                                     F5G12220
01622  0 02000 0 01611          TRA SB4                                                      F5G12230
01623  0 53400 2 00342 SB5      LXA S5K5,2                                                   F5G12240
01624 -0 50000 0 00515 SB00     CAL SBV5 SEARCH PERMUTATION                                  F5G12250
01625  0 77100 2 00003          ARS 3,2 NOS. FOR THE INDEX                                   F5G12260
01626  0 77100 2 00003          ARS 3,2 STORED IN SBV4                                       F5G12270
01627 -0 32000 0 00350          ANA S9K3                                                     F5G12280
01630  0 34000 0 00514          CAS SBV4 IS THIS PERMUTATION NO.                             F5G12290
01631  0 02000 0 01633          TRA SB8 NO EQUAL TO THE ACTIVE                               F5G12300
01632  0 02000 0 01635          TRA SB9 YES IR                                               F5G12310
01633  2 00001 2 01624 SB8      TIX SB00,2,1 NO                                              F5G12320
01634  0 07400 4 00004          TSX 4,4 DIAGNOSTIC,ERROR                                     F5G12330
01635  0 50000 0 00354 SB9      CLA SBK3 GENERATE NO STORE                                   F5G12340
01636  0 77100 2 00003          ARS 3,2 THE                                                  F5G12350
01637 -0 60200 1 15674          ORS PRED,1 SX FIT IN                                         F5G12360
01640  0 02000 0 01654          TRA SB6 PRED. TABLE.                                         F5G12370
01641 -0 32000 0 00326 SB1      ANA S3K4                                                     F5G12380
01642  0 76500 0 00043          LRS 35 COMPUTE NO. OF WORD IN                                F5G12390
01643  0 22100 0 00371          DVP XK9 STAG AND POSITION OF SX                              F5G12400
01644  0 73400 2 00000          PAX 0,2 FIT IN WORD.                                         F5G12410
01645 -0 50000 0 00352          CAL SBK1 GENERATE                                            F5G12420
01646  0 76700 2 00010          ALS 8,2 THE BIT
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                                                                                F5G12430
01647   0 60200 0 00512         SLW SBV2 TO                                     F5G12440
                                  STORE.                                        F5G12450
01650   0 76300 0 00043         LLS 35 GET NO. OF WORD OUT OF MQ.               F5G12460
01651   0 07400 4 00032         TSX SE4,4 MAKE SURE THE WD IS IN C.M.           F5G12470
01652  -0 50000 0 00512         CAL SBV2                                        F5G12480
01653  -0 60200 1 05263         ORS STAG,1                                      F5G12490
01654   0 50000 0 00314 SB6     CLA ZERO SET IR                                 F5G12500
01655  -0 53400 1 00514         LXD SBV4,1 TO                                   F5G12510
01656   0 60100 1 00561         STO AC1+3,1 NOT ACTIVE.                         F5G12520
01657  -0 53400 4 00511         LXD SBV1,4 RE-                                  F5G12530
01660   0 02000 4 00001         TRA 1,4 TURN                                    F5G12540
                                THE SC SUBROUTINE HANDLES THE PROBLEM OF AN ACTIVE INDEX  F5G12550
                                REGISTER WITH NO SUBSEQUENT LX IN THE PRESENT REGION.  THIS F5G12560
                                POSTPONES THE NECESSITY OF AN SX UNTIL A LATER LX IS FOUND.  F5G12570
                                THE ACTIVITY IS TRANSFERRED FROM AC1,2,3 TO PREFIX, WORD 2,  F5G12580
                                BBB TABLE FOR ALL BB,S DURING WHICH INDEX REGISTER IS ACTIVE. F5G12590
                                THIS PERPETUATION OF ACTIVITY WHEN NOT TURNED OFF DURING THE F5G12600
                                TREATMENT OF THE SAME LPLST IN WHICH IT AROSE IS CALLED MARK- F5G12610
                                ING A SECTION OF LPLST ACTIVE.  ALL BB,S BETWEEN THE ORIGIN  F5G12620
                                OF THE ACTIVITY AND THE PRESENT POINT OF LPLST WHEN SC IS    F5G12630
                                ENTERED ARE MARKED ACTIVE, AND THE DESIGNATED AC1,2,3 IS    F5G12640
                                TURNED OFF.  SD IS USED AS A SUBROUTINE, DOING THE ACTUAL   F5G12650
                                MARKING OF BB,S ACTIVE.                                     F5G12660
01661   0 50000 1 00561 SC      CLA AC1+3,1 IS IR                               F5G12670
01662   0 10000 4 00001         TZE 1,4 ACTIVE                                  F5G12680
01663  -0 63400 4 00516         SXD SCV1,4 YES,STORE RETURN                     F5G12690
01664  -0 63400 1 01736         SXD SC9,1 AND INDEX OF ACTIVE I.R+              F5G12700
01665   0 62200 0 00520         STD SCV3 STORE INDEX OF LOOP LIST.              F5G12710
01666   0 50000 0 00520         CLA SCV3 IS THIS THE CURRENT                    F5G12720
01667   0 40200 0 00316         SUB ONED                                        F5G12730
01670  -0 40000 0 00440         SBM S3V4        IS THIS THE CURRENT LPLST INDEX F5G12740
01671  -0 10000 0 01674         TNZ SC40                                        F5G12750
01672   0 50000 0 00521         CLA ACIND       YES                             F5G12760
01673   0 12000 4 00001         TPL 1,4         IS THIS THE ACTIVE PASS         F5G12770
01674  -0 53400 2 00520 SC40    LXD SCV3,2      YES                             F5G12780
01675   0 50000 2 05035         CLA LPLST+S3P1,2                                F5G12790
01676   0 34000 0 00324         CAS S3K2        IS 1ST AACTIVE QUANTITY A BB    F5G12800
01677   0 02000 0 01721         TRA SC02                                        F5G12810
01700   0 02000 0 01721         TRA SC02        NO                              F5G12820
01701   0 02000 0 01734         TRA SC8         YES                             F5G12830
01702   0 40200 0 00316 SC4     SUB ONED        IS THIS CURRENT                 F5G12840
01703   0 34000 0 00440         CAS S3V4        LOOP LIST INDEX                 F5G12850
01704   0 02000 0 01706         TRA SC2 NO,                                     F5G12860
01705   0 02000 0 01725         TRA SC5 YES,                                    F5G12870
01706  -0 53400 2 00520 SC2     LXD SCV3,2 NO,                                  F5G12880
01707   0 50000 2 05035         CLA LPLST+S3P1,2                                F5G12890
01710   0 34000 0 00323         CAS S3K1 IS IT END LOOP LIST                    F5G12900
01711   0 02000 0 01713         TRA SC3 NO,                                     F5G12910
01712   0 02000 0 01732         TRA SC6 YES,                                    F5G12920
01713   0 34000 0 00324 SC3     CAS S3K2 NO,IS IT A BB                          F5G12930
01714   0 76100 0 00000         NOP  NO,                                        F5G12940
01715   0 02000 0 01717         TRA SC04                                        F5G12950
01716   0 02000 0 01734         TRA SC8 YES,                                    F5G12960
01717  -0 53400 2 01736 SC04    LXD SC9,2       NO, PUT INDEX OF ACTIVE IR
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01720   0 07400 4 01753         TSX SD,4 IN 2. GO TO RECORD REGION ACTIVE.                    F5G12970
01721   0 50000 0 00520 SC02    CLA SCV3 PREPARE TO GET                                       F5G12980
01722   0 40200 0 00316         SUB ONED        NEXT                                          F5G12990
01723   0 62200 0 00520 SC7     STD SCV3 LOOP LIST QUANTITY.                                  F5G13000
01724   0 02000 0 01702         TRA SC4                                                       F5G13010
01725  -0 53400 1 01736 SC5     LXD SC9,1                                                     F5G13020
01726   0 50000 0 00314         CLA ZERO RECORD I.R. NOT                                      F5G13030
01727   0 60100 1 00561         STO AC1+3,1 ACTIVE ANYMORE.                                   F5G13040
01730  -0 53400 4 00516         LXD SCV1,4                                                    F5G13050
01731   0 02000 4 00001         TRA 1,4 RETURN.                                               F5G13060
01732   0 50000 0 00325 SC6     CLA S3K3          ARRANGE TO GET 1ST LPLST QUANTITY           F5G13070
01733   0 02000 0 01723         TRA SC7 QUANTITY NEXT.                                        F5G13080
01734   0 07400 4 00070 SC8     TSX SE,4                                                      F5G13090
01735  -0 63400 1 00517         SXD SCV2,1 GET INDEX OF BB                                    F5G13100
01736   1 00000 1 01737 SC9     TXI SC01,1,0 INCREASE INDEX BY INDEX OF OCT. I.R.             F5G13110
01737   0 50000 1 12540 SC01    CLA BBB+5,1 GET THE                                           F5G13120
01740  -0 32000 0 00326         ANA S3K4 EXIT CONDITION.                                      F5G13130
01741  -0 53400 2 01736         LXD SC9,2 IS EXIT COND. SAME                                  F5G13140
01742   0 34000 2 00430         CAS IR1+3,2 AS TAG IN ACTIVE I.RH                             F5G13150
01743   0 02000 0 01721         TRA SC02 NO,                                                  F5G13160
01744   0 02000 0 01746         TRA SC03 YES,                                                 F5G13170
01745   0 02000 0 01721         TRA SC02 NO,                                                  F5G13180
01746  -0 50000 0 00340 SC03    CAL S5K3 RECORD THAT BB IS                                    F5G13190
01747   0 77100 2 00003         ARS 3,2 ACTIVE                                                F5G13200
01750  -0 53400 1 00517         LXD SCV2,1 WO THIS                                            F5G13210
01751  -0 60200 1 12534         ORS BBB+1,1 I+R.                                              F5G13220
01752   0 02000 0 01721         TRA SC02                                                      F5G13230
01753  -0 63400 2 00523 SD      SXD SDV2,2                                                    F5G13240
01754  -0 63400 4 00522         SXD SDV1,4 STORE RETURN.                                      F5G13250
01755   0 07400 4 00070         TSX SE,4 GET INDEX OF BB                                      F5G13260
01756   0 50000 1 12540         CLA BBB+5,1 GET                                               F5G13270
01757  -0 73400 1 00000         PDX 0,1 REGION                                                F5G13280
01760   0 50000 1 05263         CLA REG,1 WORD.                                               F5G13290
01761   0 07400 4 00070         TSX SE,4 GET BB INDEX.                                        F5G13300
01762  -0 63400 1 00525 SD7     SXD SDV4,1                                                    F5G13310
01763   0 50000 1 12534         CLA BBB+1,1 STORE                                             F5G13320
01764   0 60100 0 00524         STO SDV3 AWAY THE PERMUTATION NOS.                            F5G13330
01765   0 53400 2 00342         LXA S5K5,2 SET COUNT TO 3,N=1                                 F5G13340
01766  -0 50000 0 00524 SD3     CAL SDV3 IS                                                   F5G13350
01767   0 77100 2 00003         ARS 3,2 PERMUTATION NO.                                       F5G13360
01770   0 77100 2 00003         ARS 3,2                                                       F5G13370
01771  -0 32000 0 00350         ANA S9K3 N EQUAL                                              F5G13380
01772   0 34000 0 00523         CAS SDV2 TO I.R. INDEX                                        F5G13390
01773   0 02000 0 01775         TRA SD1 NO                                                    F5G13400
01774   0 02000 0 02000         TRA SD4 YES                                                   F5G13410
01775   1 77777 1 01776 SD1     TXI SD1+1,1,-1    NO                                          F5G13420
01776   2 00001 2 01766 SD2     TIX SD3,2,1 COUNT TO 3                                        F5G13430
01777   0 07400 4 00004         TSX 4,4                                                       F5G13440
02000  -0 50000 1 12535 SD4     CAL BBB+2,1                                                   F5G13450
02001  -0 32000 0 00326         ANA S3K4 IS TAG IN                                            F5G13460
02002  -0 53400 4 00523         LXD SDV2,4 EXIT CONDITION                                     F5G13470
02003  -0 53400 1 00525         LXD SDV4,1 SAME AS IN ACTIVE I.R.                             F5G13480
02004   0 34000 4 00430         CAS IR1+3,4                                                   F5G13490
02005   0 02000 0 02007         TRA SD5 NO                                                    F5G13500
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02006  0 02000 0 02020        TRA SD9 YES,IS                                          F5G13510
02007 -0 50000 1 12540 SD5     CAL BBB+5,1 NO THIS LAST                                F5G13520
02010 -0 32000 0 00353         ANA SBK2 BB                                             F5G13530
02011  0 34000 0 00353         CAS SBK2 IN REGION                                      F5G13540
02012  0 02000 0 02014         TRA SD6 NO                                              F5G13550
02013  0 02000 0 02016         TRA SD8 YES                                             F5G13560
02014  0 07400 4 00067 SD6     TSX SE1,4 NO                                            F5G13570
02015 -0 02000 0 01762         TRA SD7                                                 F5G13580
02016 -0 53400 4 00522 SD8     LXD SDV1,4 RETURN                                       F5G13590
02017  0 02000 4 00001         TRA 1,4                                                 F5G13600
02020 -0 50000 0 00340 SD9     CAL S5K3 RECORD THIS BB                                 F5G13610
02021  0 77100 2 00003         ARS 3,2 ACTIVE                                          F5G13620
02022 -0 60200 1 12534         ORS BBB+1,1 WO THIS IR                                  F5G13630
02023  0 02000 0 02007         TRA SD5                                                 F5G13640
                               THE SF SUBROUTINE FORMS APPROPRIATE AC1,2,3 ENTRY WHEN AN F5G13650
                               ACTIVE INSTRUCTION IS ENCOUNTERED.                      F5G13660
                                                                                       F5G13670
02024  0 50000 0 00442 SF      CLA TPE IS THIS                                         F5G13680
02025  0 34000 0 00322         CAS S2K2 AN LX                                          F5G13690
02026  0 02000 0 02030         TRA SF1 NO,                                             F5G13700
02027  0 02000 0 02034         TRA SF4 YES,                                            F5G13710
02030  0 34000 0 00373 SF1     CAS XK12 NO,IS IT AN ACTIVE INSTR                       F5G13720
02031  0 02000 4 00001         TRA 1,4 NO RETURN                                       F5G13730
02032  0 02000 0 02034         TRA SF4 YES,                                            F5G13740
02033  0 02000 4 00001         TRA 1,4 NO                                              F5G13750
02034  0 50000 0 00571 SF4     CLA XV5 FORM QUANTITY TO                                F5G13760
02035  0 60100 0 00526         STO SFV1 BE PUT                                         F5G13770
02036 -0 53400 2 00440         LXD S3V4,2 INTO                                         F5G13780
02037  1 00001 2 02040         TXI SF5,2,1 ACTIVE                                      F5G13790
02040 -0 63400 2 00526 SF5     SXD SFV1,2        INDICATOR                             F5G13800
02041  0 02000 4 00002         TRA 2,4                                                 F5G13810
                                 PERMUTE THE PHI AND LX BITS  SUBROUTINE               F5G13820
                               THE SG SUBROUTINE PERMUTES AS INDICATED BY EN4,5,6 ON A REG F5G13830
                               ENTRY.                                                  F5G13840
02042 -0 63400 4 00530 SG      SXD SGV1,4          SAVE RETURN                         F5G13850
02043  0 56000 0 00315         LDQ ONEA            SET NEW LX AND PHI BITS TO ONEA     F5G13860
02044 -0 60000 0 00531         STQ SGV2                                                F5G13870
02045  0 50000 0 00444         CLA S3V5            GET INDEX OF REGION WORD            F5G13880
02046  0 07400 4 00070         TSX SE,4                                                F5G13890
02047  0 50000 1 12540         CLA BBB+5,1                                             F5G13900
02050 -0 73400 2 00000         PDX 0,2                                                 F5G13910
02051  0 53400 4 00342         LXA S5K5,4          SET COUNT TO 3                      F5G13920
02052  0 50000 4 00470 SG1     CLA EN4+3,4         FIND INDEX OF IR                    F5G13930
02053 -0 73400 1 00000         PDX 0,1                                                 F5G13940
02054 -0 50000 2 05263         CAL REG,2           PERMUTE THE LX BIT                  F5G13950
02055  0 76700 4 00003         ALS 3,4                                                 F5G13960
02056 -0 32000 0 00340         ANA S5K3                                                F5G13970
02057  0 77100 1 00003         ARS 3,1                                                 F5G13980
02060 -0 60200 0 00531         ORS SGV2                                                F5G13990
02061 -0 50000 2 05263         CAL REG,2           PERMUTE THE PHI BIT                 F5G14000
02062  0 77100 4 00003         ARS 3,4                                                 F5G14010
02063 -0 32000 0 00405         ANA XK23                                                F5G14020
02064  0 76700 1 00003         ALS 3,1                                                 F5G14030
02065 -0 60200 0 00531         ORS SGV2                                                F5G14040
02066  2 00001 4 02052         TIX SG1,4,1       COUNT TO 3
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02067 -0 50000 2 05263        CAL REG,2                                                    F5G14050
02070 -0 32000 0 00303        ANA SEK4                                                     F5G14060
02071 -0 50100 0 00531        ORA SGV2                                                     F5G14070
02072  0 60200 2 05263        SLW REG,2                                                    F5G14080
02073 -0 53400 4 00530        LXD SGV1,4          RETURN                                   F5G14090
02074  0 02000 4 00001        TRA 1,4                                                      F5G14100
                              THE F1 SUBROUTINE FINDS THE HIGHEST FREQUENCY PRED ENTRY FOR F5G14110
                              A GIVEN BB AND STORES IT IN FV 101.                          F5G14120
                                                                                           F5G14130
02075 -0 63400 4 00537 F1     SXD FV6,4 STORE RETURN                                       F5G14140
02076  0 56000 0 00314        LDQ ZERO SET HIGHEST                                         F5G14150
02077 -0 60000 0 00544        STQ FV101 FREQ. TO 0.                                        F5G14160
02100  0 60100 0 00545        STO FV102 STORE BB NO+                                       F5G14170
02101  0 07400 4 00067        TSX SE1,4 GET INDEX OF BB                                    F5G14180
02102  0 50000 1 12540        CLA BBB+5,1 STORE REGION                                     F5G14190
02103  0 60100 0 00547        STO FV104 NO. WORD.                                          F5G14200
02104 -0 50000 1 12533        CAL BBB,1 GET PRED.                                          F5G14210
02105  0 62100 0 00540        STA FV7 NO. AND STORE IT                                     F5G14220
02106 -0 50000 0 00545        CAL FV102           GET AND STORE                            F5G14230
02107  0 40000 0 00315        ADD ONEA FIRST PRED. IN                                      F5G14240
02110  0 07400 4 00067        TSX SE1,4 NEXT B.B.                                          F5G14250
02111  0 50000 1 12533        CLA BBB,1                                                    F5G14260
02112  0 62100 0 00541        STA FV8                                                      F5G14270
02113  0 50000 0 00540        CLA FV7 IS THIS PRED.                                        F5G14280
02114  0 34000 0 00541 F4     CAS FV8 IN SAME BB                                           F5G14290
02115  0 02000 0 02117        TRA F2                                                       F5G14300
02116  0 02000 0 02134        TRA F5 NO                                                    F5G14310
02117  0 07400 4 00055 F2     TSX SE5,4 GET INDEX OF PRED                                  F5G14320
02120  0 50000 1 15674        CLA PRED,1                                                   F5G14330
02121  0 34000 0 00544        CAS FV101 IS THIS FREQ. GREATER                              F5G14340
02122  0 02000 0 02125        TRA F92                                                      F5G14350
02123  0 76100 0 00000        NOP                                                          F5G14360
02124  0 02000 0 02130        TRA F3 NO                                                    F5G14370
02125  0 60100 0 00544 F92    STO FV101      STORE NEW MAX.                                F5G14380
02126  0 50000 0 00540        CLA FV7 STORE NEW                                            F5G14390
02127  0 60100 0 00546        STO FV103 PRED. NO.                                          F5G14400
02130  0 50000 0 00540 F3     CLA FV7 ARRANGE TO                                           F5G14410
02131  0 40000 0 00315        ADD ONEA CONSIDER NEXT PRED.                                 F5G14420
02132  0 62100 0 00540        STA FV7                                                      F5G14430
02133  0 02000 0 02114        TRA F4                                                       F5G14440
02134 -0 53400 4 00537 F5     LXD FV6,4                                                    F5G14450
02135  0 02000 4 00001        TRA 1,4 RETURN                                               F5G14460
                              THE F30 SUBROUTINE FINDS THE HIGHEST FREQUENCY SUCC ENTRY FORF5G14470
                              A GIVEN BB AND STORES IT IN FV 101.                          F5G14480
                                                                                           F5G14490
02136 -0 63400 4 00537 F30    SXD FV6,4                                                    F5G14500
02137  0 56000 0 00314        LDQ ZERO SET HIGHEST FREQH                                   F5G14510
02140 -0 60000 0 00544        STQ FV101 TO 0.                                              F5G14520
02141  0 60100 0 00545        STO FV102 STORE BB NO.                                       F5G14530
02142  0 07400 4 00070        TSX SE,4                                                     F5G14540
02143  0 50000 1 12540        CLA BBB+5,1                                                  F5G14550
02144  0 60100 0 00547        STO FV104                                                    F5G14560
02145 -0 50000 1 12533        CAL BBB,1 GET SUCC. NO.                                      F5G14570
02146  0 62200 0 00542        STD FV9           AND STORE IT                               F5G14580
02147 -0 50000 0 00545        CAL FV102            GET AND STORE
02150  0 40000 0 00316        ADD ONED SUCC.
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02151   0 07400 4 00070          TSX SE,4 NO.                                    F5G14590
02152   0 50000 1 12533          CLA BBB,1 OF 1ST SUCC.                          F5G14600
02153   0 62200 0 00543          STD FV10        IN NEXT BB                      F5G14610
02154   0 50000 0 00542          CLA FV9                                         F5G14620
02155   0 34000 0 00543 F31      CAS FV10      IS SUCC IN SAME BB                F5G14630
02156   0 02000 0 02160          TRA F32                                         F5G14640
02157   0 02000 0 02175          TRA F34 NO.                                     F5G14650
02160   0 07400 4 00044 F32      TSX SE6,4 GET INDEX OF SUCC.                    F5G14660
02161   0 50000 1 16734          CLA SUCC,1                                      F5G14670
02162   0 34000 0 00544          CAS FV101 IS THIS FREQ. GREATER                 F5G14680
02163   0 02000 0 02166          TRA F93                                         F5G14690
02164   0 76100 0 00000          NOP                                             F5G14700
02165   0 02000 0 02171          TRA F33 NO                                      F5G14710
02166   0 60100 0 00544 F93      STO FV101       STORE NEW MAX.                  F5G14720
02167   0 50000 0 00542          CLA FV9        STORE NEW                        F5G14730
02170   0 60100 0 00546          STO FV103 SUCC. NO.                             F5G14740
02171   0 50000 0 00542 F33      CLA FV9        ARRANGE TO CONSIDER              F5G14750
02172   0 40000 0 00316          ADD ONED NEXT SUCC.                             F5G14760
02173   0 62200 0 00542          STD FV9                                         F5G14770
02174   0 02000 0 02155          TRA F31                                         F5G14780
02175  -0 53400 4 00537 F34      LXD FV6,4                                       F5G14790
02176   0 02000 4 00001          TRA 1,4 RETURN                                  F5G14800
02177   0 50000 0 00314 F        CLA ZERO SET INDICATOR TO SAY                   F5G14810
02200   0 60100 0 00550          STO LPIND THIS ISNT A LOOP.                     F5G14820
02201   0 60100 0 00532          STO FV1 SET HIGHEST FREQ. TO 0.                 F5G14830
02202   0 60100 0 00536          STO FV5         SET TO CONSIDER 0TH BB          F5G14840
02203   0 50000 0 00536 F7       CLA FV5                                         F5G14850
02204   0 07400 4 02075          TSX F1,4 FIND MOST FREQ. UNCONSIDERED TRANSFER  F5G14860
02205   0 50000 0 00544          CLA FV101 IS IT GREATER THAN                    F5G14870
02206   0 34000 0 00532          CAS FV1 PREVIOUS MAXIMUM                        F5G14880
02207   0 02000 0 02212          TRA F85                                         F5G14890
02210   0 76100 0 00000          NOP                                             F5G14900
02211   0 02000 0 02221          TRA F6 NO+                                      F5G14910
02212   0 60100 0 00532 F85      STO FV1       REPLACE PREV. MAX.                F5G14920
02213   0 50000 0 00545          CLA FV102 AND BB NO.                            F5G14930
02214   0 60100 0 00533          STO FV2                                         F5G14940
02215   0 50000 0 00546          CLA FV103 AND PRED. NO.                         F5G14950
02216   0 60100 0 00534          STO FV3                                         F5G14960
02217   0 50000 0 00547          CLA FV104 AND REGION NO. WORD.                  F5G14970
02220   0 60100 0 00535          STO FV4                                         F5G14980
02221   0 50000 0 00536 F6       CLA FV5 ARRANGE TO CONSIDER NEXT                F5G14990
02222   0 40000 0 00315          ADD ONEA B.B.                                   F5G15000
02223   0 60100 0 00536          STO FV5                                         F5G15010
02224   0 40200 0 17774          SUB KEYS                                        F5G15020
02225   0 40000 0 00315          ADD ONEA                                        F5G15030
02226  -0 10000 0 02203          TNZ F7          WAS THIS THE LAST BB            F5G15040
02227   0 76000 0 00012  F86     DCT           YES, IF ANY DIVIDE CHECKS GO      F5G15050
02230   0 07400 4 00004          TSX 4,4       TO DIAGNOSTIC.                    F5G15060
02231   0 50000 0 00532          CLA FV1       NO DVD CHECKS, WERE THERE ANY     F5G15070
02232  -0 10000 0 02234          TNZ F86A      UNCONSIDERED PREDS                F5G15080
02233   0 02000 0 00030          TRA R  NO,CONTINUE PROGRAM, PART I DONE.        F5G15090
02234   0 50000 0 00535  F86A    CLA FV4       YES                               F5G15100
02235   0 10000 0 02245          TZE F9 IS THIS A REGION ALREADY                 F5G15110
02236  -0 73400 1 00000          PDX 0,1 YES.                                    F5G15120
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02237   0 50000 1 05263         CLA REG,1 GET REGION WORD.                                                  F5G15130
02240  -0 32000 0 00360         ANA FK3                                                                     F5G15140
02241   0 10000 0 02244         TZE F8 IS IT AN OPAQUE REGION                                               F5G15150
02242   0 50000 0 00356         CLA FK1 NO,GET TRANSPARENT REGION MARKER.                                   F5G15160
02243   0 02000 0 02245         TRA F9                                                                      F5G15170
02244   0 50000 0 00357 F8      CLA FK2 GET OPAQUE REGION MARKER.                                           F5G15180
02245   0 60100 0 05033 F9      STO LPLST+S3P1-2                                                            F5G15190
02246   0 50000 0 00533         CLA FV2 STORE THE REGION MARKER                                             F5G15200
02247   0 76700 0 00022         ALS 18 AT END OF LPLST.                                                     F5G15210
02250   0 62200 0 05033         STD LPLST+S3P1-2                                                            F5G15220
02251   0 50000 0 00350         CLA S9K3 INITIALIZE THE STORING                                             F5G15230
02252   0 62200 0 02270         STD F11 POSITION IN LPLST.                                                  F5G15240
02253   0 50000 0 00532 F23     CLA FV1 GET INDEX                                                           F5G15250
02254   0 07400 4 00067         TSX SE1,4 OF BB UP FOR ENTRY.                                               F5G15260
02255   0 50000 1 12540         CLA BBB+5,1 IS THIS BB IN                                                   F5G15270
02256   0 10000 0 02611         TZE F57 A REGION                                                            F5G15280
02257  -0 73400 2 00000         PDX 0,2 YES                                                                 F5G15290
02260   0 50000 2 05263         CLA REG,2 GET AND STORE                                                     F5G15300
02261   0 60100 0 00535         STO FV4 REGION WORD                                                         F5G15310
02262  -0 32000 0 00360         ANA FK3                                                                     F5G15320
02263   0 10000 0 02603         TZE F55 IS IT AN OPAQUE REGION                                              F5G15330
02264   0 53400 1 00341         LXA S5K4,1      NO, TRANSPARENT                                             F5G15340
02265   0 50000 1 05035 F12     CLA LPLST+S3P1,1                                                            F5G15350
02266   1 00001 1 02267         TXI F25,1,1 STORE INDEX OF LPLST QUANTITY BEING COMPARED.                   F5G15360
02267  -0 63400 1 02412 F25     SXD F18,1                                                                   F5G15370
02270   3 00000 1 02321 F11     TXH F19,1,K ARE WE THRU WITH COMPARISONS                                    F5G15380
02271   0 34000 0 00324         CAS S3K2 NO,IS THIS BB ENTRY                                                F5G15390
02272   0 76100 0 00000         NOP                                                                         F5G15400
02273   0 02000 0 02275         TRA F87                                                                     F5G15410
02274   0 02000 0 02265         TRA F12 YES.                                                                F5G15420
02275   0 07400 4 00070 F87     TSX SE,4      GET INDEX OF BB                                               F5G15430
02276   0 50000 1 12540         CLA BBB+5,1 GET                                                             F5G15440
02277  -0 73400 1 00000         PDX 0,1 REGION                                                              F5G15450
02300   0 50000 1 05263         CLA REG,1 WORD.                                                             F5G15460
02301  -0 53400 1 02412         LXD F18,1                                                                   F5G15470
02302   0 34000 0 00535         CAS FV4 IS THIS THE SAME REGION                                             F5G15480
02303   0 02000 0 02265         TRA F12 NO                                                                  F5G15490
02304   0 02000 0 02306         TRA F100                                                                    F5G15500
02305   0 02000 0 02265         TRA F12 NO                                                                  F5G15510
02306   0 50000 0 00532 F100    CLA FV1              PUT EXIT BB NO.                                        F5G15520
02307   0 62100 1 05036         STA LPLST+S3P1+1,1     IN TR. REG. QUANTITY                                 F5G15530
02310   2 00001 1 02311 F13     TIX F24,1,1 GENERATE INDEX OF LAST THING TO BE MOVED UP.                    F5G15540
02311  -0 53400 2 02270 F24     LXD F11,2 GET INDEX TO GENERATE INDEX OF 1ST THING                          F5G15550
02312  -0 63400 1 02412 F43     SXD F18,1 STORE INDEX OF LAST THING                                         F5G15560
02313   0 56000 0 00323         LDQ S3K1 RECORD                                                             F5G15570
02314  -0 60000 0 00550         STQ LPIND LOOP.                                                             F5G15580
02315   2 00001 2 02316         TIX F14,2,1 GENERATE INDEX OF 1ST THING                                     F5G15590
02316   0 07400 4 02407 F14     TSX F15,4 GO TO MOVE LPLST QUANTITIES UP+                                   F5G15600
02317   0 07400 4 02651         TSX F80,4                                                                   F5G15610
02320   0 02000 0 02717         TRA L TO 1ST LXING PASS.                                                    F5G15620
02321   0 50000 0 00356 F19     CLA FK1                                                                     F5G15630
02322  -0 53400 1 02270         LXD F11,1 STORE TRANSPARENT                                                 F5G15640
02323   0 60100 1 05035         STO LPLST+S3P1,1 REGION MARKER                                              F5G15650
02324   0 50000 0 00532         CLA FV1                                                                     F5G15660
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02325   0 62100 1 05035          STA LPLST+S3P1,1                                F5G15670
02326   0 07400 4 00067          TSX SE1,4 FIND BB INDEX.                        F5G15680
02327   0 50000 0 00314          CLA ZERO SET INITIAL MAX                        F5G15690
02330   0 60100 0 00532          STO FV1 FREQ. TO 0+                             F5G15700
02331   0 50000 1 12540          CLA BBB+5,1 GET THE                             F5G15710
02332  -0 73400 1 00000          PDX 0,1 REGION                                  F5G15720
02333   0 50000 1 05263          CLA REG,1 WORD                                  F5G15730
02334   0 77100 0 00022          ARS 18                                          F5G15740
02335   0 07400 4 02075 F21      TSX F1,4 DETERMINE MOST FREQ. PRED IN BB.       F5G15750
02336   0 50000 0 00544          CLA FV101 IS IT MORE FREQ. THAN                 F5G15760
02337   0 34000 0 00532          CAS FV1 PREV. MAX.                              F5G15770
02340   0 02000 0 02343          TRA F88                                         F5G15780
02341   0 76100 0 00000          NOP                                             F5G15790
02342   0 02000 0 02352          TRA F20 NO.                                     F5G15800
02343   0 60100 0 00532 F88      STO FV1     REPLACE PREV.  MAX.                 F5G15810
02344   0 50000 0 00545          CLA FV102 AND BB NO.                            F5G15820
02345   0 60100 0 00533          STO FV2 AND                                     F5G15830
02346   0 50000 0 00546          CLA FV103 PRED. NO.                             F5G15840
02347   0 60100 0 00534          STO FV3 AND                                     F5G15850
02350   0 50000 0 00547          CLA FV104 REGION NO. WORD.                      F5G15860
02351   0 60100 0 00535          STO FV4                                         F5G15870
02352   0 50000 0 00547 F20      CLA FV104 ARRANGE TO CONSIDER THE               F5G15880
02353  -0 32000 0 00353          ANA SBK2 NEXT B.B. IN REGION.                   F5G15890
02354   0 34000 0 00353          CAS SBK2 ARE WE THRU WITH REGION                F5G15900
02355   0 02000 0 02335          TRA F21                                         F5G15910
02356   0 02000 0 02360          TRA F22 YES                                     F5G15920
02357   0 02000 0 02335          TRA F21                                         F5G15930
02360   0 50000 0 00532 F22      CLA FV1 WAS THERE AN UNCONSIDERED               F5G15940
02361   0 10000 0 02372          TZE F28 PRED                                    F5G15950
02362   0 50000 0 00533          CLA FV2 YES,STORE THE                           F5G15960
02363  -0 53400 1 02270          LXD F11,1 ENTRY B.B.                            F5G15970
02364   0 76700 0 00022          ALS 18 NO.                                      F5G15980
02365   0 62200 1 05035          STD LPLST+S3P1,1                                F5G15990
02366   1 00001 1 02367          TXI F70,1,1 UP THE STORING INDEX                F5G16000
02367  -0 63400 1 02270 F70      SXD F11,1                                       F5G16010
02370   3 00074 1 02404          TXH F73,1,S3P1 IS LPLST FULL                    F5G16020
02371   0 02000 0 02253          TRA F23                                         F5G16030
02372  -0 53400 2 02270 F28      LXD F11,2                                       F5G16040
02373   0 53400 1 00341 F56      LXA S5K4,1                                      F5G16050
02374  -0 63400 1 02412          SXD F18,1                                       F5G16060
02375   0 07400 4 02407          TSX F15,4 NONE LPLST UP.                        F5G16070
02376   0 50000 0 04740          CLA LPLST-1                                     F5G16080
02377   0 34000 0 00361          CAS FK4 IS THIS AN OPAQUE REGION                F5G16090
02400   0 76100 0 00000          NOP                                             F5G16100
02401   0 02000 0 02706          TRA F75 TO 2ED LXING PASS.                      F5G16110
02402   3 00002 1 02421   P002   TXH F29,1,2                                     F5G16120
02403   0 02000 0 02706          TRA F75                                         F5G16130
02404   0 50000 0 00303 F73      CLA SEK4 STORE SPECIAL                          F5G16140
02405   0 62200 0 04741          STD LPLST SYMBOL IN DECR. PART OF 1ST LPLST      F5G16150
02406   0 02000 0 02536          TRA F53 QUANTITY                                F5G16160
02407  -0 53400 1 00325 F15      LXD S3K3,1 SET INDEX TO START OF LOOP LIST.      F5G16170
02410   0 50000 2 05035 F26      CLA LPLST+S3P1,2 MOVE THIS                      F5G16180
02411   0 60100 1 05035          STO LPLST+S3P1,1 ENTRY UP.                      F5G16190
02412  -3 00000 2 02415 F18      TXL F17,2,- IN DECR., THE INDEX OF LAST TO BE MOVED.  F5G16200
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02413   2 00001 1 02414          TIX F16,1,1 NO.                                                    F5G16210
02414   2 00001 2 02410 F16      TIX F26,2,1 ARE WE FINISHED COPYING                                F5G16220
02415   0 60100 0 04740 F17      STO LPLST-1 CASE OF LOOP,STORE PRED. OF 1ST ELEMENT.               F5G16230
02416   0 50000 0 00323          CLA S3K1 STORE THE END                                             F5G16240
02417   0 60100 1 05036          STO LPLST+S3P1+1,1 LOOP LIST QUANTITY.                             F5G16250
02420   0 02000 4 00001          TRA 1,4                                                            F5G16260
02421  -0 63400 1 02527 F29      SXD F39,1 INITIALIZE STORING LOCATION.                             F5G16270
02422   0 34000 0 00324 F64      CAS S3K2 ISNT OPAQUE REGIONH IS IT BB                              F5G16280
02423   0 76100 0 00000          NOP  NO.                                                           F5G16290
02424   0 02000 0 02426          TRA F89                                                            F5G16300
02425   0 02000 0 02543          TRA F44 YES.                                                       F5G16310
02426   0 56000 0 00314 F89      LDQ ZERO   NO, SET INITIAL                                         F5G16320
02427  -0 60000 0 00532          STQ FV1 FREQ+ TO 0.                                                F5G16330
02430   0 07400 4 00070          TSX SE,4 GET                                                       F5G16340
02431   0 50000 1 12540          CLA BBB+5,1 REGION                                                 F5G16350
02432  -0 73400 1 00000          PDX 0,1 NO.                                                        F5G16360
02433   0 50000 1 05263          CLA REG,1 GET NO. OF 1ST BB IN REGION                              F5G16370
02434   0 07400 4 02136 F35      TSX F30,4  DETERMINE MOST FREQ SUCC IN BB                          F5G16380
02435   0 50000 0 00544          CLA FV101 IS IT MORE FREQ. THAN                                    F5G16390
02436   0 34000 0 00532          CAS FV1 PREV+ MAX                                                  F5G16400
02437   0 02000 0 02442          TRA F90                                                            F5G16410
02440   0 76100 0 00000          NOP  YES,                                                          F5G16420
02441   0 02000 0 02451          TRA F36 NO                                                         F5G16430
02442   0 60100 0 00532 F90      STO FV1    YES, REPLACE PREV.MAX.                                  F5G16440
02443   0 50000 0 00545          CLA FV102 AND BB NO.                                               F5G16450
02444   0 60100 0 00533          STO FV2 AND                                                        F5G16460
02445   0 50000 0 00546          CLA FV103 SUCC. NO+                                                F5G16470
02446   0 60100 0 00534          STO FV3 AND                                                        F5G16480
02447   0 50000 0 00547          CLA FV104 REGION NO. WORD                                          F5G16490
02450   0 60100 0 00535          STO FV4                                                            F5G16500
02451   0 50000 0 00547 F36      CLA FV104 ARRANGE TO CONSIDER THE                                  F5G16510
02452  -0 32000 0 00353          ANA SBK2 NEXT BB IN REGION                                         F5G16520
02453   0 34000 0 00353          CAS SBK2 IS IT LAST BB IN REGION                                   F5G16530
02454   0 02000 0 02456          TRA F94                                                            F5G16540
02455   0 02000 0 02460          TRA F37 YES                                                        F5G16550
02456   0 76700 0 00022 F94      ALS 18                                                             F5G16560
02457   0 02000 0 02434          TRA F35                                                            F5G16570
02460   0 50000 0 00532 F37      CLA FV1 WAS THERE AN UNCONSIDERED                                  F5G16580
02461  -0 53400 1 02527          LXD F39,1 SUCC                                                     F5G16590
02462   0 10000 0 02550          TZE F47                                                            F5G16600
02463   0 50000 0 00533          CLA FV2 EXIT BB                                                    F5G16610
02464   0 77100 0 00022          ARS 18 NO.                                                         F5G16620
02465   0 62100 1 05035          STA LPLST+S3P1,1                                                   F5G16630
02466   2 00001 1 02467 F45      TIX F62,1,1 DOWN THE STORING                                       F5G16640
02467  -0 63400 1 02527 F62      SXD F39,1 INDEX.                                                   F5G16650
02470   0 50000 0 00532          CLA FV1 GET INDEX OF                                               F5G16660
02471   0 07400 4 00067          TSX SE1,4 BB UP FOR ENTRY.                                         F5G16670
02472   0 50000 1 12540          CLA BBB+5,1 IS THIS BB IN                                          F5G16680
02473   0 10000 0 02553          TZE F48 A REGION                                                   F5G16690
02474  -0 73400 2 00000          PDX 0,2 YES.                                                       F5G16700
02475   0 50000 2 05263          CLA REG,2 GET AND                                                  F5G16710
02476   0 60100 0 00535          STO FV4 STORE REGION WORD.                                         F5G16720
02477  -0 32000 0 00360          ANA FK3 IS IT IN AN                                                F5G16730
02500   0 10000 0 02574          TZE F54 OPAGUE REGION                                              F5G16740
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02501 -0 53400 1 02527        LXD F39,1 NO.                                                F5G16750
02502  0 50000 0 00356        CLA FK1 STORE TRANSPARENT REGION                             F5G16760
02503  0 60100 1 05035        STO LPLST+S3P1,1 MARKER                                      F5G16770
02504  0 50000 0 00532        CLA FV1 WITH                                                 F5G16780
02505  0 76700 0 00022        ALS 18 ENTRY                                                 F5G16790
02506  0 62200 1 05035        STD LPLST+S3P1,1 BB NO. IN DECR.                             F5G16800
02507 -0 53400 2 00325        LXD S3K3,2 SET INDEX TO 1ST ELEMENT IN LPLST.                F5G16810
02510  0 50000 2 05035 F38    CLA LPLST+S3P1,2                                             F5G16820
02511  0 34000 0 00324        CAS S3K2 IS THIS A BB ENTRY                                  F5G16830
02512  0 76100 0 00000        NOP                                                          F5G16840
02513  0 02000 0 02515        TRA F91                                                      F5G16850
02514  0 02000 0 02526        TRA F40 YES                                                  F5G16860
02515 -0 63400 2 02412 F91    SXD F18,2    STOREINDEX OF QUANTITYBEING C.F. ED             F5G16870
02516  0 07400 4 00067        TSX SE1,4                                                    F5G16880
02517  0 50000 1 12540        CLA BBB+5,1       GET                                        F5G16890
02520 -0 73400 2 00000        PDX 0,2 REGION WORD.                                         F5G16900
02521  0 50000 2 05263        CLA REG,2                                                    F5G16910
02522 -0 53400 2 02412        LXD F18,2 GET INDEX OF QUANTITY BEING COMPARED.              F5G16920
02523  0 34000 0 00535        CAS FV4 IS THIS NAME REGION                                  F5G16930
02524  0 02000 0 02526        TRA F40                                                      F5G16940
02525  0 02000 0 02531        TRA F41 YES                                                  F5G16950
02526  2 00001 2 02527 F40    TIX F39,2,1                                                  F5G16960
02527 -3 00000 2 02535 F39    TXL F42,2,- IS THIS INDEX OF QUANTITY BEING COMPARED         F5G16970
02530  0 02000 0 02510        TRA F38 NO                                                   F5G16980
02531 -0 50000 2 05035 F41    CLA LPLST+S3P1,2 PUT EXIT BB NO.                             F5G16990
02532 -0 53400 1 02527        LXD F39,1 FROM PREVIOUS QUANTITY                             F5G17000
02533  0 62100 1 05035        STA LPLST+S3P1,1 IN THIS LATEST ONE.                         F5G17010
02534  0 02000 0 02312        TRA F43                                                      F5G17020
02535  3 00002 2 02541 F42    TXH F63,2,2 IS LPLST FULL                                    F5G17030
02536  0 50000 0 00323 F53    CLA S3K1 STORE END                                           F5G17040
02537  0 60100 0 05034        STO LPLST+S3P1-1 LOOP LIST SENTINEL.                         F5G17050
02540  0 02000 0 02706        TRA F75 GO TO DEAL WITH STRING.                              F5G17060
02541  0 50000 2 05035 F63    CLA LPLST+S3P1,2                                             F5G17070
02542  0 02000 0 02422        TRA F64                                                      F5G17080
02543  0 07400 4 02136 F44    TSX F30,4 DETERMINE MOST FREQ. SUCC. IN BB.                  F5G17090
02544  0 50000 0 00544        CLA FV101 STORE THE                                          F5G17100
02545  0 60100 0 00532        STO FV1 MOST FREQ. SUCC. AWAY.                               F5G17110
02546 -0 53400 1 02527        LXD F39,1                                                    F5G17120
02547 -0 10000 0 02466        TNZ F45 WAS THERE AN UNCONSIDERED SUCC.                      F5G17130
02550  0 50000 0 00323 F47    CLA S3K1 NO,RECORD AN                                        F5G17140
02551  0 60100 1 05036        STO LPLST+S3P1+1,1 END LOOP LIST SENTINEL.                   F5G17150
02552  0 02000 0 02706        TRA F75                                                      F5G17160
02553 -0 53400 1 02527 F48    LXD F39,1 ENTER BB                                           F5G17170
02554  0 50000 0 00532        CLA FV1 NO. AND MARKER                                       F5G17180
02555 -0 32000 0 00353        ANA SBK2 IN                                                  F5G17190
02556  0 76700 0 00022        ALS 18 LPLST                                                 F5G17200
02557  0 60100 0 00535        STO FV4                                                      F5G17210
02560  0 60100 1 05035        STO LPLST+S3P1,1                                             F5G17220
02561 -0 63400 1 02570        SXD F50,1                                                    F5G17230
02562 -0 53400 2 00325        LXD S3K3,2 S + TO                                            F5G17240
02563  0 50000 2 05035 F51    CLA LPLST+S3P1,2                                             F5G17250
02564  0 34000 0 00535        CAS FV4 IS THIS SAME BB AS NEW ENTRY                         F5G17260
02565  0 02000 0 02567        TRA F49                                                      F5G17270
02566  0 02000 0 02312        TRA F43 YES                                                  F5G17280
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02567  2 00001 2 02570 F49     TIX F50,2,1 DECREASE COMPARISON INDEX.                          F5G17290
02570 -3 00000 2 02572 F50     TXL F52,2,- IS THIS INDEX OF NEW QUANTITY                       F5G17300
02571  0 02000 0 02563         TRA F51 NO.                                                     F5G17310
02572  3 00002 2 02541 F52     TXH F63,2,2       IS LPLST FULL                                 F5G17320
02573  0 02000 0 02536         TRA F53 YES.                                                    F5G17330
02574 -0 53400 1 02527 F54     LXD F39,1 IS OPAQUE REGION                                      F5G17340
02575  0 50000 0 00357         CLA FK2 ENTER OPAQUE                                            F5G17350
02576  0 60100 1 05035         STO LPLST+S3P1,1 REGION MARKER                                  F5G17360
02577  0 50000 0 00532         CLA FV1 WITH CORRECT                                            F5G17370
02600  0 76700 0 00022         ALS 18 ENTRY BB                                                 F5G17380
02601  0 62200 1 05035         STD LPLST+S3P1,1 NO.                                            F5G17390
02602  0 02000 0 02550         TRA F47                                                         F5G17400
02603 -0 53400 2 02270 F55     LXD F11,2 STORE THE                                             F5G17410
02604  0 50000 0 00357         CLA FK2 OPAQUE                                                  F5G17420
02605  0 60100 2 05035         STO LPLST+S3P1,2 REGION MARKR                                   F5G17430
02606  0 50000 0 00532         CLA FV1 WITH                                                    F5G17440
02607  0 62100 2 05035         STA LPLST+S3P1,2 EXIT BB                                        F5G17450
02610  0 02000 0 02373         TRA F56 NO.                                                     F5G17460
02611  0 50000 0 00532 F57     CLA FV1 PUT THE                                                 F5G17470
02612 -0 32000 0 00353         ANA SBK2 B.B. NO.                                               F5G17480
02613  0 76700 0 00022         ALS 18 IN                                                       F5G17490
02614  0 60100 0 00535         STO FV4 DECR. PART.                                             F5G17500
02615  0 50000 0 02270         CLA F11 SET THE END                                             F5G17510
02616  0 62200 0 02623         STD F59 TEST.                                                   F5G17520
02617  0 53400 1 00341         LXA S5K4,1     SET INDEX OF 1ST LPLST TO BE COMPARED            F5G17530
02620  0 50000 1 05035 F61     CLA LPLST+S3P1,1                                                F5G17540
02621  1 00001 1 02622         TXI F58,1,1                                                     F5G17550
02622 -0 63400 1 02412 F58     SXD F18,1                                                       F5G17560
02623  3 00000 1 02630 F59     TXH F60,1,- WAS THAT THE LAST QUANTITY                          F5G17570
02624  0 34000 0 00535         CAS FV4 IS THIS THE SAME BB.                                    F5G17580
02625  0 02000 0 02620         TRA F61                                                         F5G17590
02626  0 02000 0 02310         TRA F13 YES                                                     F5G17600
02627  0 02000 0 02620         TRA F61                                                         F5G17610
02630 -0 53400 1 02270 F60     LXD F11,1                                                       F5G17620
02631  0 50000 0 00532         CLA FV1 STORE THE                                               F5G17630
02632 -0 32000 0 00353         ANA SBK2 BB                                                     F5G17640
02633  0 76700 0 00022         ALS 18 MARKER.                                                  F5G17650
02634  0 60100 1 05035         STO LPLST+S3P1,1                                                F5G17660
02635  0 50000 0 00532         CLA FV1                                                         F5G17670
02636  0 07400 4 02075         TSX F1,4 FIND MOST FREQ. PRED. OF BB.                           F5G17680
02637  0 50000 0 00544         CLA FV101 DOES B.B. HAVE                                        F5G17690
02640  0 60100 0 00532         STO FV1 UNCONSIDERED PRED.                                      F5G17700
02641 -0 10000 0 02644         TNZ F71                                                         F5G17710
02642 -0 53400 2 02270         LXD F11,2 NO,GO TO MOVE LPLST UP.                               F5G17720
02643  0 02000 0 02373         TRA F56                                                         F5G17730
02644 -0 53400 1 02270 F71     LXD F11,1                                                       F5G17740
02645  1 00001 1 02646         TXI F72,1,1 UP THE STORING INDEX                                F5G17750
02646 -0 63400 1 02270 F72     SXD F11,1                                                       F5G17760
02647  3 00074 1 02536         TXH F53,1,S3P1 IS LPLST FULL                                    F5G17770
02650  0 02000 0 02253         TRA F23 NO.                                                     F5G17780
02651  0 53400 1 00362 F80     LXA FK5,1 FIND                                                  F5G17790
02652  0 50000 1 05263 F81     CLA REG,1 THE 1ST AVAILABLE REGION                              F5G17800
02653  0 10000 0 02656         TZE F82 POSITION.                                               F5G17810
02654  2 00001 1 02652         TIX F81,1,1                                                     F5G17820
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02655   0 07400 4 00004          TSX 4,4 DIAGNOSTIC, ERROR                          F5G17830
02656  -0 63400 1 00565 F82      SXD XV1,1       STORE THE INDEX                    F5G17840
                                    OF THE NEW REGION WORD                        F5G17850
02657   0 56000 0 00314 F83      LDQ ZERO          STORE INITIAL                    F5G17860
02660  -0 60000 0 00566          STQ XV2         VALUE OF REGION                    F5G17870
02661   0 02000 4 00001          TRA 1,4                                            F5G17880
02662   0 07400 4 01523 F78      TSX SA,4 GET EXIT CONDITIONS OF REGION.            F5G17890
02663   0 53400 1 00342          LXA S5K5,1        PUT EXIT                         F5G17900
02664   0 56000 0 00314          LDQ ZERO                                           F5G17910
02665   0 50000 1 00506 F76      CLA EX1+3,1 CONDITONS                              F5G17920
02666   0 60100 1 00430          STO IR1+3,1 INTO                                   F5G17930
02667   0 50000 1 00511          CLA ACT1+3,1 I+R.S                                 F5G17940
02670  -0 60000 1 00561          STQ AC1+3,1                                        F5G17950
02671   0 12000 0 02675          TPL F77 IS THIS EXIT ACTIVE                        F5G17960
02672   0 50000 0 00325          CLA S3K3 YES,FORM AND                              F5G17970
02673  -0 76000 0 00003          SSM  STORE ACTIVE                                  F5G17980
02674   0 60100 1 00561          STO AC1+3,1 INDICATOR                              F5G17990
02675   2 00001 1 02665 F77      TIX F76,1,1 COUNT TO 3                             F5G18000
02676   0 50000 0 00325          CLA S3K3 INITIALIZE                                F5G18010
02677   0 40200 0 00316          SUB ONED LOOP LIST                                 F5G18020
02700   0 60100 0 00440          STO S3V4 TO ITS                                    F5G18030
02701   0 60100 0 00444          STO S3V5                                           F5G18040
02702   0 50000 0 00340          CLA S5K3 2ED                                       F5G18050
02703   0 60100 0 00437          STO S3V3 ELEMENT                                   F5G18060
02704  -0 63400 0 00436          SXD S3V2,0                                         F5G18070
02705   0 02000 0 03072          TRA X32                                            F5G18080
02706   0 07400 4 02651 F75      TSX F80,4 DETERMINE NEW REGION INDEX               F5G18090
02707   0 50000 0 04741          CLA LPLST IS 1ST                                   F5G18100
02710   0 56000 0 00324          LDQ S3K2                ELEMENT OF LPLST A TRANSPARENT F5G18110
02711   0 04000 0 02662          TLQ F78 ON OPAQUE REGION                           F5G18120
02712   0 53400 1 00342          LXA S5K5,1 NO,INITIALIZE                           F5G18130
02713   0 50000 0 00336          CLA S5K1 THE                                       F5G18140
02714   0 60100 1 00430 F79      STO IR1+3,1 I.R.S                                  F5G18150
02715   2 00001 1 02714          TIX F79,1,1 TO EMPTINESS                           F5G18160
02716   0 02000 0 03061          TRA X                                              F5G18170
                                    FIRST LXING PASS.                             F5G18180
02717  -0 63400 0 02763  L       SXD ROT3,0                                         F5G18190
02720  -0 63400 0 02756          SXD ROT1,0                                         F5G18200
02721   0 53400 1 00342 INIZ     LXA S5K5,1              INITIALIZE                 F5G18210
02722   0 50000 0 00336          CLA S5K1 THE                                       F5G18220
02723   0 60100 1 00430 L23      STO IR1+3,1 INDEX REGISTERS                        F5G18230
02724   2 00001 1 02723          TIX L23,1,1 TO EMPTINESS.                          F5G18240
02725   0 56000 0 00325          LDQ S3K3                                           F5G18250
02726  -0 60000 0 00440          STQ S3V4        INITIALIZE THE                     F5G18260
02727   0 56000 0 00340          LDQ S5K3 LOOP LIST.                                F5G18270
02730  -0 60000 0 00437          STQ S3V3 MAKE SURE THAT THE                        F5G18280
02731  -0 63400 0 00436          SXD S3V2,0                                         F5G18290
02732   0 07400 4 01023  1L4     TSX S3,4 GET NEXT TAG.                             F5G18300
02733   0 02000 0 03013          TRA L6 *RETURN HERE IF TAG WASNT GOTTEN.           F5G18310
02734   0 53400 1 00342          LXA S5K5,1 SET COUNT TO 3,N=1                      F5G18320
02735   0 50000 0 00441          CLA 1TAG              IS CL (TAG) EQUAL            F5G18330
02736   0 34000 1 00430 L2       CAS IR1+3,1 TO C (IRN)                             F5G18340
02737   0 02000 0 02741          TRA L1 NO.                                         F5G18350
02740   0 02000 0 03000          TRA 1L3               YES                          F5G18360
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02741   2 00001 1 02736 L1      TIX L2,1,1 NO. COUNT TO 3,N=N+1                  F5G18370
02742   0 50000 0 00442         CLA TPE IS THIS                                  F5G18380
02743   0 34000 0 00376         CAS XK15 AN LXP INSTR.                           F5G18390
02744   0 02000 0 02746         TRA L18 NO,                                      F5G18400
02745   0 02000 0 02752         TRA ROT0          YES                            F5G18410
02746   0 34000 0 00403 L18     CAS XK21 NO,IS IT A DED INSTR.                   F5G18420
02747   0 02000 0 02773         TRA L17 NO                                       F5G18430
02750   0 02000 0 02752         TRA ROT0                YES                      F5G18440
02751   0 02000 0 02773         TRA L17                                          F5G18450
02752  -0 53400 2 00440  ROT0   LXD S3V4,2                                      F5G18460
02753  -3 00072 2 02732         TXL 1L4,2,S3P1-2                                 F5G18470
02754  -0 53400 2 02763         LXD ROT3,2                                       F5G18480
02755   1 77777 2 02756         TXI ROT1,2,-1                                    F5G18490
02756  -3 00000 2 02732  ROT1   TXL 1L4,2,-                                     F5G18500
02757  -0 63400 2 02763         SXD ROT3,2                                       F5G18510
02760  -0 53400 2 00314         LXD ZERO,2                                       F5G18520
02761   0 50000 2 04741  ROT2   CLA LPLST,2                                     F5G18530
02762   0 34000 0 00323         CAS S3K1                                         F5G18540
02763  -3 00000 0 02765  ROT3   TXL ROT4,0,-                                    F5G18550
02764  -3 00000 0 02767         TXL ROT5,0,-                                     F5G18560
02765   0 60100 2 04740  ROT4   STO LPLST-1,2                                   F5G18570
02766   1 77777 2 02761         TXI ROT2,2,-1                                    F5G18580
02767  -0 63400 2 02756  ROT5   SXD ROT1,2                                      F5G18590
02770   0 50000 0 04740         CLA LPLST-1                                      F5G18600
02771   0 60100 2 04740         STO LPLST-1,2                                    F5G18610
02772   0 02000 0 02721         TRA INIZ                                         F5G18620
02773   0 07400 4 00622 L17     TSX S1,4 SELECT MOST REPLACEABLE I.R.            F5G18630
02774  -0 53400 4 00430         LXD IRR,4 PLACE TAU-TAG                          F5G18640
02775   0 50000 0 00441         CLA 1TAG            IN APPROPRIATE               F5G18650
02776   0 60100 4 00430         STO IR1+3,4 I.R.                                 F5G18660
02777   0 02000 0 02732         TRA 1L4                                          F5G18670
03000   0 50000 0 00442  1L3    CLA TPE IS THIS AN LXP                           F5G18680
03001   0 34000 0 00376         CAS XK15                                         F5G18690
03002   0 02000 0 03004         TRA 1L19                                         F5G18700
03003   0 02000 0 03010         TRA L5 YES                                       F5G18710
03004   0 34000 0 00403  1L19   CAS XK21 IS IT AN DED                            F5G18720
03005   0 02000 0 02732         TRA 1L4                                          F5G18730
03006   0 02000 0 03010         TRA L5 YES.                                      F5G18740
03007   0 02000 0 02732         TRA 1L4                                          F5G18750
03010   0 50000 0 00333 L5      CLA LK1 PLACE AN E (HASH                         F5G18760
03011   0 60100 1 00430         STO IR1+3,1 SYMBOL) IN                           F5G18770
03012   0 02000 0 02732         TRA 1L4             RIGHT IR,                    F5G18780
03013   0 60100 0 00554 L6      STO LV4 IS THIS AN END OF LOOP                   F5G18790
03014   0 34000 0 00323         CAS S3K1 LIST SENTINEL                           F5G18800
03015   0 02000 0 03017         TRA L14 NO,                                      F5G18810
03016   0 02000 0 03051         TRA L15 YES,                                     F5G18820
03017  -0 50000 0 00554 L14     CAL LV4 IS                                       F5G18830
03020  -0 32000 0 00335         ANA LK3 THIS A                                   F5G18840
03021   0 10000 0 02732         TZE 1L4             BB                           F5G18850
03022   0 50000 0 00554         CLA LV4 NO,FORM CORRESPONDENCE                   F5G18860
03023   0 07400 4 01245         TSX S5,4 BETWEEN IRS AND ENS                     F5G18870
03024   0 50000 0 00554         CLA LV4 GET + STORE EXIT CONDITIONS              F5G18880
03025   0 07400 4 01523         TSX SA,4 AND (USELESSLY+ OCTIVE INDICATORS.      F5G18890
03026   0 53400 1 00342         LXA S5K5,1 SET COUNT TO 3,N=1                    F5G18900
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03027   0 50000 1 00470 L11     CLA EN4+3,1 PUT CORRESPONDENCE INDEX                          F5G18910
03030  -0 73400 2 00000         PDX 0,2 IN 2.                                                 F5G18920
03031   0 50000 1 00506         CLA EX1+3,1 IS THIS EXIT CONDITION                            F5G18930
03032   0 34000 0 00336         CAS S5K1 EMPTY                                                F5G18940
03033   0 02000 0 03035         TRA L13 NO,                                                   F5G18950
03034   0 02000 0 03040         TRA P003                                                      F5G18960
03035   0 60100 2 00430 L13     STO IR1+3,2 NO,REPLACE C (IR) BY EXIT CONDITION.              F5G18970
03036   2 00001 1 03027 L10     TIX L11,1,1 COUNT TO 3,N=N+1                                  F5G18980
03037   0 02000 0 02732         TRA 1L4                                                       F5G18990
03040   0 50000 2 00430   P003  CLA IR1+3,2                                                   F5G19000
03041   0 56000 0 00333         LDQ LK1                                                       F5G19010
03042   0 04000 0 03036         TLQ L10                                                       F5G19020
03043   0 53400 4 00342         LXA S5K5,4                                                    F5G19030
03044   0 34000 4 00506  P003A  CAS EX1+3,4                                                   F5G19040
03045   0 02000 0 03047         TRA P003B                                                     F5G19050
03046  -0 60000 2 00430         STQ IR1+3,2                                                   F5G19060
03047   2 00001 4 03044  P003B  TIX P003A,4,1                                                 F5G19070
03050   0 02000 0 03036         TRA L10                                                       F5G19080
03051   0 53400 1 00342 L15     LXA S5K5,1 COPY ASIDE THE FINAL                               F5G19090
03052   0 50000 1 00430 L16     CLA IR1+3,1 CONTENTS                                          F5G19100
03053   0 34000 0 00333         CAS LK1                 (IF REAL, OTHERWISE                   F5G19110
03054   0 76100 0 00000         NOP                                                           F5G19120
03055   0 50000 0 00336         CLA S5K1                SET TO                                F5G19130
03056   0 60100 1 00430         STO IR1+3,1             EMPTY)                                F5G19140
03057   0 60100 1 00554         STO LV1+3,1 OF THE                                            F5G19150
03060   2 00001 1 03052         TIX L16,1,1 IRS                                               F5G19160
                                    THE SECOND LXING PASS FOLLOWS.                            F5G19170
                                    PRECEEDED BY 1ST LXING PASS                               F5G19180
03061   0 56000 0 00325 X       LDQ S3K3 INITIALIZE THE                                       F5G19190
03062  -0 60000 0 00440         STQ S3V4 LOOP LIST AND                                        F5G19200
03063   0 56000 0 00340         LDQ S5K3 MAKE SURE TAG                                        F5G19210
03064  -0 60000 0 00437         STQ S3V3 LOC. GETS SET.                                       F5G19220
03065  -0 63400 1 00436         SXD S3V2,1                                                    F5G19230
03066   0 50000 0 00314 X21     CLA ZERO SET ACTIVE INDICATORS                                F5G19240
03067   0 60100 0 00556         STO AC1 TO                                                    F5G19250
03070   0 60100 0 00557         STO AC2                                                       F5G19260
03071   0 60100 0 00560         STO AC3 NOT ACTIVE.                                           F5G19270
03072   0 50000 0 00314 X32     CLA ZERO SET LX INDICATORS                                    F5G19280
03073   0 60100 0 00562         STO LX1 TO                                                    F5G19290
03074   0 60100 0 00563         STO LX2 NOT                                                   F5G19300
03075   0 60100 0 00564         STO LX3 LX ED.                                                F5G19310
03076   0 60100 0 00521         STO ACIND       SET IND. TO SAY THIS IS 2ED LXING PASS        F5G19320
03077   0 07400 4 01023 X3      TSX S3,4 TRY TO GET NEXT TAG.                                 F5G19330
03100   0 02000 0 03322         TRA X13 COME HERE IF TAG NOT GOT.                             F5G19340
03101   0 50000 0 01122         CLA S39 COMPUTE LOCATIONS OF                                  F5G19350
03102  -0 32000 0 00353         ANA SBK2 THIS TAG=(ADDR. FOLLOWING                            F5G19360
03103   0 40000 0 00451         ADD S4V1 TIX BLACK + L (CM)-                                  F5G19370
03104   0 40200 0 00332         SUB S4K3 CMTAG-INDEX OF TAG                                   F5G19380
03105   0 76700 0 00022         ALS 18                                                        F5G19390
03106  -0 40000 0 00436         SBM S3V2                                                      F5G19400
03107   0 76500 0 00065         LRS 53 THEN FORM LOC/9                                        F5G19410
03110  -0 60000 0 00571         STQ XV5 AND REMAINDER                                         F5G19420
03111   0 22100 0 00371         DVP XK9 STORE INTEG. PART                                     F5G19430
03112  -0 60000 0 00567         STQ XV3 AND REMAINDER.                                        F5G19440
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03113   0 60100 0 00570         STO XV4                                                    F5G19450
03114   0 53400 1 00342         LXA S5K5,1 SET COUNT TO 3,N=1                              F5G19460
03115   0 50000 0 00441         CLA 1TAG                                                   F5G19470
03116   0 34000 1 00430 X2      CAS IR1+3,1        IS CONTENTS OF IRN SAME AS OF TAG       F5G19480
03117   0 02000 0 03121         TRA X1 NO                                                  F5G19490
03120   0 02000 0 03257         TRA X7 YES                                                 F5G19500
03121   2 00001 1 03116 X1      TIX X2,1,1 NO COUNT OT 3,N=N+1                             F5G19510
03122   0 50000 0 00442         CLA TPE IS THIS AN                                         F5G19520
03123   0 34000 0 00376         CAS XK15 LX PRIME                                          F5G19530
03124   0 02000 0 03126         TRA X103 NO                                                F5G19540
03125   0 02000 0 03131         TRA X8     YES.  COMPILE LXD FOR LXP.                      F5G19550
03126   0 34000 0 00403 X103    CAS XK21 IS IT A DED                                       F5G19560
03127   0 02000 0 03131         TRA X8                                                     F5G19570
03130   0 02000 0 03077         TRA X3 YES                                                 F5G19580
03131   0 07400 4 00622 X8      TSX S1,4 SELECT MOST REPLACEABLE I.R.                      F5G19590
03132  -0 53400 1 00430         LXD IRR,1 PLACE TAU-TAG                                    F5G19600
03133   0 50000 0 00441         CLA 1TAG             IN SELECTED                           F5G19610
03134   0 60100 1 00430         STO IR1+3,1 I.R.                                           F5G19620
03135   0 50000 1 00561         CLA AC1+3,1 IS THIS                                        F5G19630
03136   0 10000 0 03140         TZE X4 IR ACTIVE                                           F5G19640
03137   0 07400 4 01566         TSX SB,4 YES,RECORD SXD NECESSARY.                         F5G19650
03140   0 50000 0 00442 X4      CLA TPE IS THIS                                            F5G19660
03141   0 34000 0 00322         CAS S2K2 AN LX                                             F5G19670
03142   0 02000 0 03144         TRA X5 NO                                                  F5G19680
03143   0 02000 0 03155         TRA X14 YES                                                F5G19690
03144  -0 50000 0 00443 X5      CAL INTAG IS THIS 1ST INSTR.                               F5G19700
03145  -0 32000 0 00363         ANA XK10 IN A BB                                           F5G19710
03146  -0 10000 0 03204         TNZ X9                                                     F5G19720
03147   0 50000 0 00567         CLA XV3 NO,                                                F5G19730
03150   0 07400 4 00032         TSX SE4,4 DETERMINE INDEX IN STAG                          F5G19740
03151   0 53400 2 00570         LXA XV4,2                                                  F5G19750
03152  -0 50000 0 00372         CAL XK11 GENERATE                                          F5G19760
03153   0 76700 2 00010         ALS 8,2 LX BIT                                             F5G19770
03154  -0 60200 1 05263         ORS STAG,1 STORE IN STAG.                                  F5G19780
03155   0 07400 4 02024 X14     TSX SF,4 CHECK IF AN ACTIVE INSTR.                         F5G19790
03156   0 02000 0 03162         TRA X01 COME HERE IF NOT ACTIVE                            F5G19800
03157  -0 53400 1 00430         LXD IRR,1 ACTIVE-STORE ACTIVE                              F5G19810
03160   0 50000 0 00526         CLA SFV1 INDICATOR                                         F5G19820
03161   0 60100 1 00561         STO AC1+3,1                                                F5G19830
03162  -0 53400 2 00430 X01     LXD IRR,2                                                  F5G19840
03163   0 50000 2 00565         CLA LX1+3,2 WAS AN ENTRANCE REQUIREMENT                    F5G19850
03164  -0 10000 0 03167         TNZ X19 BEEN DETERMINED FOR THIS BB.                       F5G19860
03165   0 50000 0 00333         CLA LK1 NO,RECORD HASH                                     F5G19870
03166   0 60100 2 00565         STO LX1+3,2 AS ENTRANCE REQUIREMENT                        F5G19880
03167  -0 50000 0 00340 X19     CAL S5K3 RECORD THAT THERE IS AN                           F5G19890
03170   0 77100 2 00003         ARS 3,2 LX FOR THIS IR IN                                  F5G19900
03171  -0 60200 0 00566         ORS XV2 REGION.                                            F5G19910
03172   0 50000 0 00567 X02     CLA XV3 RECORD THE                                         F5G19920
03173   0 07400 4 00032         TSX SE4,4 SPECIFIC                                         F5G19930
03174  -0 50000 0 00570         CAL XV4 TAG                                                F5G19940
03175   0 76000 0 00006         COM  IN                                                    F5G19950
03176   0 73400 2 00000         PAX 0,2 THE                                                F5G19960
03177  -0 50000 0 00430         CAL IRR STAG                                               F5G19970
03200   0 77100 2 00000         ARS 0,2 TABLE                                              F5G19980
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03201  0 77100 2 00000         ARS 0,2                                                    F5G19990
03202 -0 60200 1 05263         ORS STAG,1                                                 F5G20000
03203  0 02000 0 03077         TRA X3                                                     F5G20010
03204 -0 53400 1 00440 X9      LXD S3V4,1 GET                                             F5G20020
03205 -3 00072 1 03212         TXL XI1+1,1,S3P1-2                                         F5G20030
03206  0 50000 0 00550         CLA LPIND                                                  F5G20040
03207 -0 12000 0 03212         TMI XI1+1                                                  F5G20050
03210 -0 53400 2 00430         LXD IRR,2                                                  F5G20060
03211  0 02000 0 03243 XI1     TRA X16-3                                                  F5G20070
03212  0 50000 1 05033         CLA LPLST+S3P1-2,1 AND                                     F5G20080
03213  0 34000 0 00324         CAS S3K2 STORE                                             F5G20090
03214  0 76100 0 00000         NOP  BB                                                    F5G20100
03215  0 02000 0 03217         TRA X117                                                   F5G20110
03216  0 77100 0 00022         ARS 18 PRED                                                F5G20120
03217  0 62100 0 00513 X117    STA SBV3       NO.                                         F5G20130
03220  0 50000 1 05034         CLA LPLST+S3P1-1,1                                         F5G20140
03221  0 07400 4 00070         TSX SE,4 GET ADDR. OF                                      F5G20150
03222  0 50000 1 12533         CLA BBB,1 1ST PRED.                                        F5G20160
03223  0 60200 0 00512 X03     SLW SBV2                                                   F5G20170
03224  0 07400 4 00055         TSX SE5,4 GET PRED.                                        F5G20180
03225 -0 50000 1 15674         CAL PRED,1                                                 F5G20190
03226 -0 32000 0 00353         ANA SBK2                                                   F5G20200
03227  0 34000 0 00513         CAS SBV3 IS THIS RIGHT PRED.                               F5G20210
03230  0 02000 0 03232         TRA X04 NO                                                 F5G20220
03231  0 02000 0 03235         TRA X05 YES                                                F5G20230
03232  0 50000 0 00512 X04     CLA SBV2 NO ARRANGE TO                                     F5G20240
03233  0 40000 0 00315         ADD ONEA TRY NEXT                                          F5G20250
03234  0 02000 0 03223         TRA X03 PRED.                                              F5G20260
03235 -0 53400 2 00430 X05     LXD IRR,2 PUT LX                                           F5G20270
03236 -0 50000 0 00377         CAL XK16 BIT INTO                                          F5G20280
03237  0 77100 2 00003         ARS 3,2 PRED.                                              F5G20290
03240 -0 60200 1 15674         ORS PRED,1 TABLE.                                          F5G20300
03241 -0 53400 4 00440         LXD S3V4,4                                                 F5G20310
03242 -0 60200 4 05034         ORS LPLST+S3P1-1,4                                         F5G20320
03243  0 50000 2 00430         CLA IR1+3,2        SET ENTR. REQU.                         F5G20330
03244  0 60100 2 00565         STO LX1+3,2                                                F5G20340
03245  0 02000 0 03155         TRA X14                                                    F5G20350
03246  0 07400 4 01661 X16     TSX SC,4 RECORD I.R. ACTIVE IN SECTION OF LPLST            F5G20360
03247  0 56000 0 00333         LDQ LK1                                                    F5G20370
03250  0 50000 1 00565         CLA LX1+3,1 HAS THIS                                       F5G20380
03251 -0 10000 0 03253         TNZ X100 ENTR. REQU. BEEN DETERMINED                       F5G20390
03252 -0 60000 1 00565         STQ LX1+3,1 NO,RECORD ENTR. REQU. IS AN E.                 F5G20400
03253 -0 60000 1 00430 X100    STQ IR1+3,1 ERASE THIS I.R.                                F5G20410
03254  0 50000 0 00314         CLA ZERO RECORD THAT THIS                                  F5G20420
03255  0 60100 1 00561         STO AC1+3,1 I.R. ISNT ACTIVE.                              F5G20430
03256  0 02000 0 03172         TRA X02                                                    F5G20440
03257 -0 63400 1 00430 X7      SXD IRR,1                                                  F5G20450
03260  0 50000 0 00442         CLA TPE IS THIS                                            F5G20460
03261  0 34000 0 00376         CAS XK15 AN LXP                                            F5G20470
03262  0 02000 0 03264         TRA X104 NO                                                F5G20480
03263  0 02000 0 03246         TRA X16 YES.                                               F5G20490
03264  0 34000 0 00403 X104    CAS XK21 IS IT A DED                                       F5G20500
03265  0 02000 0 03267         TRA X15                                                    F5G20510
03266  0 02000 0 03246         TRA X16 YES.                                               F5G20520
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03267  0 07400 4 02024 X15    TSX SF,4 DETERMINE ACTIVITY.                          F5G20530
03270  0 02000 0 03275        TRA X17 COME HERE IF NOT ACTIVE.                      F5G20540
03271 -0 53400 1 00430        LXD IRR,1                                             F5G20550
03272  0 07400 4 01661        TSX SC,4 RECORD PART OF LOOP LIST ACTIVE.             F5G20560
03273  0 50000 0 00526        CLA SFV1 STORE ACTIVE                                 F5G20570
03274  0 60100 1 00561        STO AC1+3,1 INDICATOR.                                F5G20580
03275  0 50000 0 00442 X17    CLA TPE                                               F5G20590
03276  0 34000 0 00322        CAS S2K2 IS THIS AN LX                                F5G20600
03277  0 02000 0 03301        TRA X18                                               F5G20610
03300  0 02000 0 03162        TRA X01 YES.                                          F5G20620
03301 -0 53400 1 00430 X18    LXD IRR,1                                             F5G20630
03302  0 50000 1 00565        CLA LX1+3,1 WAS THIS                                  F5G20640
03303 -0 10000 0 03172        TNZ X02 I.R. LX ED                                    F5G20650
03304  0 50000 1 00430        CLA IR1+3,1 NO,STORE THE TAG                          F5G20660
03305  0 60100 1 00565        STO LX1+3,1 IN TH LX INDICATOR.                       F5G20670
03306  0 02000 0 03172        TRA X02                                               F5G20680
03307  0 07400 4 00070 X22    TSX SE,4 MAKE SURE BB IS IN C+M.                      F5G20690
03310  0 53400 2 00342        LXA S5K5,2                                            F5G20700
03311  0 50000 2 00565 X25    CLA LX1+3,2                                           F5G20710
03312 -0 10000 0 03314        TNZ X23 HAS THIS ENTRANCE REQ. BEEN FOUND             F5G20720
03313  0 50000 2 00430        CLA IR1+3,2 NO,ENTRANCE = EXIT.                       F5G20730
03314  0 76700 0 00022 X23    ALS 18 PUT ENTR. REQ. IN LEFT.                        F5G20740
03315  0 40000 2 00430        ADD IR1+3,2 ADD THE EXIT REQUIREMENTS.                F5G20750
03316  0 60200 1 12535        SLW BBB+2,1                                           F5G20760
03317  1 77777 1 03320        TXI X24,1,-1      DOWN INDEX OF ENTR-EXIT REQU.       F5G20770
03320  2 00001 2 03311 X24    TIX X25,2,1 COUNT TO 3                                F5G20780
03321  0 02000 0 03353        TRA X26                                               F5G20790
03322 -0 53400 1 00440 X13    LXD S3V4,1      GET LOOP LIST QUANTITY                F5G20800
03323  3 00072 1 03353        TXH X26,1,S3P1-2  TRANSFER IF THIS IS 1ST IN LPLST    F5G20810
03324  0 50000 1 05033        CLA LPLST+S3P1-2,1     OF PREVIOUS QUANTITY           F5G20820
03325  0 60100 0 00607        STO XV19                                              F5G20830
03326  0 56000 0 00324        LDQ S3K2         WAS IT                               F5G20840
03327  0 04000 0 03331        TLQ X126       A BB                                   F5G20850
03330  0 77100 0 00022        ARS 18        YES                                     F5G20860
03331 -0 32000 0 00326  X126  ANA S3K4                IS THERE                      F5G20870
03332  0 56000 0 00351        LDQ SAK1                                              F5G20880
03333  0 04000 0 03346        TLQ X129                                              F5G20890
03334  0 07400 4 00067        TSX SE1,4               YES, GET EXIT BB              F5G20900
03335  0 50000 1 12533        CLA BBB,1       WAS THAT BB                           F5G20910
03336  0 77100 0 00041        ARS 33         TERMINATED BY                          F5G20920
03337  0 40000 0 00315        ADD ONEA            A                                 F5G20930
03340 -0 10000 0 03346        TNZ X129           GO TO N                            F5G20940
03341  0 53400 1 00342        LXA S5K5,1        YES, SET COUNT TO 3                 F5G20950
03342  0 50000 1 00561 X128   CLA AC1+3,1       IS THIS IR                          F5G20960
03343  0 10000 0 03345        TZE X127           ACTIVE                             F5G20970
03344  0 07400 4 01566        TSX SB,4           YES, RECORD SXD NECESSARY          F5G20980
03345  2 00001 1 03342 X127   TIX X128,1,1          COUNT TO 3                      F5G20990
03346  0 50000 0 00607 X129   CLA XV19        GET                                   F5G21000
03347  0 34000 0 00324        CAS S3K2                                              F5G21010
03350  0 76100 0 00000        NOP  NO                                               F5G21020
03351  0 02000 0 03353        TRA X26                                               F5G21030
03352  0 02000 0 03307        TRA X22 YES,                                          F5G21040
03353  0 50000 0 00444 X26    CLA S3V5 NO                                           F5G21050
03354  0 34000 0 00323        CAS S3K1 IS THIS AN END-LOOP-LIST                     F5G21060
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03355  0 02000 0 03357         TRA X31 NO                                                    F5G21070
03356  0 02000 0 04370         TRA X88 YES                                                   F5G21080
03357 -0 50000 0 00444 X31      CAL S3V5                                                      F5G21090
03360 -0 32000 0 00335          ANA LK3                                                       F5G21100
03361  0 34000 0 00400          CAS XK17 WHAT TYPE ENTRY IS THIS                              F5G21110
03362  0 02000 0 03365          TRA X118                                                      F5G21120
03363  0 02000 0 04043          TRA X33 TRANSPARENT REGION                                    F5G21130
03364  0 02000 0 03072          TRA X32 BB                                                    F5G21140
03365  0 50000 0 00444 X118     CLA S3V5      OPAQUE REGION                                   F5G21150
03366  0 07400 4 00070          TSX SE,4      IS                                              F5G21160
03367  0 50000 1 12540          CLA BBB+5,1     THIS                                          F5G21170
03370  0 60100 0 00614          STO XV24                                                      F5G21180
03371  0 62200 0 00613          STD XV23      THE                                             F5G21190
03372  0 50000 0 04741          CLA LPLST      SAME                                           F5G21200
03373  0 56000 0 00361          LDQ FK4                                                       F5G21210
03374  0 04000 0 03376          TLQ X221                                                      F5G21220
03375  1 00000 0 03404          TXI X213,0,-                                                  F5G21230
03376  0 07400 4 00067 X221     TSX SE1,4         REGION                                      F5G21240
03377  0 50000 1 12540          CLA BBB+5,1        AS                                         F5G21250
03400 -0 32000 0 00321          ANA S2K1          AT THE BEGINNING                            F5G21260
03401  0 40200 0 00613          SUB XV23      OF THE                                          F5G21270
03402  0 60100 0 00614          STO XV24          STORE IND. OF SAMENESS OF 1ST REGION        F5G21280
03403  0 10000 0 03724          TZE X61       LPLST                                           F5G21290
03404  0 50000 0 00444 X213     CLA S3V5                                                      F5G21300
03405  0 07400 4 01245 X57      TSX S5,4 NO,MATCH ENTR. REQU.                                 F5G21310
03406 -0 53400 1 00613 X63      LXD XV23,1        GET                                         F5G21320
03407  0 50000 1 05263          CLA REG,1         REGION WORD                                 F5G21330
03410  0 07400 4 00070          TSX SE,4          GET INDEX OF 1ST BB                         F5G21340
03411 -0 50000 1 12534 X209     CAL BBB+1,1       GET THE                                     F5G21350
03412  0 60200 0 00575          SLW XV9           ORIGINAL PERM. NOS.                         F5G21360
03413 -0 32000 0 00402          ANA XK20          STORE WORD TO                               F5G21370
03414  0 60200 0 00574          SLW XV8           CONTAIN NEW PERM. NOS.                      F5G21380
03415  0 53400 2 00342          LXA S5K5,2        SET COUNT TO 3                              F5G21390
03416 -0 50000 0 00575 X210     CAL XV9           GET THE                                     F5G21400
03417  0 77100 2 00003          ARS 3,2                                                       F5G21410
03420  0 77100 2 00003          ARS 3,2           PERM. NO. AND                               F5G21420
03421 -0 32000 0 00350          ANA S9K3          PUT IT                                      F5G21430
03422 -0 73400 4 00000          PDX 0,4           IN 4.                                       F5G21440
03423  0 50000 4 00470          CLA EN4+3,4       GET THE                                     F5G21450
03424  0 76700 2 00003          ALS 3,2           CORRESPONDENCE                              F5G21460
03425  0 76700 2 00003          ALS 3,2           OF THE ENTR. REQUIREMENTS                   F5G21470
03426 -0 60200 0 00574          ORS XV8           FORM NEW PERM.                              F5G21480
03427  2 00001 2 03416          TIX X210,2,1                                                  F5G21490
03430 -0 50000 0 00574          CAL XV8            STORE NEW PERM.                            F5G21500
03431  0 62200 1 12534          STD BBB+1,1       NOS.                                        F5G21510
03432  0 50000 1 12540          CLA BBB+5,1       IS THIS THE LAST                            F5G21520
03433 -0 32000 0 00353          ANA SBK2          BB IN REGION                                F5G21530
03434  0 34000 0 00353          CAS SBK2                                                      F5G21540
03435  0 02000 0 03437          TRA X211          NO.                                         F5G21550
03436  0 02000 0 03441          TRA X212          YES, DONE                                   F5G21560
03437  0 07400 4 00067 X211     TSX SE1,4         ARRANGE TO DO NEXT                          F5G21570
03440  0 02000 0 03411          TRA X209          BB.                                         F5G21580
03441  0 53400 1 00342 X212     LXA S5K5,1        SET COUNT TO 3                              F5G21590
03442  0 50000 1 00465 X60      CLA IN1+3,1       GET INDEX                                   F5G21600
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03443 -0 73400 2 00000          PDX 0,2 OF EN.                                  F5G21610
03444  0 50000 2 00473          CLA EN1+3,2 IS C(ENM)                           F5G21620
03445  0 34000 1 00430          CAS IR1+3,1 =C(IRN)                             F5G21630
03446  0 02000 0 03450          TRA X58                                         F5G21640
03447  0 02000 0 03734          TRA X64 YES,                                    F5G21650
03450  0 34000 0 00337 X58      CAS S5K2 IS C(ENM) REAL                         F5G21660
03451  0 76100 0 00000          NOP  NO,                                        F5G21670
03452  0 02000 0 03454          TRA X119                                        F5G21680
03453  0 02000 0 03771          TRA X67 YES,                                    F5G21690
03454  0 50000 1 00561 X119     CLA AC1+3,1      NO,IS                          F5G21700
03455  0 10000 0 03457 X102     TZE X59 IRN ACTIVE                              F5G21710
03456  0 07400 4 01566 X65      TSX SB,4 YES,RECORD SXD NECESSARY.              F5G21720
03457  2 00001 1 03442 X59      TIX X60,1,1                                     F5G21730
03460  0 07400 4 02042          TSX SG,4           PERMUTE REGION WORD          F5G21740
03461  0 50000 0 04741 X89      CLA LPLST                                       F5G21750
03462  0 34000 0 00324          CAS S3K2           IS IT A BB                   F5G21760
03463  0 07400 4 00067          TSX SE1,4          NO                           F5G21770
03464  0 02000 0 03466          TRA X206                                        F5G21780
03465  0 02000 0 03471          TRA X207                                        F5G21790
03466  0 50000 1 12540 X206     CLA BBB+5,1                                     F5G21800
03467 -0 73400 1 00000          PDX 0,1                                         F5G21810
03470  0 50000 1 05263          CLA REG,1          FORM NO OF 1ST BB IN REGION  F5G21820
03471  0 62200 0 00566 X207     STD XV2                                         F5G21830
03472  0 53400 1 00342          LXA S5K5,1                                      F5G21840
03473  0 50000 0 00336 X116     CLA S5K1                                        F5G21850
03474  0 34000 1 00430          CAS IR1+3,1        IS THIS IR EMPTY             F5G21860
03475  0 02000 0 03500          TRA X115                                        F5G21870
03476 -0 50000 1 00410          CAL XK23+3,1       YES, INITIALIZE IR           F5G21880
03477 -0 60200 0 00566          ORS XV2         TO EMPTYNESS                    F5G21890
03500  2 00001 1 03473 X115     TIX X116,1,1        COUNT TO 3                  F5G21900
03501 -0 53400 2 00325          LXD S3K3,2          PREPARE TO SCAN LOOP LIST   F5G21910
03502 -0 63400 2 00600          SXD XV12,2                                      F5G21920
03503  0 50000 2 05035 X79      CLA LPLST+S3P1,2                                F5G21930
03504  0 34000 0 00323          CAS S3K1 IS THIS END LOOP LIST                  F5G21940
03505  0 02000 0 03507          TRA X120                                        F5G21950
03506  0 02000 0 03717          TRA X81 YES.                                    F5G21960
03507  0 34000 0 00324 X120     CAS S3K2           IS IT A BB                   F5G21970
03510  0 76100 0 00000          NOP                                             F5G21980
03511  0 02000 0 03513          TRA X121                                        F5G21990
03512  0 77100 0 00022          ARS 18 YES.                                     F5G22000
03513  0 62100 0 00513 X121     STA SBV3        STORE EXIT BB NO.               F5G22010
03514  0 50000 2 05036          CLA LPLST+S3P1+1,2                              F5G22020
03515  0 34000 0 00323          CAS S3K1 IS NEXT QUANTITY AN END LPLST          F5G22030
03516  0 02000 0 03520          TRA X107                                        F5G22040
03517  0 02000 0 03603          TRA X114 YES.                                   F5G22050
03520  0 77100 0 00022 X107     ARS 18                                          F5G22060
03521  0 62100 0 00606          STA XV18 STORE ENTRY BB NO.                     F5G22070
03522  0 40000 0 00315          ADD ONEA                                        F5G22080
03523  0 07400 4 00067          TSX SE1,4                                       F5G22090
03524 -0 50000 1 12533          CAL BBB,1                                       F5G22100
03525 -0 32000 0 00353          ANA SBK2                                        F5G22110
03526  0 60100 0 00515          STO SBV5                                        F5G22120
03527  0 50000 0 00606          CLA XV18                                        F5G22130
03530  0 07400 4 00067          TSX SE1,4                                       F5G22140
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03531   0 50000 1 12533        CLA BBB,1                                                F5G22150
03532  -0 32000 0 00353        ANA SBK2                                                 F5G22160
03533   0 60200 0 00512 X109   SLW SBV2                                                 F5G22170
03534   0 07400 4 00055        TSX SE5,4                                                F5G22180
03535  -0 50000 1 15674        CAL PRED,1                                               F5G22190
03536  -0 32000 0 00353        ANA SBK2                                                 F5G22200
03537   0 34000 0 00513        CAS SBV3 IS THIS THE RIGHT TRANSFER                      F5G22210
03540   0 02000 0 03542        TRA X108                                                 F5G22220
03541   0 02000 0 03550        TRA X110 YES                                             F5G22230
03542   0 50000 0 00512 X108   CLA SBV2 ARRANGE TO TRY                                  F5G22240
03543   0 40000 0 00315        ADD ONEA NEXT PRED.                                      F5G22250
03544   0 34000 0 00515        CAS SBV5            IS THIS PRED ENTRY IN SAME BB        F5G22260
03545   0 02000 0 03533        TRA X109                                                 F5G22270
03546   0 02000 0 03554        TRA X222                                                 F5G22280
03547   0 02000 0 03533        TRA X109                                                 F5G22290
03550   0 50000 1 15674 X110   CLA PRED,1 SET SIGN                                      F5G22300
03551  -0 76000 0 00003        SSM  OF PRED.                                            F5G22310
03552   0 60100 1 15674        STO PRED,1 ENTRY NEGATIVE.                               F5G22320
03553   0 02000 0 03542        TRA X108                                                 F5G22330
03554   0 50000 0 00513 X222   CLA SBV3            GET INDEX                            F5G22340
03555   0 40000 0 00315        ADD ONEA                                                 F5G22350
03556   0 07400 4 00067        TSX SE1,4 OF                                             F5G22360
03557   0 50000 1 12533        CLA BBB,1                                                F5G22370
03560  -0 32000 0 00321        ANA S2K1                                                 F5G22380
03561   0 60100 0 00515        STO SBV5                                                 F5G22390
03562   0 50000 0 00513        CLA SBV3                                                 F5G22400
03563   0 07400 4 00067        TSX SE1,4                                                F5G22410
03564   0 50000 1 12533        CLA BBB,1                                                F5G22420
03565  -0 32000 0 00321        ANA S2K1                                                 F5G22430
03566   0 60200 0 00512 X112   SLW SBV2                                                 F5G22440
03567   0 07400 4 00044        TSX SE6,4                                                F5G22450
03570  -0 50000 1 16734        CAL SUCC,1                                               F5G22460
03571  -0 32000 0 00353        ANA SBK2                                                 F5G22470
03572   0 34000 0 00606        CAS XV18 IS THIS RIGHT SUCC.                             F5G22480
03573   0 02000 0 03575        TRA X111                                                 F5G22490
03574   0 02000 0 03607        TRA X113                                                 F5G22500
03575   0 50000 0 00512 X111   CLA SBV2 ARRANGE TO TRY NEXT SUCC.                       F5G22510
03576   0 40000 0 00316        ADD ONED                                                 F5G22520
03577   0 34000 0 00515        CAS SBV5            IS THIS SUCC IN SAME BB              F5G22530
03600   0 02000 0 03566        TRA X112                                                 F5G22540
03601   0 02000 0 03613        TRA X74                                                  F5G22550
03602   0 02000 0 03566        TRA X112                                                 F5G22560
03603   0 50000 0 00550 X114   CLA LPIND IS THIS                                        F5G22570
03604   0 12000 0 03613        TPL X74          A LOOP                                  F5G22580
03605   0 50000 0 04741        CLA LPLST YES                                            F5G22590
03606   0 02000 0 03520        TRA X107                                                 F5G22600
03607   0 50000 1 16734 X113   CLA SUCC,1 SET SIGN                                      F5G22610
03610  -0 76000 0 00003        SSM  OF SUCC+ ENTRY                                      F5G22620
03611   0 60100 1 16734        STO SUCC,1 NEGATIVE                                      F5G22630
03612   0 02000 0 03575        TRA X111                                                 F5G22640
03613  -0 53400 2 00600 X74    LXD XV12,2                                               F5G22650
03614   0 50000 2 05035        CLA LPLST+S3P1,2                                         F5G22660
03615   0 34000 0 00324        CAS S3K2           IS IT A BB                            F5G22670
03616   0 76100 0 00000        NOP                                                      F5G22680
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03617   0 02000 0 03621          TRA X122                                                    F5G22690
03620   0 02000 0 03662          TRA X80 YES                                                 F5G22700
03621  -0 73400 4 00000 X122     PDX 0,4                                                     F5G22710
03622   3 77776 4 03624          TXH X205,4,-2     IS THE DECR. AN IMPOSSIBLE BB             F5G22720
03623   0 77100 0 00022          ARS 18                                                      F5G22730
03624   0 07400 4 00067 X205     TSX SE1,4                                                   F5G22740
03625   0 50000 1 12540          CLA BBB+5,1 THE                                             F5G22750
03626  -0 73400 1 00000          PDX 0,1 REGION                                              F5G22760
03627  -0 50000 1 05263          CAL REG,1           WORD                                    F5G22770
03630   0 60200 0 00605          SLW XV17                                                    F5G22780
03631   0 10000 0 03655          TZE X105 HAS THIS REGION ALREADY BEEN RENUMBERED            F5G22790
03632  -0 32000 0 00335          ANA LK3     OR THE LX BITS FOR                              F5G22800
03633  -0 60200 0 00566          ORS XV2 OLD REGION IN NEW REGION WORD.                      F5G22810
03634  -0 50000 0 00404          CAL XK22            AND THE OLD PHI                         F5G22820
03635  -0 50100 0 00605          ORA XV17 BITS                                               F5G22830
03636   0 32000 0 00566          ANS XV2 INTO NEW REGION WORD.                               F5G22840
03637   0 50000 0 00314          CLA ZERO CLEAR OLD                                          F5G22850
03640   0 60100 1 05263          STO REG,1 REGION WORD.                                      F5G22860
03641   0 50000 0 00605          CLA XV17 GET INDEX OF                                       F5G22870
03642   0 77100 0 00022          ARS 18                FIRST BB IN REG                       F5G22880
03643   0 62100 0 00612 X75      STA XV22       STOREBB NO.                                  F5G22890
03644   0 07400 4 00067          TSX SE1,4 GET INDEX OF BB                                   F5G22900
03645   0 50000 0 00565 X101     CLA XV1 STORE THE                                           F5G22910
03646   0 62200 1 12540          STD BBB+5,1 NEW REGION NO.                                  F5G22920
03647   0 50000 1 12540          CLA BBB+5,1 IS THIS THE                                     F5G22930
03650  -0 32000 0 00353          ANA SBK2 LAST BB                                            F5G22940
03651   0 34000 0 00353          CAS SBK2 OF THE REGION                                      F5G22950
03652   0 02000 0 03643          TRA X75                                                     F5G22960
03653   0 02000 0 03665          TRA X76 YES.                                                F5G22970
03654   0 02000 0 03643          TRA X75                                                     F5G22980
03655   0 50000 0 00612 X105     CLA XV22      RECORD THAT PREVIOUSLY                        F5G22990
03656   0 07400 4 00067          TSX SE1,4 NUMBERED BB                                       F5G23000
03657   0 50000 0 00404          CLA XK22 WAS LAST                                           F5G23010
03660   0 62100 1 12540          STA BBB+5,1 ONE IN NEW REGION.                              F5G23020
03661   0 02000 0 03717          TRA X81 FINISHED RENUMBERING.                               F5G23030
03662   0 77100 0 00022 X80      ARS 18                                                      F5G23040
03663   0 62100 0 00612          STA XV22                                                    F5G23050
03664   0 07400 4 00067          TSX SE1,4                                                   F5G23060
03665  -0 53400 2 00600 X76      LXD XV12,2                                                  F5G23070
03666   1 77777 2 03667 X140     TXI X140+1,2,-1                                             F5G23080
03667  -0 63400 2 00600          SXD XV12,2                                                  F5G23090
03670   0 50000 2 05035 X77      CLA LPLST+S3P1,2                                            F5G23100
03671   0 34000 0 00323          CAS S3K1 IS THIS END LOOP LIST                              F5G23110
03672   1 00000 0 03700 X219     TXI X217,0,-       SEE X217+2                               F5G23120
03673   0 50000 0 00336          CLA S5K1           YES                                      F5G23130
03674   0 62100 1 12540 X216     STA BBB+5,1        RECORD THE NEXT BB NO.                   F5G23140
03675   0 50000 0 00565          CLA XV1 RECORD THE                                          F5G23150
03676   0 62200 1 12540          STD BBB+5,1 NEW REGION                                      F5G23160
03677   0 02000 0 03503          TRA X79 NO.                                                 F5G23170
03700   0 56000 0 00324 X217     LDQ S3K2                                                    F5G23180
03701   0 04000 0 03704          TLQ X220                                                    F5G23190
03702   0 77100 0 00022 X215     ARS 18             NO                                       F5G23200
03703   1 00000 0 03674 X218     TXI X216,0,-                                                F5G23210
03704  -0 63400 2 03672  X220    SXD X219,2                                                  F5G23220
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03705   0 07400 4 00070          TSX SE,4                                                F5G23230
03706   0 50000 1 12540          CLA BBB+5,1                                             F5G23240
03707  -0 73400 1 00000          PDX 0,1                                                 F5G23250
03710   0 50000 1 05263          CLA REG,1          GET REGION WORD                      F5G23260
03711   0 62200 0 03703          STD X218                                                F5G23270
03712   0 50000 0 00612          CLA XV22                                                F5G23280
03713   0 07400 4 00067          TSX SE1,4                                               F5G23290
03714   0 50000 0 03703          CLA X218                                                F5G23300
03715  -0 53400 2 03672          LXD X219,2                                              F5G23310
03716   1 00000 0 03702          TXI X215,-,-                                            F5G23320
03717   0 50000 0 00566 X81      CLA XV2                                                 F5G23330
03720  -0 50100 0 00315          ORA ONEA                                                F5G23340
03721  -0 53400 1 00565          LXD XV1,1 NEW REGION                                    F5G23350
03722   0 60100 1 05263          STO REG,1 WORD.                                         F5G23360
03723   0 02000 0 02177          TRA F                                                   F5G23370
03724   0 53400 1 00342 X61      LXA S5K5,1                                              F5G23380
03725  -0 75400 1 00000 X62      PXD 0,1 PLACE APPROPRIATE NOS.                          F5G23390
03726   0 62200 1 00465          STD IN1+3,1     IN CORRSEPONDENCE                       F5G23400
03727   0 62200 1 00470          STD EN4+3,1      TABLES                                 F5G23410
03730   2 00001 1 03725          TIX X62,1,1                                             F5G23420
03731   0 50000 0 00444          CLA S3V5                                                F5G23430
03732   0 07400 4 01466          TSX S9,4           GET THE ENTRANCE REQUIREMENTS        F5G23440
03733   0 02000 0 03406          TRA X63                                                 F5G23450
03734   0 50000 1 00561 X64      CLA AC1+3,1 IS THIS I.R.                                F5G23460
03735   0 10000 0 03457          TZE X59 ACTIVE                                          F5G23470
03736  -0 53400 4 00440          LXD S3V4,4 YES.                                         F5G23480
03737   0 50000 4 05034          CLA LPLST+S3P1-1,4 GET                                  F5G23490
03740  -0 63400 1 00577          SXD XV11,1 THE                                          F5G23500
03741  -0 63400 2 00600          SXD XV12,2 REGION                                       F5G23510
03742   0 07400 4 00070          TSX SE,4 WORD                                           F5G23520
03743   0 50000 1 12540          CLA BBB+5,1 IN                                          F5G23530
03744  -0 73400 4 00000          PDX 0,4 THE                                             F5G23540
03745   0 56000 4 05263          LDQ REG,4 MQ.                                           F5G23550
03746  -0 53400 1 00577          LXD XV11,1 HAS THERE                                    F5G23560
03747  -0 53400 2 00600          LXD XV12,2                                              F5G23570
03750  -0 77300 2 00003          RQL 3,2                BEEN AN LX                       F5G23580
03751   0 16200 0 03753          TQP X66 FOR THIS I.R.                                   F5G23590
03752   0 02000 0 03456          TRA X65 YES                                             F5G23600
03753   0 50000 0 00614 X66      CLA XV24                                                F5G23610
03754  -0 10000 0 03762          TNZ X208           IS THIS SAME REG. AS BEGINS STRING   F5G23620
03755   0 50000 0 04741          CLA LPLST          YES                                  F5G23630
03756   0 07400 4 01523          TSX SA,4           GET ACTIVE INDS. AT START OF STRING   F5G23640
03757  -0 53400 1 00577          LXD XV11,1                                              F5G23650
03760   0 50000 1 00511          CLA ACT1+3,1       WAS THIS IR ACTIVE AT START          F5G23660
03761   0 12000 0 03456          TPL X65                                                 F5G23670
03762  -0 53400 4 00440 X208     LXD S3V4,4         YES, MARK ALL                        F5G23680
03763   0 50000 4 05034          CLA LPLST+S3P1-1,4             BBS IN OPAQUE            F5G23690
03764  -0 53400 2 00577          LXD XV11,2         REGION ACTIVE                        F5G23700
03765   0 07400 4 01753          TSX SD,4                                                F5G23710
03766  -0 53400 1 00577          LXD XV11,1                                              F5G23720
03767   0 07400 4 01661          TSX SC,4           MARK SECTION OF LLLST ACTIVE         F5G23730
03770   0 02000 0 03457          TRA X59                                                 F5G23740
03771  -0 63400 1 00577 X67      SXD XV11,1                                              F5G23750
03772  -0 53400 1 00440          LXD S3V4,1         GET                                  F5G23760
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03773   0 50000 1 05033         CLA LPLST+S3P1-2,1 PRED+ NO                    F5G23770
03774   0 34000 0 00324         CAS S3K2 IS THIS A BB                          F5G23780
03775   0 76100 0 00000         NOP       NO                                   F5G23790
03776   0 02000 0 04000         TRA X123                                       F5G23800
03777   0 77100 0 00022         ARS 18 YES,SHIFT BB NO RIGHT.                  F5G23810
04000   0 62100 0 00513 X123    STA SBV3      AND STORE IT                     F5G23820
04001   0 50000 1 05034         CLA LPLST+S3P1-1,1 GET INDEX OF                F5G23830
04002   0 07400 4 00070         TSX SE,4 THIS BB                               F5G23840
04003   0 50000 1 12534         CLA BBB+1,1 GET TO STORE                       F5G23850
04004   0 60100 0 00575         STO XV9 PREM. NO.                              F5G23860
04005   0 50000 1 12533         CLA BBB,1 GET PRED. NO.                        F5G23870
04006   0 60200 0 00512 X68     SLW SBV2                                       F5G23880
04007   0 07400 4 00055         TSX SE5,4 GET INDEX OF PRED.                   F5G23890
04010  -0 50000 1 15674         CAL PRED,1 IS THIS THE                         F5G23900
04011  -0 32000 0 00353         ANA SBK2 RIGHT PRED                            F5G23910
04012   0 34000 0 00513         CAS SBV3                                       F5G23920
04013   0 02000 0 04015         TRA X69                                        F5G23930
04014   0 02000 0 04020         TRA X70 YES.                                   F5G23940
04015   0 50000 0 00512 X69     CLA SBV2                                       F5G23950
04016   0 40000 0 00315         ADD ONEA                                       F5G23960
04017   0 02000 0 04006         TRA X68                                        F5G23970
04020   0 53400 4 00342 X70     LXA S5K5,4 SET COUNT TO 3                      F5G23980
04021  -0 50000 0 00575 X72     CAL XV9 FIND                                   F5G23990
04022   0 77100 4 00003         ARS 3,4 THE                                    F5G24000
04023   0 77100 4 00003         ARS 3,4 PERM+ NO.                              F5G24010
04024  -0 32000 0 00350         ANA S9K3                                       F5G24020
04025   0 34000 0 00577         CAS XV11 IS THIS THE RIGHT I.R.                F5G24030
04026   0 02000 0 04030         TRA X71 NO,                                    F5G24040
04027   0 02000 0 04032         TRA X73 YES,                                   F5G24050
04030   2 00001 4 04021 X71     TIX X72,4,1 NO,                                F5G24060
04031   0 07400 4 00004         TSX 4,4 DIAGNOSTIC, ERROR.                     F5G24070
04032  -0 50000 0 00377 X73     CAL XK16 RECORD THAT AN                        F5G24080
04033   0 77100 4 00003         ARS 3,4 LX IS                                  F5G24090
04034  -0 60200 1 15674         ORS PRED,1 NECESSARY.                          F5G24100
04035  -0 53400 4 00577         LXD XV11,4 RECORD                              F5G24110
04036  -0 50000 0 00340         CAL S5K3 LX                                    F5G24120
04037   0 77100 4 00003         ARS 3,4 FOR THIS I.R.                          F5G24130
04040  -0 60200 0 00566         ORS XV2 IN THIS REGION.                        F5G24140
04041  -0 53400 1 00577         LXD XV11,1                                     F5G24150
04042   0 02000 0 03454         TRA X119                                       F5G24160
04043   0 50000 0 00444 X33     CLA S3V5                                       F5G24170
04044   0 07400 4 01245         TSX S5,4 MATCH ENTRANCE REQU.                  F5G24180
04045   0 50000 0 00444         CLA S3V5                                       F5G24190
04046   0 07400 4 01523         TSX SA,4 GET EXIT COND.                        F5G24200
04047   0 50000 0 00444         CLA S3V5                                       F5G24210
04050   0 07400 4 00070         TSX SE,4 GET INDEX OF                          F5G24220
04051   0 50000 1 12540         CLA BBB+5,1 B.B.                               F5G24230
04052  -0 73400 1 00000         PDX 0,1 GET                                    F5G24240
04053   0 50000 1 05263         CLA REG,1 REGION                               F5G24250
04054   0 07400 4 00070         TSX SE,4 WORD.                                 F5G24260
04055  -0 63400 1 00601 X40     SXD XV13,1 GET INDEX OF FIRST BB.              F5G24270
04056  -0 50000 1 12534         CAL BBB+1,1 CLEAR REGISTER TO                  F5G24280
04057   0 60200 0 00575         SLW XV9 CONTAIN PERM. NOS.                     F5G24290
04060  -0 32000 0 00402         ANA XK20 GET ORIGINAL PERM. NOS.               F5G24300
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04061   0 60200 0 00574          SLW XV8                                  F5G24310
04062   0 53400 2 00342          LXA S5K5,2 SET COUNT TO 3.               F5G24320
04063  -0 50000 0 00575 X38      CAL XV9 GET THE                          F5G24330
04064   0 77100 2 00003          ARS 3,2 PERM.                            F5G24340
04065   0 77100 2 00003          ARS 3,2 NO. AND                          F5G24350
04066  -0 32000 0 00350          ANA S9K3 PUT IT                          F5G24360
04067  -0 73400 4 00000          PDX 0,4 IN 4.                            F5G24370
04070   0 50000 4 00470          CLA EN4+3,4 GET THE CORRESPONDENCE       F5G24380
04071   0 76700 2 00003          ALS 3,2 OF THE ENTR,                     F5G24390
04072   0 76700 2 00003          ALS 3,2 REQUIREMENTS.                    F5G24400
04073  -0 60200 0 00574          ORS XV8 FORM NEW PERM. NOS.              F5G24410
04074  -0 63400 1 00576          SXD XV10,1                               F5G24420
04075   0 50000 4 00470          CLA EN4+3,4                              F5G24430
04076  -0 73400 1 00000          PDX 0,1 GET INDEX OF I.R.                F5G24440
04077   0 50000 4 00473          CLA EN1+3,4                              F5G24450
04100   0 34000 0 00336   .      CAS S5K1 IS ENM EMPTY                    F5G24460
04101   0 02000 0 04103          TRA X34 NO,                              F5G24470
04102   0 02000 0 04150          TRA X41 YES,                             F5G24480
04103   0 34000 0 00333 X34      CAS LK1 NO,IS C(ENM)=E                   F5G24490
04104   0 02000 0 04106          TRA X35 NO,                              F5G24500
04105   0 02000 0 04111          TRA X36 YES,                             F5G24510
04106   0 34000 1 00430 X35      CAS IR1+3,1 C-(ENM)=C(IRN)               F5G24520
04107   0 02000 0 04111          TRA X36 NO                               F5G24530
04110   0 02000 0 04132          TRA X43 YES                              F5G24540
04111  -0 53400 1 00576 X36      LXD XV10,1 NO                            F5G24550
04112   1 77777 1 04113 X42      TXI X42+1,1,-1                           F5G24560
04113   2 00001 2 04063 X37      TIX X38,2,1 COUNT TO 3                   F5G24570
04114  -0 50000 0 00574          CAL XV8        STORE NEW                 F5G24580
04115   0 62200 1 12531          STD BBB-2,1 PERM. NOS.                   F5G24590
04116   0 63000 1 12531          STP BBB-2,1       AND ACTIVE INDICATORS  F5G24600
04117   0 50000 1 12535          CLA BBB+2,1 IS THIS                      F5G24610
04120  -0 32000 0 00353          ANA SBK2 LAST BB IN REGION               F5G24620
04121   0 34000 0 00353          CAS SBK2                                 F5G24630
04122   0 02000 0 04124          TRA X39                                  F5G24640
04123   0 02000 0 04217          TRA X45 YES,DONE.                        F5G24650
04124   0 07400 4 00067 X39      TSX SE1,4 GET INDEX OF NEXT B.B.         F5G24660
04125   0 02000 0 04055          TRA X40                                  F5G24670
04126   0 50000 4 00506 X200     CLA EX1+3,4       IS CONTENTS OF IR      F5G24680
04127   0 56000 0 00337          LDQ S5K2        AT EXIT                  F5G24690
04130   0 04000 0 04135          TLQ X130       REAL                      F5G24700
04131   0 02000 0 04111          TRA X36        YES                       F5G24710
04132   0 50000 4 00511 X43      CLA ACT1+3,4                             F5G24720
04133  -0 63400 1 05664  PWO     SXD W2+1,1                               F5G24730
04134   0 12000 0 04126          TPL X200        IS IT ACTIVE AT EXIT     F5G24740
04135   0 50000 1 00561 X130     CLA AC1+3,1      YES,IS THIS IR ACTIVE    F5G24750
04136   0 10000 0 04111          TZE X36                                  F5G24760
04137   0 50000 1 00430          CLA IR1+3,1 YES                          F5G24770
04140   0 60100 0 00611          STO XV21                                 F5G24780
04141  -0 53400 1 00576          LXD XV10,1 DOES THIS BB CONTAIN THE      F5G24790
04142   0 50000 1 12535          CLA BBB+2,1      SAME TAG IN THIS POSITION F5G24800
04143  -0 32000 0 00336          ANA S5K1                                 F5G24810
04144   0 34000 0 00611          CAS XV21                                 F5G24820
04145   0 02000 0 05644          TRA W0                                   F5G24830
04146   0 02000 0 04213          TRA X44 YES.                             F5G24840
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04147   0 02000 0 05644         TRA WO                                  F5G24850
                                  C(XV10)= INDEX OF PARTICULAR          F5G24860
                                  ENTRANCE REQUIREMENT.                 F5G24870
04150   0 50000 1 00430 X41     CLA IR1+3,1                             F5G24880
04151   0 60100 0 00572         STO XV6                                 F5G24890
04152   0 76700 0 00022         ALS 18 STORE AWAY THIS                  F5G24900
04153   0 40000 1 00430         ADD IR1+3,1 TAG TEMPORARILY.            F5G24910
04154   0 60200 0 00573         SLW XV7                                 F5G24920
04155   0 50000 1 00430         CLA IR1+3,1     IS THIS                 F5G24930
04156   0 56000 0 00337         LDQ S5K2       TAG                      F5G24940
04157   0 04000 0 04176         TLQ X201                                F5G24950
04160  -0 53400 1 00601         LXD XV13,1                              F5G24960
04161   0 53400 4 00342         LXA S5K5,4 SET COUNT TO 3.              F5G24970
04162  -0 50000 1 12535 X85     CAL BBB+2,1                             F5G24980
04163   0 76500 0 00022         LRS 18                                  F5G24990
04164   0 34000 0 00572         CAS XV6 IS ENTR. REQU. EQUAL TO TAG     F5G25000
04165   0 02000 0 04167         TRA X82 NO,                             F5G25010
04166   0 02000 0 04202         TRA X86 YES,                            F5G25020
04167   0 50000 0 00314 X82     CLA ZERO NO,                            F5G25030
04170   0 76300 0 00022         LLS 18                                  F5G25040
04171   0 34000 0 00572         CAS XV6 IS TAG EQUAL TO EXIT COND.      F5G25050
04172   0 02000 0 04174         TRA X83                                 F5G25060
04173   0 02000 0 04206         TRA X87 YES                             F5G25070
04174   1 77777 1 04175 X83     TXI X83+1,1,-1                          F5G25080
04175   2 00001 4 04162 X84     TIX X85,4,1 COUNT TO 3.                 F5G25090
04176   0 50000 0 00573 X201    CLA XV7        STORE THE                F5G25100
04177  -0 53400 1 00576         LXD XV10,1 NEW ENTRANCE-                F5G25110
04200   0 60100 1 12535         STO BBB+2,1 EXIT REQUI.                 F5G25120
04201   0 02000 0 04112         TRA X42                                 F5G25130
04202  -0 50000 0 00366 X86     CAL XK18 PUT AN E                       F5G25140
04203   0 62200 0 00573         STD XV7 IN THE ENTR. REQU.              F5G25150
04204   0 63000 0 00573         STP XV7                                 F5G25160
04205   0 02000 0 04167         TRA X82                                 F5G25170
04206  -0 50000 0 00573 X87     CAL XV7 PLACE E                         F5G25180
04207  -0 32000 0 00401         ANA XK19 IN                             F5G25190
04210   0 40000 0 00333         ADD LK1 EXIT                            F5G25200
04211   0 60200 0 00573         SLW XV7 REQUIREMENT.                    F5G25210
04212   0 02000 0 04174         TRA X83                                 F5G25220
04213  -0 50000 0 00340 X44     CAL S5K3 RECORD THIS                    F5G25230
04214   0 77100 2 00003         ARS 3,2 I.R.                            F5G25240
04215  -0 60200 0 00574         ORS XV8 ACTIVE                          F5G25250
04216   0 02000 0 04112         TRA X42                                 F5G25260
04217   0 53400 2 00342 X45     LXA S5K5,2                              F5G25270
04220  -0 63400 2 00602 X56     SXD XV14,2                              F5G25280
04221   0 50000 2 00470         CLA EN4+3,2                             F5G25290
04222  -0 73400 4 00000         PDX 0,4 GET INDEX                       F5G25300
04223  -0 63400 4 00514         SXD SBV4,4 OF I.R.                      F5G25310
04224   0 50000 2 00473         CLA EN1+3,2                             F5G25320
04225   0 34000 0 00336         CAS S5K1 IS ENM EMPTY                   F5G25330
04226   0 02000 0 04230         TRA X46                                 F5G25340
04227   0 02000 0 04343         TRA X223                                F5G25350
04230   0 34000 0 00333 X46     CAS LK1 IS THERE HASH IN ENM            F5G25360
04231   0 02000 0 04233         TRA X134                                F5G25370
04232   0 02000 0 04307         TRA X55 YES                             F5G25380
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04233   0 34000 4 00430 X134    CAS IR1+3,4          DOES CONTENTS OF IR EQUAL CONTENTS OF EN      F5G25390
04234   0 02000 0 04236          TRA X47             NO                                            F5G25400
04235   0 02000 0 04357          TRA X131             YES                                          F5G25410
04236  -0 53400 1 00440 X47      LXD S3V4,1 GET AND                                                F5G25420
04237   0 50000 1 05033          CLA LPLST+S3P1-2,1 STORE PRED.                                    F5G25430
04240   0 34000 0 00324          CAS S3K2 BB                                                       F5G25440
04241   0 76100 0 00000          NOP  NO.                                                          F5G25450
04242   0 02000 0 04244          TRA X124                                                          F5G25460
04243   0 77100 0 00022          ARS 18                                                            F5G25470
04244   0 62100 0 00513 X124     STA SBV3                                                          F5G25480
04245   0 50000 1 05034          CLA LPLST+S3P1-1,1 GET                                            F5G25490
04246   0 07400 4 00070          TSX SE,4 BB NO.                                                   F5G25500
04247   0 50000 1 12534          CLA BBB+1,1 STORE THE                                             F5G25510
04250   0 60100 0 00575          STO XV9 PERM. NOS.                                                F5G25520
04251   0 50000 1 12540          CLA BBB+5,1                                                       F5G25530
04252  -0 73400 4 00000          PDX 0,4                                                           F5G25540
04253  -0 53400 2 00602          LXD XV14,2                                                        F5G25550
04254  -0 50000 0 00340          CAL S5K3                                                          F5G25560
04255   0 77100 2 00003          ARS 3,2                                                           F5G25570
04256  -0 60200 4 05263          ORS REG,4                                                         F5G25580
04257   0 50000 1 12533          CLA BBB,1 GET PRED. NO.                                           F5G25590
04260   0 60200 0 00512 X48      SLW SBV2             STORE PRED. NO.                              F5G25600
04261   0 07400 4 00055          TSX SE5,4 OBTAIN PRED. INDEX.                                     F5G25610
04262  -0 50000 1 15674          CAL PRED,1 IS THIS                                                F5G25620
04263  -0 32000 0 00353          ANA SBK2 THE CORRECT                                              F5G25630
04264   0 34000 0 00513          CAS SBV3 PRED                                                     F5G25640
04265   0 02000 0 04267          TRA X49                                                           F5G25650
04266   0 02000 0 04272          TRA X50 YES.                                                      F5G25660
04267   0 50000 0 00512 X49      CLA SBV2 ARRANGE TO                                               F5G25670
04270   0 40000 0 00315          ADD ONEA TRY NEXT PREDECESSOR.                                    F5G25680
04271   0 02000 0 04260          TRA X48                                                           F5G25690
04272   0 53400 4 00342 X50      LXA S5K5,4 1 HAS INDEX OF PRED.                                   F5G25700
04273  -0 50000 0 00575 X52      CAL XV9 EXTRACT                                                   F5G25710
04274   0 77100 4 00003          ARS 3,4 THE                                                       F5G25720
04275   0 77100 4 00003          ARS 3,4 PERM.                                                     F5G25730
04276  -0 32000 0 00350          ANA S9K3 NO.                                                      F5G25740
04277   0 34000 0 00514          CAS SBV4 IS THIS THE PERM. NO.                                    F5G25750
04300   0 02000 0 04302          TRA X51                                                           F5G25760
04301   0 02000 0 04304          TRA X53 YES.                                                      F5G25770
04302   2 00001 4 04273 X51      TIX X52,4,1                                                       F5G25780
04303   0 07400 4 00004          TSX 4,4 DIAGNOSTIC, ERROR.                                        F5G25790
04304  -0 50000 0 00377 X53      CAL XK16 GENERATE                                                 F5G25800
04305   0 77100 4 00003          ARS 3,4 THE LX BIT.                                               F5G25810
04306  -0 60200 1 15674          ORS PRED,1 INSERT LX BIT.                                         F5G25820
04307  -0 53400 1 00514 X55      LXD SBV4,1 IS THE                                                 F5G25830
04310   0 50000 1 00561          CLA AC1+3,1 I.R.                                                  F5G25840
04311   0 10000 0 04313          TZE X135             ACTIVE                                       F5G25850
04312   0 07400 4 01566          TSX SB,4 YES,RECORD SXD NEEDED.                                   F5G25860
04313  -0 53400 2 00602 X135     LXD XV14,2      REPLACE IR                                        F5G25870
04314  -0 53400 4 00514          LXD SBV4,4       BY EXIT CONDITIONS                               F5G25880
04315   0 50000 2 00506          CLA EX1+3,2        OF THE                                         F5G25890
04316   0 60100 4 00430          STO IR1+3,4       REGION                                          F5G25900
04317   0 50000 2 00511 X136     CLA ACT1+3,2       IS IR                                          F5G25910
04320   0 12000 0 04325          TPL X54         ACTIVE AT EXIT                                    F5G25920
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04321   0 50000 0 00440         CLA S3V4          SET                                    F5G25930
04322  -0 76000 0 00003         SSM                     ACTIVE                           F5G25940
04323   0 40200 0 00316         SUB ONED           INDICATOR                             F5G25950
04324   0 60100 4 00561         STO AC1+3,4                                              F5G25960
04325  -0 53400 2 00602 X54     LXD XV14,2        COUNT TO                               F5G25970
04326   2 00001 2 04220         TIX X56,2,1          3                                   F5G25980
04327   0 07400 4 02042         TSX SG,4              PERMUTE REGION WORD                F5G25990
04330  -0 50000 2 05263         CAL REG,2                                                F5G26000
04331  -0 32000 0 00404         ANA XK22                                                 F5G26010
04332   0 60200 2 05263         SLW REG,2                                                F5G26020
04333   0 53400 4 00342         LXA S5K5,4                                               F5G26030
04334   0 50000 4 00430 XY1     CLA IR1+3,4                                              F5G26040
04335   0 40200 0 00336         SUB S5K1                                                 F5G26050
04336  -0 10000 0 04341         TNZ XY2                                                  F5G26060
04337  -0 50000 4 00410         CAL XK23+3,4                                             F5G26070
04340  -0 60200 2 05263         ORS REG,2                                                F5G26080
04341   2 00001 4 04334 XY2     TIX XY1,4,1                                              F5G26090
04342   0 02000 0 03077         TRA X3                                                   F5G26100
04343   0 50000 4 00430 X223    CLA IR1+3,4          IS CONTENTS OF IR REAL              F5G26110
04344   0 56000 0 00337         LDQ S5K2                                                 F5G26120
04345   0 04000 0 04325         TLQ X54                                                  F5G26130
04346   0 53400 1 00342         LXA S5K5,1           YES, SET COUNT TO 3                 F5G26140
04347   0 34000 1 00506 X225    CAS EX1+3,1          IS CONTENTS SAME AS EXIT CONDITIONS F5G26150
04350   0 02000 0 04352         TRA X224                                                 F5G26160
04351   0 02000 0 04354         TRA X226             YES                                 F5G26170
04352   2 00001 1 04347 X224    TIX X225,1,1         COUNT TO 3                          F5G26180
04353   0 02000 0 04325         TRA X54                                                  F5G26190
04354   0 50000 0 00333 X226    CLA LK1              REPLACE IR BY E                     F5G26200
04355   0 60100 4 00430         STO IR1+3,4                                              F5G26210
04356   0 02000 0 04325         TRA X54                                                  F5G26220
04357   0 56000 2 00506 X131    LDQ EX1+3,2        IS THE EXIT                           F5G26230
04360   0 50000 0 00337         CLA S5K2          CONDITION REAL FOR THIS IR             F5G26240
04361   0 04000 0 04365         TLQ X132                                                 F5G26250
04362  -0 53400 1 00514  X133   LXD SBV4,1             NO                              F5G26260
04363   0 07400 4 01661         TSX SC,4          RECORD PART OF LPLST ACTIVE            F5G26270
04364   0 02000 0 04313         TRA X135                                                 F5G26280
04365   0 50000 2 00511 X132    CLA ACT1+3,2        IS THIS IR ACTIVE                    F5G26290
04366   0 12000 0 04313         TPL X135          AT EXIT OF REGION                      F5G26300
04367   0 02000 0 04362         TRA X133          YES                                    F5G26310
04370   0 50000 0 00550 X88     CLA LPIND                                                F5G26320
04371   0 12000 0 04416         TPL XY3                 IS THIS A LOOP                   F5G26330
04372   0 50000 0 04740         CLA LPLST-1 YES                                          F5G26340
04373   0 34000 0 00324         CAS S3K2 IS LAST LPLST QUANTITY A BB                     F5G26350
04374   0 76100 0 00000         NOP  NO                                                  F5G26360
04375   0 02000 0 04377         TRA X125                                                 F5G26370
04376   0 77100 0 00022         ARS 18 YES                                               F5G26380
04377   0 62100 0 00513 X125    STA SBV3      STORE PRED. NO.                            F5G26390
04400   0 50000 0 04741         CLA LPLST                                                F5G26400
04401   0 07400 4 00070         TSX SE,4 GET INDEX OF 1ST BB IN LOOP.                    F5G26410
04402  -0 63400 1 00574         SXD XV8,1          STORE INDEX OF 1ST BB                 F5G26420
04403   0 50000 1 12533         CLA BBB,1                                                F5G26430
04404   0 60200 0 00604 X91     SLW XV16            STORE PRED. NO.                      F5G26440
04405   0 07400 4 00055         TSX SE5,4 GET INDEX OF PRED.                             F5G26450
04406   0 50000 1 15674         CLA PRED,1 IS                                            F5G26460
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04407 -0 32000 0 00353        ANA SBK2 THIS THE                                                F5G26470
04410  0 34000 0 00513        CAS SBV3 RIGHT PRED                                              F5G26480
04411  0 02000 0 04413        TRA X90                                                          F5G26490
04412  0 02000 0 04445        TRA X92 YES                                                      F5G26500
04413  0 50000 0 00604 X90    CLA XV16                                                         F5G26510
04414  0 40000 0 00315        ADD ONEA                                                         F5G26520
04415  0 02000 0 04404        TRA X91                                                          F5G26530
04416  0 53400 1 00342 XY3    LXA S5K5,1                                                       F5G26540
04417  0 07400 4 01661 XY4    TSX SC,4                                                         F5G26550
04420  2 00001 1 04417        TIX XY4,1,1                                                      F5G26560
04421  0 02000 0 03461        TRA X89                                                          F5G26570
04422 -0 63400 1 04444 X97    SXD X137,1                                                       F5G26580
04423  0 34000 1 00430        CAS IR1+3,1  IS CONTENTS OF IRN EQUAL TO CONTENTS OF ENM         F5G26590
04424  0 02000 0 04426        TRA X98                                                          F5G26600
04425  0 02000 0 04473        TRA X93        YES                                               F5G26610
04426 -0 50000 0 00340 X98    CAL S5K3 RECORD LX FOR                                           F5G26620
04427  0 77100 1 00003        ARS 3,1 THIS IR IN THIS                                          F5G26630
04430 -0 53400 1 00565        LXD XV1,1 REGION.                                                F5G26640
04431 -0 60200 1 05263        ORS REG,1                                                        F5G26650
04432 -0 63400 4 00602        SXD XV14,4 GET                                                   F5G26660
04433 -0 63400 2 00603        SXD XV15,2 INDEX                                                 F5G26670
04434  0 50000 0 00604        CLA XV16 OF                                                      F5G26680
04435  0 07400 4 00055        TSX SE5,4 PRED.                                                  F5G26690
04436 -0 53400 4 00602        LXD XV14,4                                                       F5G26700
04437 -0 53400 2 00603        LXD XV15,2                                                       F5G26710
04440 -0 50000 0 00377        CAL XK16 RECORD                                                  F5G26720
04441  0 77100 4 00003        ARS 3,4 LX                                                       F5G26730
04442 -0 60200 1 15674        ORS PRED,1 NECESSARY.                                            F5G26740
04443 -0 53400 1 04444        LXD X137,1                                                       F5G26750
04444  1 00000 0 04464 X137   TXI X96,0,-                                                      F5G26760
04445 -0 53400 2 00574 X92    LXD XV8,2                                                        F5G26770
04446  0 53400 4 00342        LXA S5K5,4 SET COUNT TO 3                                        F5G26780
04447  0 50000 2 12534        CLA BBB+1,2 GET THE WORD WITH                                    F5G26790
04450  0 60100 0 00575        STO XV9 PERM. NOS.                                               F5G26800
04451 -0 50000 0 00575 X95    CAL XV9 GET                                                      F5G26810
04452  0 77100 4 00003        ARS 3,4 INDEX                                                    F5G26820
04453  0 77100 4 00003        ARS 3,4 OF                                                       F5G26830
04454 -0 32000 0 00350        ANA S9K3 THE                                                     F5G26840
04455 -0 73400 1 00000        PDX 0,1 I.R.                                                     F5G26850
04456 -0 50000 2 12535        CAL BBB+2,2 GET ENTRANCE                                         F5G26860
04457  0 77100 0 00022        ARS 18 REQUIREMENT.                                              F5G26870
04460  0 34000 0 00337        CAS S5K2           IS ENM REAL                                   F5G26880
04461  0 76100 0 00000        NOP                                                              F5G26890
04462  0 02000 0 04464        TRA X96          NO                                              F5G26900
04463  0 02000 0 04422        TRA X97 YES                                                      F5G26910
04464  0 50000 1 00561 X96    CLA AC1+3,1 IS IRN                                               F5G26920
04465  0 10000 0 04473        TZE X93 ACTIVE                                                   F5G26930
04466 -0 63400 2 00602        SXD XV14,2 YES,                                                  F5G26940
04467 -0 63400 4 00603        SXD XV15,4                                                       F5G26950
04470  0 07400 4 01566        TSX SB,4 RECORD SXD NECESSARY.                                   F5G26960
04471 -0 53400 2 00602        LXD XV14,2                                                       F5G26970
04472 -0 53400 4 00603        LXD XV15,4                                                       F5G26980
04473  1 77777 2 04474 X93    TXI X93+1,2,-1                                                   F5G26990
04474  2 00001 4 04451 X94    TIX X95,4,1 COUNT TO 3                                           F5G27000
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                                    ACTIVE PASS.                                    F5G27010
                                    FOLLOWS 2 ED LXING PASS.                        F5G27020
04475  0 56000 0 00325      LDQ S3K3 INITIALIZE THE                                 F5G27030
04476 -0 60000 0 00440      STQ S3V4 LOOP LIST                                      F5G27040
04477  0 56000 0 00340      LDQ S5K3 AND                                            F5G27050
04500 -0 60000 0 00437      STQ S3V3 MAKE SURE TAG                                  F5G27060
04501 -0 60000 0 00521      STQ ACIND      SET IND. TO SAY THIS IS ACTIVE PASS      F5G27070
04502 -0 63400 0 00436      SXD S3V2,0     LOCATION GETS SET                        F5G27080
04503  0 50000 0 00314 A3   CLA ZERO ARE                                            F5G27090
04504  0 40100 0 00556      ADM AC1 THERE                                           F5G27100
04505  0 40100 0 00557      ADM AC2 ANY                                             F5G27110
04506  0 40100 0 00560      ADM AC3 ACTIVE I.R.S                                    F5G27120
04507  0 10000 0 03461      TZE X89 LEFT GO TO RENUMBER.                            F5G27130
04510  0 07400 4 01023      TSX S3,4 YES. TRY TO GET NEXT TAG.                      F5G27140
04511  0 02000 0 04644      TRA A12 COME HERE IF TAG NOT GOT                        F5G27150
04512  0 50000 0 01122      CLA S39 COMPUTE LOCATION OF THIS                        F5G27160
04513 -0 32000 0 00353      ANA SBK2 TAG=(ADDR. FOLLOWING                           F5G27170
04514  0 40000 0 00451      ADD S4V1 TIX BLOCK + L(CM)-CM TAG                       F5G27180
04515  0 40200 0 00332      SUB S4K3 - INDEX OF TAG.)                               F5G27190
04516  0 76700 0 00022      ALS 18                                                  F5G27200
04517 -0 40000 0 00436      SBM S3V2                                                F5G27210
04520  0 76500 0 00065      LRS 53                                                  F5G27220
04521 -0 60000 0 00571      STQ XV5                                                 F5G27230
04522  0 22100 0 00371      DVP XK9 FORM LOC/9 AND                                  F5G27240
04523 -0 60000 0 00567      STQ XV3 REMAINDER                                       F5G27250
04524  0 60100 0 00570      STO XV4                                                 F5G27260
04525  0 50000 0 00442      CLA TPE IS THIS                                         F5G27270
04526  0 34000 0 00322      CAS S2K2 AN LX                                          F5G27280
04527  0 02000 0 04531      TRA A1                                                  F5G27290
04530  0 02000 0 04570      TRA A5 YES                                              F5G27300
04531  0 34000 0 00376 A1   CAS XK15 IS IT AN LX PRIME                              F5G27310
04532  0 02000 0 04534      TRA A20                                                 F5G27320
04533  0 02000 0 04614      TRA A8 YES                                              F5G27330
04534  0 34000 0 00403 A20  CAS XK21 IS IT A DED                                    F5G27340
04535  0 02000 0 04537      TRA A21                                                 F5G27350
04536  0 02000 0 04614      TRA A8 YES.                                             F5G27360
04537  0 34000 0 00373 A21  CAS XK12 IS IT AN ACTIVE INSTR.                         F5G27370
04540  0 02000 0 04542      TRA A2                                                  F5G27380
04541  0 02000 0 04570      TRA A5 YES.                                             F5G27390
04542  0 50000 0 00567 A2   CLA XV3 GET INDEX                                       F5G27400
04543  0 07400 4 00032      TSX SE4,4 OF STAG ENTRY.                                F5G27410
04544  0 53400 2 00570      LXA XV4,2 IS THERE                                      F5G27420
04545 -0 50000 1 05263      CAL STAG,1 AN LX                                        F5G27430
04546  0 77100 2 00010      ARS 8,2 IN FRONT                                        F5G27440
04547 -0 32000 0 00372      ANA XK11 OF                                             F5G27450
04550  0 34000 0 00372      CAS XK11 THIS INSTR.                                    F5G27460
04551  0 02000 0 04503      TRA A3                                                  F5G27470
04552  0 02000 0 04554      TRA A4 YES.                                             F5G27480
04553  0 02000 0 04503      TRA A3                                                  F5G27490
04554 -0 50000 0 00570 A4   CAL XV4 GET                                             F5G27500
04555  0 76000 0 00006      COM  THE                                                F5G27510
04556  0 73400 2 00000      PAX 0,2 S-TAG                                           F5G27520
04557 -0 50000 1 05263      CAL STAG,1 IN                                           F5G27530
04560  0 76700 2 00000      ALS 0,2 DECR.                                           F5G27540
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04561   0 76700 2 00000          ALS 0,2 PART.                                    F5G27550
04562  -0 32000 0 00350          ANA S9K3                                         F5G27560
04563  -0 73400 1 00000          PDX 0,1                                          F5G27570
04564   0 50000 1 00561          CLA AC1+3,1 IS THE CORRESPONDING                 F5G27580
04565   0 10000 0 04503          TZE A3 I.R. ACTIVE                               F5G27590
04566   0 07400 4 01566          TSX SB,4 YES,RECORD SXD NECESSARY                F5G27600
04567   0 02000 0 04503          TRA A3                                           F5G27610
04570   0 50000 0 00567 A5       CLA XV3                                          F5G27620
04571   0 07400 4 00032          TSX SE4,4 GET STAG INDEX.                        F5G27630
04572  -0 50000 0 00570          CAL XV4                                          F5G27640
04573   0 76000 0 00006          COM  IS IT                                       F5G27650
04574   0 73400 2 00000          PAX 0,2 TO                                       F5G27660
04575  -0 50000 1 05263          CAL STAG,1 AN                                    F5G27670
04576   0 76700 2 00000          ALS 0,2                                          F5G27680
04577   0 76700 2 00000          ALS 0,2 ACTIVE                                   F5G27690
04600  -0 32000 0 00350          ANA S9K3                                         F5G27700
04601  -0 73400 1 00000          PDX 0,1 IR                                       F5G27710
04602   0 50000 1 00561          CLA AC1+3,1                                      F5G27720
04603   0 10000 0 04503          TZE A3                                           F5G27730
04604   0 50000 1 00430   A51    CLA IR1+3,1 IS IT                                F5G27740
04605   0 34000 0 00441          CAS 1TAG            SAME TAU-TAG                 F5G27750
04606   0 02000 0 04610          TRA A6                                           F5G27760
04607   0 02000 0 04612          TRA A7 YES                                       F5G27770
04610   0 07400 4 01566 A6       TSX SB,4 RECORD SXD NEEDED.                      F5G27780
04611   0 02000 0 04503          TRA A3                                           F5G27790
04612   0 07400 4 01661 A7       TSX SC,4 RECORD CERTAIN PART OF                  F5G27800
04613   0 02000 0 04503          TRA A3 LOOP LIST ACTIVE.                         F5G27810
04614   0 50000 0 00567 A8       CLA XV3 GET                                      F5G27820
04615   0 07400 4 00032          TSX SE4,4 THE                                    F5G27830
04616  -0 50000 0 00570          CAL XV4                                          F5G27840
04617   0 76000 0 00006          COM  S-TAG                                       F5G27850
04620   0 73400 2 00000          PAX 0,2 OF                                       F5G27860
04621  -0 50000 1 05263          CAL STAG,1                                       F5G27870
04622   0 60100 0 00423          STO S1V6                                         F5G27871
04623   0 76700 2 00000          ALS 0,2 THIS                                     F5G27880
04624   0 76700 2 00000          ALS 0,2 INSTR.                                   F5G27890
04625  -0 32000 0 00350          ANA S9K3                                         F5G27900
04626  -0 73400 1 00000          PDX 0,1                                          F5G27910
04627   0 10000 0 04503          TZE A3 DOES THIS INSTR HAVE AN S-TAG             F5G27920
04630   0 50000 1 00561          CLA AC1+3,1 YES.                                 F5G27930
04631   0 10000 0 04503          TZE A3                IS THIS IR ACTIVE          F5G27940
04632   0 50000 0 00314          CLA ZERO                                         F5G27941
04633  -0 75400 2 00000          PXD 0,2                                          F5G27942
04634   0 76000 0 00006          COM                                              F5G27943
04635  -0 73400 4 00000          PDX 0,4                                          F5G27944
04636   0 50000 0 00423          CLA S1V6                                         F5G27945
04637   0 77100 4 00010          ARS 8,4                                          F5G27946
04640  -0 32000 0 00316          ANA ONED                                         F5G27947
04641  -0 10000 0 04604          TNZ A51                                          F5G27948
04642   0 07400 4 01661          TSX SC,4 YES,RECORD SECTION OF LPLST ACTIVE       F5G27950
04643   0 02000 0 04503          TRA A3                                           F5G27960
04644  -0 53400 1 00440 A12      LXD S3V4,1      GET INDEX OF LPLST QUANTITY      F5G27970
04645   0 50000 1 05033          CLA LPLST+S3P1-2,1     GET PREVIOUS LPLST QUANTITY F5G27980
04646   0 60100 0 00607          STO XV19                                         F5G27990
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04647   0 56000 0 00324         LDQ S3K2       WAS IT A                          F5G28000
04650   0 04000 0 04663         TLQ A28                                          F5G28010
04651   0 07400 4 00070 A25     TSX SE,4           YES, WAS THAT                 F5G28020
04652   0 50000 1 12533         CLA BBB,1      BB TERMINATED                     F5G28030
04653   0 77100 0 00041         ARS 33         BY A                              F5G28040
04654   0 40000 0 00315         ADD ONEA           GO TO N                       F5G28050
04655  -0 10000 0 04663         TNZ A28                                          F5G28060
04656   0 53400 1 00342         LXA S5K5,1      YES                              F5G28070
04657   0 50000 1 00561 A26     CLA AC1+3,1      IS THIS                         F5G28080
04660   0 10000 0 04662         TZE A27        IR ACTIVE                         F5G28090
04661   0 07400 4 01566         TSX SB,4       YES, RECORD SXD NECESSARY         F5G28100
04662   2 00001 1 04657 A27     TIX A26,1,1                                      F5G28110
04663   0 50000 0 00444 A28     CLA S3V5                                         F5G28120
04664   0 56000 0 00324         LDQ S3K2           IS THIS                       F5G28130
04665   0 04000 0 04700         TLQ A35            ATR. REGION                   F5G28140
04666  -0 32000 0 00336         ANA S5K1               NO, BB                    F5G28150
04667   0 10000 0 04503         TZE A3                                           F5G28160
04670   0 76700 0 00003         ALS 3                                            F5G28170
04671  -0 73400 1 00000         PDX 0,1                                          F5G28180
04672  -3 00002 1 04674         TXL AP1,1,2                                      F5G28190
04673   1 77777 1 04674         TXI AP1,1,-1                                     F5G28200
04674   0 50000 1 00561 AP1     CLA AC1+3,1                                      F5G28210
04675   0 10000 0 04503         TZE A3                                           F5G28220
04676   0 07400 4 01566         TSX SB,4                                         F5G28230
04677   0 02000 0 04503         TRA A3                                           F5G28240
04700   0 07400 4 00070 A35     TSX SE,4                                         F5G28250
04701   0 50000 1 12540         CLA BBB+5,1                                      F5G28260
04702  -0 73400 2 00000         PDX 0,2        INDEX OF REGION TO 2              F5G28270
04703   0 50000 2 05263         CLA REG,2      GET REGION                        F5G28280
04704   0 60100 0 00607         STO XV19                                         F5G28290
04705   0 53400 1 00342         LXA S5K5,1                                       F5G28300
04706  -0 50000 0 00607 A31     CAL XV19                                         F5G28310
04707   0 76700 1 00003         ALS 3,1                                          F5G28320
04710  -0 76000 0 00001         PBT                IS THERE AN LX                F5G28330
04711   0 02000 0 04715         TRA A30            FOR THIS IR                   F5G28340
04712   0 50000 1 00561         CLA AC1+3,1    YES                               F5G28350
04713   0 10000 0 04715         TZE A30        IS THIS IR ACTIVE                 F5G28360
04714   0 07400 4 01566         TSX SB,4       YES, RECORD SXD NECESSARY         F5G28370
04715   2 00001 1 04706 A30     TIX A31,1,1                                      F5G28380
04716   0 50000 0 00444         CLA S3V5                                         F5G28390
04717   0 07400 4 01523         TSX SA,4       GET THE EXIT CONDITIONS           F5G28400
04720   0 53400 1 00342         LXA S5K5,1                                       F5G28410
04721   0 50000 1 00561 A34     CLA AC1+3,1                                      F5G28420
04722   0 10000 0 04736         TZE A32        IS THIS IR ACTIVE                 F5G28430
04723   0 50000 1 00506         CLA EX1+3,1    YES                               F5G28440
04724   0 56000 0 00337         LDQ S5K2                                         F5G28450
04725   0 04000 0 04730         TLQ A33        IS THE EXIT CONDITION REAL        F5G28460
04726   0 50000 1 00511         CLA ACT1+3,1   YES                               F5G28470
04727   0 12000 0 04736         TPL A32        IS THE IR ACTIVE AT EXIT          F5G28480
04730  -0 63400 1 00610 A33     SXD XV20,1     YES                               F5G28490
04731  -0 53400 2 00610         LXD XV20,2                                       F5G28500
04732   0 50000 0 00444         CLA S3V5                                         F5G28510
04733   0 07400 4 01753         TSX SD,4       RECORD TR. REG. ACTIVE            F5G28520
04734  -0 53400 1 00610         LXD XV20,1                                       F5G28530
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04735   0 07400 4 01661          TSX SC,4          RECORD SECTION OF LPLST ACTIVE          F5G28540
04736   2 00001 1 04721 A32      TIX A34,1,1       COUNT TO 3                              F5G28550
04737   0 02000 0 04503          TRA A3                                                    F5G28560
04740   0 50000 0 00376  QP      CLA XK15                                                  F5G28580
04741  -0 32000 0 00020          ANA 16                                                    F5G28590
04742   0 77100 0 00001          ARS 1                                                     F5G28600
04743   0 62200 0 00103          STD SE21+2                                                F5G28610
04744   0 10000 0 00030          TZE R                                                     F5G28620
04745  -0 53400 4 00063          LXD PREDP+3,4                                             F5G28630
04746   0 50000 0 00075          CLA BBBP+3                                                F5G28640
04747  -3 00000 4 00030 QP0      TXL R,4,0                                                 F5G28650
04750   1 77777 4 04751          TXI QP1,4,-1                                              F5G28660
04751  -0 63400 4 00104  QP1     SXD SE21+3,4                                              F5G28670
04752   0 40200 0 00316          SUB ONED                                                  F5G28680
04753   0 07400 4 00070          TSX SE,4                                                  F5G28690
04754  -0 53400 4 00072          LXD BBBP,4                                                F5G28700
04755   1 00417 4 04756          TXI QP2,4,BBBL-1                                          F5G28710
04756  -0 63400 4 04767  QP2     SXD QP4,4                                                 F5G28720
04757  -0 63400 4 04771          SXD QP5,4                                                 F5G28730
04760   0 53400 4 12533          LXA BBB,4                                                 F5G28740
04761  -0 63400 4 04775          SXD QP8,4                                                 F5G28750
04762  -0 53400 4 00104          LXD SE21+3,4                                              F5G28760
04763  -0 75400 4 00000  QP3     PXD 0,4                                                   F5G28770
04764   0 07400 4 00056          TSX SE5+1,4                                               F5G28780
04765   0 50200 1 15674          CLS PRED,1                                                F5G28790
04766   0 73400 4 00000          PAX 0,4                                                   F5G28800
04767   3 00000 4 04772  QP4     TXH QP6,4,-                                               F5G28810
04770   1 00420 4 04771          TXI QP5,4,BBBL                                            F5G28820
04771   3 00000 4 04773  QP5     TXH QP7,4,-                                               F5G28830
04772   0 60100 1 15674  QP6     STO PRED,1                                                F5G28840
04773  -0 53400 4 00306  QP7     LXD SEV2,4                                                F5G28850
04774   0 50000 0 00072          CLA BBBP                                                  F5G28860
04775  -3 00000 4 04747  QP8     TXL QP0,4,-                                               F5G28870
04776   1 77777 4 04763          TXI QP3,4,-1                                              F5G28880
                 04741          ORG QP+1 LPLST MUST START AT SAME PLACE AS QP AND OTHERS.  F5G28890
                                  STORAGE ASSIGNMENT (TABLES)                             F5G28900
                 04741 LPLST    BSS S3P1 SPACE FOR LOOP LIST TABLE                        F5G28910
                 05263 REG      BES FP1 SPACE FOR REGION WORDS                            F5G28920
                 12510 SPACE    EQU MSIZE-5-REG     STORAGE SPACE LEFT                    F5G28930
                 00360  STAGL   SYN STL                                                   F5G28940
05263   0 00000 0 00000 STAG     HTR -                                                     F5G28950
05264   0 00000 0 00000          HTR -                                                     F5G28960
05265   0 00000 0 00000          HTR -                                                     F5G28960
05266   0 00000 0 00000          HTR -                                                     F5G28960
05267   0 00000 0 00000          HTR -                                                     F5G28960
05270   0 00000 0 00000          HTR -                                                     F5G28960
05271   0 00000 0 00000          HTR -                                                     F5G28960
05272   0 00000 0 00000          HTR -                                                     F5G28960
05273   0 00000 0 00000          HTR -                                                     F5G28960
05274   0 00000 0 00000          HTR -                                                     F5G28960
05275   0 00000 0 00000          HTR -                                                     F5G28960
05276   0 00000 0 00000          HTR -                                                     F5G28960
05277   0 00000 0 00000          HTR -                                                     F5G28960
05300   0 00000 0 00000          HTR -
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05301  0 00000 0 00000        HTR -                                F5G28960
05302  0 00000 0 00000        HTR -                                F5G28960
05303  0 00000 0 00000        HTR -                                F5G28960
05304  0 00000 0 00000        HTR -                                F5G28960
05305  0 00000 0 00000        HTR -                                F5G28960
05306  0 00000 0 00000        HTR -                                F5G28960
05307  0 00000 0 00000        HTR -                                F5G28960
05310  0 00000 0 00000        HTR -                                F5G28960
05311  0 00000 0 00000        HTR -                                F5G28960
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05314  0 00000 0 00000        HTR -                                F5G28960
05315  0 00000 0 00000        HTR -                                F5G28960
05316  0 00000 0 00000        HTR -                                F5G28960
05317  0 00000 0 00000        HTR -                                F5G28960
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05322  0 00000 0 00000        HTR -                                F5G28960
05323  0 00000 0 00000        HTR -                                F5G28960
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05325  0 00000 0 00000        HTR -                                F5G28960
05326  0 00000 0 00000        HTR -                                F5G28960
05327  0 00000 0 00000        HTR -                                F5G28960
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05331  0 00000 0 00000        HTR -                                F5G28960
05332  0 00000 0 00000        HTR -                                F5G28960
05333  0 00000 0 00000        HTR -                                F5G28960
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05335  0 00000 0 00000        HTR -                                F5G28960
05336  0 00000 0 00000        HTR -                                F5G28960
05337  0 00000 0 00000        HTR -                                F5G28960
05340  0 00000 0 00000        HTR -                                F5G28960
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05343  0 00000 0 00000        HTR -                                F5G28960
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05345  0 00000 0 00000        HTR -                                F5G28960
05346  0 00000 0 00000        HTR -                                F5G28960
05347  0 00000 0 00000        HTR -                                F5G28960
05350  0 00000 0 00000        HTR -                                F5G28960
05351  0 00000 0 00000        HTR -                                F5G28960
05352  0 00000 0 00000        HTR -                                F5G28960
05353  0 00000 0 00000        HTR -                                F5G28960
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05355  0 00000 0 00000        HTR -                                F5G28960
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05357  0 00000 0 00000        HTR -                                F5G28960
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05361  0 00000 0 00000        HTR -                                F5G28960
05362  0 00000 0 00000        HTR -                                F5G28960
05363  0 00000 0 00000        HTR -                                F5G28960
05364  0 00000 0 00000        HTR -                                F5G28960
05365  0 00000 0 00000        HTR -                                F5G28960
05366  0 00000 0 00000        HTR -                                F5G28960
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05367  0 00000 0 00000        HTR -                                    F5G28960
05370  0 00000 0 00000        HTR -                                    F5G28960
05371  0 00000 0 00000        HTR -                                    F5G28960
05372  0 00000 0 00000        HTR -                                    F5G28960
05373  0 00000 0 00000        HTR -                                    F5G28960
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05375  0 00000 0 00000        HTR -                                    F5G28960
05376  0 00000 0 00000        HTR -                                    F5G28960
05377  0 00000 0 00000        HTR -                                    F5G28960
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05401  0 00000 0 00000        HTR -                                    F5G28960
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05403  0 00000 0 00000        HTR -                                    F5G28960
05404  0 00000 0 00000        HTR -                                    F5G28960
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05406  0 00000 0 00000        HTR -                                    F5G28960
05407  0 00000 0 00000        HTR -                                    F5G28960
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05411  0 00000 0 00000        HTR -                                    F5G28960
05412  0 00000 0 00000        HTR -                                    F5G28960
05413  0 00000 0 00000        HTR -                                    F5G28960
05414  0 00000 0 00000        HTR -                                    F5G28960
05415  0 00000 0 00000        HTR -                                    F5G28960
05416  0 00000 0 00000        HTR -                                    F5G28960
05417  0 00000 0 00000        HTR -                                    F5G28960
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05421  0 00000 0 00000        HTR -                                    F5G28960
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05423  0 00000 0 00000        HTR -                                    F5G28960
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05427  0 00000 0 00000        HTR -                                    F5G28960
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05431  0 00000 0 00000        HTR -                                    F5G28960
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05453  0 00000 0 00000        HTR -                                    F5G28960
05454  0 00000 0 00000        HTR -                                    F5G28960
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05457  0 00000 0 00000        HTR -                                   F5G28960
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05461  0 00000 0 00000        HTR -                                   F5G28960
05462  0 00000 0 00000        HTR -                                   F5G28960
05463  0 00000 0 00000        HTR -                                   F5G28960
05464  0 00000 0 00000        HTR -                                   F5G28960
05465  0 00000 0 00000        HTR -                                   F5G28960
05466  0 00000 0 00000        HTR -                                   F5G28960
05467  0 00000 0 00000        HTR -                                   F5G28960
05470  0 00000 0 00000        HTR -                                   F5G28960
05471  0 00000 0 00000        HTR -                                   F5G28960
05472  0 00000 0 00000        HTR -                                   F5G28960
05473  0 00000 0 00000        HTR -                                   F5G28960
05474  0 00000 0 00000        HTR -                                   F5G28960
05475  0 00000 0 00000        HTR -                                   F5G28960
05476  0 00000 0 00000        HTR -                                   F5G28960
05477  0 00000 0 00000        HTR -                                   F5G28960
05500  0 00000 0 00000        HTR -                                   F5G28960
05501  0 00000 0 00000        HTR -                                   F5G28960
05502  0 00000 0 00000        HTR -                                   F5G28960
05503  0 00000 0 00000        HTR -                                   F5G28960
05504  0 00000 0 00000        HTR -                                   F5G28960
05505  0 00000 0 00000        HTR -                                   F5G28960
05506  0 00000 0 00000        HTR -                                   F5G28960
05507  0 00000 0 00000        HTR -                                   F5G28960
05510  0 00000 0 00000        HTR -                                   F5G28960
05511  0 00000 0 00000        HTR -                                   F5G28960
05512  0 00000 0 00000        HTR -                                   F5G28960
05513  0 00000 0 00000        HTR -                                   F5G28960
05514  0 00000 0 00000        HTR -                                   F5G28960
05515  0 00000 0 00000        HTR -                                   F5G28960
05516  0 00000 0 00000        HTR -                                   F5G28960
05517  0 00000 0 00000        HTR -                                   F5G28960
05520  0 00000 0 00000        HTR -                                   F5G28960
05521  0 00000 0 00000        HTR -                                   F5G28960
05522  0 00000 0 00000        HTR -                                   F5G28960
05523  0 00000 0 00000        HTR -                                   F5G28960
05524  0 00000 0 00000        HTR -                                   F5G28960
05525  0 00000 0 00000        HTR -                                   F5G28960
05526  0 00000 0 00000        HTR -                                   F5G28960
05527  0 00000 0 00000        HTR -                                   F5G28960
05530  0 00000 0 00000        HTR -                                   F5G28960
05531  0 00000 0 00000        HTR -                                   F5G28960
05532  0 00000 0 00000        HTR -                                   F5G28960
05533  0 00000 0 00000        HTR -                                   F5G28960
05534  0 00000 0 00000        HTR -                                   F5G28960
05535  0 00000 0 00000        HTR -                                   F5G28960
05536  0 00000 0 00000        HTR -                                   F5G28960
05537  0 00000 0 00000        HTR -                                   F5G28960
05540  0 00000 0 00000        HTR -                                   F5G28960
05541  0 00000 0 00000        HTR -                                   F5G28960
05542  0 00000 0 00000        HTR -                                   F5G28960
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05543	0	00000	0	00000	HTR -	F5G28960
05544	0	00000	0	00000	HTR -	F5G28960
05545	0	00000	0	00000	HTR -	F5G28960
05546	0	00000	0	00000	HTR -	F5G28960
05547	0	00000	0	00000	HTR -	F5G28960
05550	0	00000	0	00000	HTR -	F5G28960
05551	0	00000	0	00000	HTR -	F5G28960
05552	0	00000	0	00000	HTR -	F5G28960
05553	0	00000	0	00000	HTR -	F5G28960
05554	0	00000	0	00000	HTR -	F5G28960
05555	0	00000	0	00000	HTR -	F5G28960
05556	0	00000	0	00000	HTR -	F5G28960
05557	0	00000	0	00000	HTR -	F5G28960
05560	0	00000	0	00000	HTR -	F5G28960
05561	0	00000	0	00000	HTR -	F5G28960
05562	0	00000	0	00000	HTR -	F5G28960
05563	0	00000	0	00000	HTR -	F5G28960
05564	0	00000	0	00000	HTR -	F5G28960
05565	0	00000	0	00000	HTR -	F5G28960
05566	0	00000	0	00000	HTR -	F5G28960
05567	0	00000	0	00000	HTR -	F5G28960
05570	0	00000	0	00000	HTR -	F5G28960
05571	0	00000	0	00000	HTR -	F5G28960
05572	0	00000	0	00000	HTR -	F5G28960
05573	0	00000	0	00000	HTR -	F5G28960
05574	0	00000	0	00000	HTR -	F5G28960
05575	0	00000	0	00000	HTR -	F5G28960
05576	0	00000	0	00000	HTR -	F5G28960
05577	0	00000	0	00000	HTR -	F5G28960
05600	0	00000	0	00000	HTR -	F5G28960
05601	0	00000	0	00000	HTR -	F5G28960
05602	0	00000	0	00000	HTR -	F5G28960
05603	0	00000	0	00000	HTR -	F5G28960
05604	0	00000	0	00000	HTR -	F5G28960
05605	0	00000	0	00000	HTR -	F5G28960
05606	0	00000	0	00000	HTR -	F5G28960
05607	0	00000	0	00000	HTR -	F5G28960
05610	0	00000	0	00000	HTR -	F5G28960
05611	0	00000	0	00000	HTR -	F5G28960
05612	0	00000	0	00000	HTR -	F5G28960
05613	0	00000	0	00000	HTR -	F5G28960
05614	0	00000	0	00000	HTR -	F5G28960
05615	0	00000	0	00000	HTR -	F5G28960
05616	0	00000	0	00000	HTR -	F5G28960
05617	0	00000	0	00000	HTR -	F5G28960
05620	0	00000	0	00000	HTR -	F5G28960
05621	0	00000	0	00000	HTR -	F5G28960
05622	0	00000	0	00000	HTR -	F5G28960
05623	0	00000	0	00000	HTR -	F5G28960
05624	0	00000	0	00000	HTR -	F5G28960
05625	0	00000	0	00000	HTR -	F5G28960
05626	0	00000	0	00000	HTR -	F5G28960
05627	0	00000	0	00000	HTR -	F5G28960
05630	0	00000	0	00000	HTR -	F5G28960

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05631   0 00000 0 00000          HTR -                                    F5G28960
05632   0 00000 0 00000          HTR -                                    F5G28960
05633   0 00000 0 00000          HTR -                                    F5G28960
05634   0 00000 0 00000          HTR -                                    F5G28960
05635   0 00000 0 00000          HTR -                                    F5G28960
05636   0 00000 0 00000          HTR -                                    F5G28960
05637   0 00000 0 00000          HTR -                                    F5G28960
05640   0 00000 0 00000          HTR -                                    F5G28960
05641   0 00000 0 00000          HTR -                                    F5G28960
05642   0 00000 0 00000          HTR -                                    F5G28960
05643   0 00000 0 00000          HTR -                                    F5G28960
05644   0 50000 1 12535  W0      CLA BBB+2,1                              F5G28980
05645   0 77100 0 00022          ARS 18                                   F5G28990
05646   0 40200 0 00611          SUB XV21                                 F5G29000
05647   0 10000 0 04112          TZE X42                                  F5G29010
05650   0 53400 1 00342          LXA S5K5,1                               F5G29020
05651  -0 53400 4 00601          LXD XV13,4                               F5G29030
05652   0 50000 4 12535  W1      CLA BBB+2,4                              F5G29040
05653   0 76500 0 00022          LRS 18                                   F5G29050
05654   0 40200 0 00611          SUB XV21                                 F5G29060
05655   0 10000 0 05665          TZE W3                                   F5G29070
05656   0 50000 0 00314          CLA ZERO                                 F5G29080
05657   0 76300 0 00022          LLS 18                                   F5G29090
05660   0 40200 0 00611          SUB XV21                                 F5G29100
05661   0 10000 0 05665          TZE W3                                   F5G29110
05662   1 77777 4 05663          TXI W2,4,-1                              F5G29120
05663   2 00001 1 05652  W2      TIX W1,1,1                               F5G29130
05664  -3 00000 0 04111          TXL X36,-,-                              F5G29140
05665  -0 63400 2 05671  W3      SXD W4,2                                 F5G29150
05666  -0 53400 1 05664          LXD W2+1,1                               F5G29160
05667   0 07400 4 01566          TSX SB,4                                 F5G29170
05670  -0 53400 2 05671          LXD W4,2                                 F5G29180
05671  -3 00000 0 04111  W4      TXL X36,-,-                              F5G29190
                 05672           BSS PTL1       SPACE FOR PATCHES         F5G29200
                 04615 CMTL      SYN 9*SPACE/20/15*15                     F5G29210
                 05716 CMTAG     BSS CMTL                                 F5G29220
                 00420 BBBL      SYN 6*SPACE/20/6                         F5G29230
                 12533 BBB       BSS BBBL*6+1                             F5G29240
                 15674 PRED      SYN BBB+BBBL*6+1                         F5G29250
                 02100 SPAC1     EQU MSIZE-4-PRED                         F5G29260
                 01037 PREDL     EQU SPAC1/2-1                            F5G29270
                 15674           BSS PREDL+1                              F5G29280
                 01037 SUCCL     SYN PREDL                                F5G29290
                 16734 SUCC      BSS SUCCL+1                              F5G29300
                                        EDITOR RECORD NO. 76              F5G29310
                                FOR CONTROL CARD INFORMATION, SEE END OF ASSEMBLY. F5G29320
                                     DIAGNOSTIC CALLER FOLLOWS            F5G29340
                                                PART 1B                   F5G29350
                                   INITIALIZATION AND PRED LIMIT FOR FAST COMPILING. F5G29360
                 15674           ORG PRED                                 F5G29370
15674   0 53400 1 00362 I        LXA FK5,1                  CLEAR REG. TABLE F5G29380
15675   0 76000 0 00012          DCT   CLEAR DIVIDE CHECK LIGHT           F5G29390
15676   0 76100 0 00000          NOP       IN CASE DIVIDE CHECK IS ON     F5G29400
15677   0 50000 0 00314          CLA ZERO                                 F5G29410
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15700   0 60100 1 05263 I11     STO REG,1                                                F5G29420
15701   2 00001 1 15700         TIX I11,1,1                                              F5G29430
15702   0 76000 0 00140         PSE 96                  TURN OFF SENSE LIGHTS.           F5G29440
15703   0 50000 0 17777         CLA KEYS+3                INITIALIZE                     F5G29441
15704   0 60100 0 00042         STO STAGP+5 DRUM ADDR. OF STAG                           F5G29450
15705   0 50000 0 17775         CLA KEYS+1                                               F5G29460
15706   0 60100 0 00065         STO PREDP+5                                              F5G29470
15707   0 50000 0 17776         CLA KEYS+2                                               F5G29480
15710   0 60100 0 00077         STO BBBP+5 DRUM ADDR. OF BB.B.                           F5G29490
15711   0 50000 0 17774         CLA KEYS                                                 F5G29500
15712   0 76700 0 00022         ALS 18                                                   F5G29510
15713   0 60100 0 00075         STO BBBP+3 NO. OF BASIC BLOCKS.                          F5G29520
15714   0 40200 0 00316         SUB ONED                                                 F5G29530
15715   0 07400 4 00070         TSX SE,4                                                 F5G29540
15716   0 50000 1 12533         CLA BBB,1                                                F5G29550
15717   0 62200 0 00051         STD SUCCP+3     LOCATION OF LAST SUCC                    F5G29560
15720   0 76700 0 00022         ALS 18                                                   F5G29570
15721   0 62200 0 00063         STD PREDP+3       LOCATION OF LAST PRED                  F5G29580
15722   0 50000 1 12534         CLA BBB+1,1                                              F5G29590
15723  -0 32000 0 00326         ANA S3K4                                                 F5G29600
15724   0 60100 0 00453         STO S4V3                                                 F5G29610
15725   0 76500 0 00043         LRS 35                                                   F5G29620
15726   0 22100 0 00331         DVP S4K2 COMPUTE                                         F5G29630
15727  -0 60000 0 16005         STQ IV1 THE                                              F5G29640
15730   0 10000 0 15732         TZE I1 LOCATION                                          F5G29650
15731   0 50000 0 00315         CLA ONEA WHICH A TAG                                     F5G29660
15732   0 40000 0 16005 I1      ADD IV1 WOULD HAVE                                       F5G29670
15733   0 76500 0 00043         LRS 35 IF IT                                             F5G29680
15734   0 20000 0 00331         MPY S4K2 WERE FIRST IN                                   F5G29690
15735   0 76300 0 00043         LLS 35 THE NEXT RECORD.                                  F5G29700
15736   0 60100 0 00452         STO S4V2                                                 F5G29710
15737   0 60100 0 00451         STO S4V1                                                 F5G29720
15740   0 50000 1 12534         CLA BBB+1,1 DETERMINE NO.                                F5G29730
15741  -0 32000 0 00326         ANA S3K4 OF ENTRIES IN                                   F5G29740
15742   0 76500 0 00043         LRS 35 STAG.                                             F5G29750
15743   0 22100 0 00371         DVP XK9                                                  F5G29760
15744  -0 60000 0 16005         STQ IV1                                                  F5G29770
15745   0 10000 0 15747         TZE I10                                                  F5G29780
15746   0 50000 0 00315         CLA ONEA                                                 F5G29790
15747   0 40000 0 16005 I10     ADD IV1           INITIALIZE                             F5G29800
15750   0 76700 0 00022         ALS 18                                                   F5G29810
15751   0 60100 0 00040         STO STAGP+3 OF ENTRIES IN STAG                           F5G29820
15752   0 76500 0 00043         LRS 35 COMPUTE                                           F5G29830
15753   0 22100 0 00037         DVP STAGP+2   THE                                        F5G29840
15754   0 10000 0 15756         TZE I3 DRUM                                              F5G29850
15755   0 50000 0 00315         CLA ONEA ADDR.                                           F5G29860
15756  -0 60000 0 16006 I3      STQ IV2 FOLLOWING                                        F5G29870
15757   0 40000 0 16006         ADD IV2 THE                                              F5G29880
15760   0 76700 0 00022         ALS 18                                                   F5G29890
15761   0 40000 0 00040         ADD STAGP+3 STAG                                         F5G29900
15762   0 77100 0 00022         ARS 18                                                   F5G29910
15763   0 40000 0 00042         ADD STAGP+5 TABLE.                                       F5G29920
15764   0 56000 0 16010         LDQ IK1                                                  F5G29930
15765   0 04000 0 16004         TLQ I7                                                   F5G29940
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15766   0 50000 0 00036 I6      CLA STAGP+1                                          F5G29950
15767   0 34000 0 00040         CAS STAGP+3     ARE WE THRU STORING 0 S              F5G29960
15770   0 02000 0 15772         TRA I4                                               F5G29970
15771   0 02000 0 16011         TRA I9                                               F5G29980
15772   0 60100 0 00035 I4      STO STAGP SET N(0) TO OLD N(1)                        F5G29990
15773   0 40000 0 00037         ADD STAGP+2 SET N(1) TO MIN (OLD N(1)+N,,             F5G30000
15774   0 56000 0 00040         LDQ STAGP+3 N(L)                                     F5G30010
15775  -0 60000 0 00036         STQ STAGP+1                                          F5G30020
15776   0 04000 0 16000         TLQ I5                                               F5G30030
15777   0 60100 0 00036         STO STAGP+1                                          F5G30040
16000   0 50000 0 00277 I5      CLA SEK                                              F5G30050
16001   0 53400 2 16007         LXA IK2,2                                            F5G30060
16002   0 07400 4 00166         TSX SE26,4 STORE BLOCK OF 0S                         F5G30070
16003   0 02000 0 15766         TRA I6                                               F5G30080
16004   0 07400 4 00004 I7      TSX 4,4 TO DIAGNOSTIC                                F5G30090
16005   0 00000 0 00000 IV1                                                          F5G30100
16006   0 00000 0 00000 IV2                                                          F5G30110
16007   0 00000 0 77744 IK2         1-STAGP                                          F5G30120
16010   0 00000 0 17777 IK1     HTR 8191                                             F5G30130
16011   0 07400 4 01133 I9      TSX S4,4                                             F5G30140
16012   0 77200 0 00204         REW INSTTP              REWIND THE COMPILED INST TAPE F5G30150
16013   0 50000 0 17775         CLA KEYS+1                                           F5G30160
16014  -0 10000 0 04740         TNZ LPLST-1                                          F5G30170
16015   0 60100 0 00550         STO LPIND                                            F5G30180
16016   0 60100 0 04740         STO LPLST-1                                          F5G30190
16017   0 60100 0 04741         STO LPLST                                            F5G30200
16020   0 50000 0 00323         CLA S3K1                                             F5G30210
16021   0 60100 0 04742         STO LPLST+1                                          F5G30220
16022  -0 53400 4 00317         LXD S1K2,4  SKIP DIAGNOSTICS                         F5G30230
16023   0 76200 0 00221 I9A     RTB 1  AND ANTIPINGPONG                              F5G30240
16024   2 00001 4 16023         TIX I9A,4,1   SIX RECORDS                           F5G30250
16025   0 02000 0 02706         TRA F75                                              F5G30260
                                        EDITOR RECORD NO. 78                        F5G30270
                                FOR CONTROL CARD INFORMATION, SEE END OF ASSEMBLY.  F5G30280
                                     DIAGNOSTIC CALLER FOLLOWS                      F5G30300
                                          PART 1C                                   F5G30310
                                       SUCC LIMIT FOR FAST COMPILING                F5G30320
                                                                                    F5G30330
                        04740           ORG LPLST-1                                 F5G30340
04740  -0 53400 1 00103 QS      LXD SE21+2,1                                         F5G30350
04741  -3 00000 1 02177         TXL F,1,0                                            F5G30360
04742  -0 53400 4 00051         LXD SUCCP+3,4                                        F5G30370
04743   0 50000 0 00075         CLA BBBP+3                                           F5G30380
04744  -3 00000 4 02177 QS0     TXL F,4,0                                            F5G30390
04745   1 77777 4 04746         TXI QS1,4,-1                                         F5G30400
04746  -0 63400 4 00104 QS1     SXD SE21+3,4                                         F5G30410
04747   0 40200 0 00316         SUB ONED                                             F5G30420
04750   0 07400 4 00070         TSX SE,4                                             F5G30430
04751  -0 53400 4 00072         LXD BBBP,4                                           F5G30440
04752   1 00417 4 04753         TXI QS2,4,BBBL-1                                     F5G30450
04753  -0 63400 4 04764 QS2     SXD QS4,4                                            F5G30460
04754  -0 63400 4 04766         SXD QS5,4                                            F5G30470
04755  -0 53400 4 12533         LXD BBB,4                                            F5G30480
04756  -0 63400 4 04772         SXD QS8,4                                            F5G30490
04757  -0 53400 4 00104         LXD SE21+3,4
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04760 -0 75400 4 00000  QS3    PXD 0,4                                          F5G30500
04761  0 07400 4 00044         TSX SE6,4                                        F5G30510
04762  0 50200 1 16734         CLS SUCC,1                                       F5G30520
04763  0 73400 4 00000         PAX 0,4                                          F5G30530
04764  3 00000 4 04767  QS4    TXH QS6,4,-                                      F5G30540
04765  1 00420 4 04766         TXI QS5,4,BBBL                                   F5G30550
04766  3 00000 4 04770  QS5    TXH QS7,4,-                                      F5G30560
04767  0 60100 1 16734  QS6    STO SUCC,1                                       F5G30570
04770 -0 53400 4 00306  QS7    LXD SEV2,4                                       F5G30580
04771  0 50000 0 00072         CLA BBBP                                         F5G30590
04772 -3 00000 4 04744  QS8    TXL QS0,4,-                                      F5G30600
04773  1 77777 4 04760         TXI QS3,4,-1                                     F5G30610
                                      EDITOR RECORD NO. 80                     F5G30620
                                FOR CONTROL CARD INFORMATION, SEE END OF ASSEMBLY. F5G30630
                                     DIAGNOSTIC CALLER FOLLOWS                 F5G30650
                                          PART 1D                              F5G30660
                                        PRED UNDO FROM FAST COMPILING          F5G30670
                                                                               F5G30680
                       04740            ORG LPLST-1                             F5G30690
04740 -0 53400 1 00103  QPU    LXD SE21+2,1                                     F5G30700
04741 -3 00000 1 00030         TXL R,1,0                                        F5G30710
04742 -0 53400 4 00063         LXD PREDP+3,4                                    F5G30720
04743  0 50000 0 00075         CLA BBBP+3                                       F5G30730
04744 -3 00000 4 00030  QPU0   TXL R,4,0                                        F5G30740
04745  1 77777 4 04746         TXI QPU1,4,-1                                    F5G30750
04746 -0 63400 4 00104  QPU1   SXD SE21+3,4                                     F5G30760
04747  0 40200 0 00316         SUB ONED                                         F5G30770
04750  0 07400 4 00070         TSX SE,4                                         F5G30780
04751 -0 53400 4 00072         LXD BBBP,4                                       F5G30790
04752  1 00417 4 04753         TXI QPU2,4,BBBL-1                                F5G30800
04753 -0 63400 4 04764  QPU2   SXD QPU4,4                                       F5G30810
04754 -0 63400 4 04766         SXD QPU5,4                                       F5G30820
04755  0 53400 4 12533         LXA BBB,4                                        F5G30830
04756 -0 63400 4 04772         SXD QPU8,4                                       F5G30840
04757 -0 53400 4 00104         LXD SE21+3,4                                     F5G30850
04760 -0 75400 4 00000  QPU3   PXD 0,4                                          F5G30860
04761  0 07400 4 00056         TSX SE5+1,4                                      F5G30870
04762  0 50200 1 15674         CLS PRED,1                                       F5G30880
04763  0 73400 4 00000         PAX 0,4                                          F5G30890
04764  3 00000 4 04767  QPU4   TXH QPU6,4,-                                     F5G30900
04765  1 00420 4 04766         TXI QPU5,4,BBBL                                  F5G30910
04766  3 00000 4 04770  QPU5   TXH QPU7,4,-                                     F5G30920
04767  0 60100 1 15674  QPU6   STO PRED,1                                       F5G30930
04770 -0 53400 4 00306  QPU7   LXD SEV2,4                                       F5G30940
04771  0 50000 0 00072         CLA BBBP                                         F5G30950
04772 -3 00000 4 04744  QPU8   TXL QPU0,4,-                                     F5G30960
04773  1 77777 4 04760         TXI QPU3,4,-1                                    F5G30970
                                      EDITOR RECORD NO. 82                     F5G30980
                                FOR CONTROL CARD INFORMATION, SEE END OF ASSEMBLY. F5G31000
                                     DIAGNOSTIC CALLER FOLLOWS                 F5G31010
                                          PART 1E                              F5G31020
                                        SUCC UNDO FROM FAST COMPILING          F5G31030
                                                                               F5G31040
                       04740            ORG LPLST-1                             F5G31050
04740 -0 53400 1 00103  QSU    LXD SE21+2,1
04741 -3 00000 1 02177         TXL F,1,0
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04742 -0 53400 4 00051          LXD SUCCP+3,4                                   F5G31060
04743  0 50000 0 00075          CLA BBBP+3                                      F5G31070
04744 -3 00000 4 02177  QSU0    TXL F,4,0                                       F5G31080
04745  1 77777 4 04746          TXI QSU1,4,-1                                   F5G31090
04746 -0 63400 4 00104  QSU1    SXD SE21+3,4                                    F5G31100
04747  0 40200 0 00316          SUB ONED                                        F5G31110
04750  0 07400 4 00070          TSX SE,4                                        F5G31120
04751 -0 53400 4 00072          LXD BBBP,4                                      F5G31130
04752  1 00417 4 04753          TXI QSU2,4,BBBL-1                               F5G31140
04753 -0 63400 4 04764  QSU2    SXD QSU4,4                                      F5G31150
04754 -0 63400 4 04766          SXD QSU5,4                                      F5G31160
04755 -0 53400 4 12533          LXD BBB,4                                       F5G31170
04756 -0 63400 4 04772          SXD QSU8,4                                      F5G31180
04757 -0 53400 4 00104          LXD SE21+3,4                                    F5G31190
04760 -0 75400 4 00000  QSU3    PXD 0,4                                         F5G31200
04761  0 07400 4 00044          TSX SE6,4                                       F5G31210
04762  0 50200 1 16734          CLS SUCC,1                                      F5G31220
04763  0 73400 4 00000          PAX 0,4                                         F5G31230
04764  3 00000 4 04767  QSU4.   TXH QSU6,4,-                                    F5G31240
04765  1 00420 4 04766          TXI QSU5,4,BBBL                                 F5G31250
04766  3 00000 4 04770  QSU5    TXH QSU7,4,-                                    F5G31260
04767  0 60100 1 16734  QSU6    STO SUCC,1                                      F5G31270
04770 -0 53400 4 00306  QSU7    LXD SEV2,4                                      F5G31280
04771  0 50000 0 00072          CLA BBBP                                        F5G31290
04772 -3 00000 4 04744  QSU8    TXL QSU0,4,-                                    F5G31300
04773  1 77777 4 04760          TXI QSU3,4,-1                                   F5G31310
                                      EDITOR RECORD NO. 84                      F5G31320
                                FOR CONTROL CARD INFORMATION, SEE END OF ASSEMBLY.  F5G31330
                                     DIAGNOSTIC CALLER FOLLOWS                  F5G31340
                                          PART 2                                F5G31350
                                PERMUTE RESULTS AND COMBINE BB LIST WITH BB TABLE  F5G31360
                                                                                F5G31370
                                                                                F5G31380
                00317           ORG C                                           F5G31390
00317  0 00000 0 77777  BLV09   HTR -1              BB NO. OF LAST GO TO N      F5G31400
00320  0 76200 0 00223  BL12    RTB BLT             FIND THE END OF FILE PRECEEDING BB LIST  F5G31410
00321  0 70000 0 00655  BL13    CPY BLIST                                       F5G31420
00322  0 02000 0 00320          TRA BL12                                        F5G31430
00323  0 02000 0 00325          TRA BL6                                         F5G31440
00324  0 02000 0 00320          TRA BL12                                        F5G31450
00325 -0 53400 2 00332  BL6     LXD CON1,2                                      F5G31460
00326  0 76200 0 00223  BL5     RTB BLT                                         F5G31470
00327  0 53400 1 00332          LXA CON1,1                                      F5G31480
00330  0 70000 1 00655  BL1     CPY BLIST,1         COPY BB LIST INTO CS        F5G31490
00331  1 77777 1 00330          TXI BL1,1,-1                                    F5G31500
00332  0 00005 0 00000  CON1        0,0,5                                       F5G31510
00333  0 76600 0 00333          IOD                                             F5G31520
00334 -0 76000 0 00012          RTT                                             F5G31530
00335  0 02000 0 00435          TRA BL4             ERROR                       F5G31540
00336  0 50000 0 17774          CLA KEYS            O.K. COMPUTE TEST CONSTANT  F5G31550
00337  0 40200 0 00552          SUB TWO                                         F5G31560
00340  0 60100 0 00566          STO BLV3                                        F5G31570
00341  0 50000 0 00314          CLA ZERO                                        F5G31580
00342  0 07400 4 00032          TSX SE4,4           STAG WORD                   F5G31590
00343  0 50000 1 05263          CLA STAG,1                                      F5G31600
00344  0 60100 0 00602          STO BLV07
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00345   0 50000 0 00564        CLA BLV1                                    F5G31610
00346   0 56000 0 00566 BL3    LDQ BLV3        HAVE WE ALREADY DEALT WITH LAST BB  F5G31620
00347   0 04000 0 00541        TLQ BL06        YES , GO TO READ IN NEXT PART       F5G31630
00350   0 40000 0 00315        ADD ONEA                                    F5G31640
00351   0 07400 4 00067        TSX SE1,4       GET UNDEX OF NEXT BB        F5G31650
00352   0 50000 1 12534        CLA BBB+1,1     STORE THE NO. OF THE        F5G31660
00353  -0 32000 0 00554        ANA RMSK        FIRST TAG IN                F5G31670
00354   0 60100 0 00571        STO BLV6        NEXT BB.                    F5G31680
00355   0 50000 1 12533        CLA BBB,1                                   F5G31690
00356  -0 32000 0 00553        ANA 2AMSK                                   F5G31700
00357   0 60100 0 00570        STO BLV5        STORE AWAY NO. OF U1ST PRED IN NEXT BB.  F5G31710
00360   0 50000 0 00564        CLA BLV1                                    F5G31720
00361   0 07400 4 00067        TSX SE1,4                                   F5G31730
00362  -0 53400 2 00565        LXD BLV2,2                                  F5G31740
00363   0 50000 2 00655        CLA BLIST,2     REPLACE LAST WORD OF BBB ENTRY  F5G31750
00364   0 60100 1 12540        STO BBB+5,1     BY THE LOCATION FROM THE BB LIST.  F5G31760
00365   1 77777 2 00366 BL2    TXI BL2+1,2,-1                              F5G31770
00366  -0 63400 2 00565        SXD BLV2,2                                  F5G31780
00367   0 50000 1 12534        CLA BBB+1,1     STORE PERMUTATION NOS.      F5G31790
00370   0 60100 0 00572        STO BLV7                                    F5G31800
00371  -0 63400 1 00567        SXD BLV4,1                                  F5G31810
00372   0 50000 1 12534        CLA BBB+1,1     GET                         F5G31820
00373  -0 32000 0 00554        ANA RMSK        OF 1ST TAG IN BB            F5G31830
00374   0 40200 0 00571        SUB BLV6        FORM COUNT OF NO. OF TAGS   F5G31840
00375   0 40200 0 00315        SUB ONEA                                    F5G31850
00376   0 73400 2 00000        PAX 0,2         COUNT OF NO. OF TAGS INTO 2.  F5G31860
00377  -0 63400 2 00600        SXD BLV05,2     STORE COUNT OF NO. OF TAGS  F5G31870
00400   0 50000 1 12533        CLA BBB,1                                   F5G31880
00401  -0 32000 0 00553        ANA 2AMSK                                   F5G31890
00402   0 60100 0 00575 BL9    STO BLV01                                   F5G31900
00403   0 34000 0 00570        CAS BLV5        IS THIS PRED IN SAME BB     F5G31910
00404   0 02000 0 00406        TRA BL7         YES                         F5G31920
00405   0 02000 0 00440        TRA BL01        NO                          F5G31930
00406   0 07400 4 00055 BL7    TSX SE5,4       YES, GET INDEX OF PRED      F5G31940
00407  -0 50000 0 00555        CAL SALM                                    F5G31950
00410   0 60200 0 00574        SLW BLV9                                    F5G31960
00411  -0 50000 1 15674        CAL PRED,1                                  F5G31970
00412   0 60200 0 00573        SLW BLV8        STODRE OLD PRED WORD        F5G31980
00413   0 32000 0 00574        ANS BLV9        INT  INITIALIZE NEW PRED WORD  F5G31990
00414  -0 53400 2 00550        LXD 2LD3,2      SET COUNT TO 3              F5G32000
00415  -0 50000 0 00572 BL8    CAL BLV7        PLACE THE                   F5G32010
00416   0 77100 2 00003        ARS 3,2         PERMUTATION NO.             F5G32020
00417   0 77100 2 00003        ARS 3,2         IN REGISTER 4               F5G32030
00420  -0 32000 0 00550        ANA 2LD3                                    F5G32040
00421  -0 73400 4 00000        PDX 0,4                                     F5G32050
00422  -0 50000 0 00573        CAL BLV8        PERMUTE                     F5G32060
00423   0 76700 2 00003        ALS 3,2         THE LXD                     F5G32070
00424  -0 32000 0 00557        ANA BITMK       AND SXD                     F5G32080
00425   0 77100 4 00003        ARS 3,4         BITS IN THE                 F5G32090
00426  -0 60200 0 00574        ORS BLV9        PRED ENTRY                  F5G32100
00427   2 00001 2 00415        TIX BL8,2,1     COUNT TO 3                  F5G32110
00430   0 50000 0 00574        CLA BLV9                                    F5G32120
00431   0 60100 1 15674        STO PRED,1      STORE PRED ENTRY WITH PERMUTED BITS  F5G32130
00432   0 50000 0 00575        CLA BLV01       ARRANGE TO CONSIDER         F5G32140
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00433   0 40000 0 00315         ADD ONEA            NEXT PRED ENTRY                                F5G32150
00434   0 02000 0 00402         TRA BL9                                                            F5G32160
00435   0 76400 0 00203 BL4     BST BLT             TAPE CHECK      BACKSPACE TAPE                 F5G32170
00436   2 00001 2 00326         TIX BL5,2,1         TRY 5 TIMES                                    F5G32180
00437   0 07400 4 00004         TSX 4,4 THEN START DIAGNOSTIC.                                     F5G32190
00440  -0 53400 1 00600 BL01    LXD BLV05,1                                                        F5G32200
00441  -2 00001 1 00504 BL03    TNX BL04,1,1        IS THERE ANOTHER TAG IN BB                     F5G32210
00442  -0 53400 2 00577         LXD BLV04,2         YES                                            F5G32220
00443   2 00001 2 00466         TIX BL02,2,1        HAVE WE EXHAUSTED STAG WORD                    F5G32230
00444  -0 63400 1 00600         SXD BLV05,1         YES, STORE COUNT OF NO. OF TAGS                F5G32240
00445  -0 53400 2 00603         LXD BLV08,2         STORE                                          F5G32250
00446   0 50000 0 00602         CLA BLV07           OLD PERMUTED                                   F5G32260
00447   0 60100 2 05263         STO STAG,2          STAG WORD                                      F5G32270
00450   0 50000 0 00314         CLA ZERO                                                           F5G32280
00451   0 60100 0 00602         STO BLV07                                                          F5G32290
00452   0 50000 0 00576         CLA BLV03           GET                                            F5G32300
00453   0 07400 4 00032         TSX SE4,4           NEXT                                           F5G32310
00454  -0 63400 1 00603         SXD BLV08,1         STAG                                           F5G32320
00455  -0 50000 1 05263         CAL STAG,1          WORD                                           F5G32330
00456   0 60200 0 00601         SLW BLV06           STORE STAG WORD                                F5G32340
00457  -0 32000 0 00560         ANA LMSK            AND                                            F5G32350
00460   0 60200 0 00602         SLW BLV07           INITIALIZE NEW STAG WORD                       F5G32360
00461   0 50000 0 00576         CLA BLV03           INCREASE THE                                   F5G32370
00462   0 40000 0 00315         ADD ONEA            STAG WORD NO.                                  F5G32380
00463   0 60100 0 00576         STO BLV03                                                          F5G32390
00464  -0 53400 2 00551         LXD 2LD9,2          RESET COUNT TO 9                               F5G32400
00465  -0 53400 1 00600         LXD BLV05,1          RESTORE 1                                     F5G32410
00466  -0 63400 2 00577 BL02    SXD BLV04,2          STORE COUNTER                                 F5G32420
00467  -0 50000 0 00601         CAL BLV06                                                          F5G32430
00470   0 76700 0 00002         ALS 2                                                              F5G32440
00471   0 60200 0 00601         SLW BLV06                                                          F5G32450
00472  -0 32000 0 00550         ANA 2LD3            EXTRACT TAG                                    F5G32460
00473  -0 73400 4 00000         PDX 0,4                                                            F5G32470
00474  -0 50000 0 00572         CAL BLV7             PERMUTE                                       F5G32480
00475   0 77100 4 00003         ARS 3,4                                                            F5G32490
00476   0 77100 4 00003         ARS 3,4              THE                                           F5G32500
00477  -0 32000 0 00550         ANA 2LD3            TAG                                            F5G32510
00500   0 77100 2 00012         ARS 10,2                                                           F5G32520
00501   0 77100 2 00012         ARS 10,2                                                           F5G32530
00502  -0 60200 0 00602         ORS BLV07            FORM NEW TAG WORD                             F5G32540
00503   0 02000 0 00441         TRA BL03                                                           F5G32550
00504  -0 53400 1 00567 BL04    LXD BLV4,1           GET INDEX OF BB                               F5G32560
00505   0 50000 1 12533         CLA BBB,1            IS                                            F5G32570
00506   0 77100 0 00041         ARS 33               THIS                                          F5G32580
00507   0 40000 0 00315         ADD ONEA             A GO N                                        F5G32590
00510  -0 10000 0 00516         TNZ BL07             NO                                            F5G32600
00511   0 50000 0 00317         CLA BLV09            YES, STORE BB NO.                             F5G32610
00512   0 76700 0 00022         ALS 18               OF LAST                                       F5G32620
00513   0 62200 1 12534         STD BBB+1,1          GO N ENCOUNTERED                              F5G32630
00514   0 50000 0 00564         CLA BLV1             STORE PRESENT                                 F5G32640
00515   0 60100 0 00317         STO BLV09            BB NO.                                        F5G32650
00516  -0 53400 2 00550  BL07   LXD 2LD3,2          SET COUNT TO 3                                F5G32660
00517  -0 50000 0 00572 BL09    CAL BLV7                                                           F5G32670
00520   0 77100 2 00003         ARS 3,2                                                            F5G32680
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00521   0 77100 2 00003          ARS 3,2              GET PERMUTATION NO.                    F5G32690
00522  -0 32000 0 00550          ANA 2LD3                                                    F5G32700
00523  -0 73400 4 00000          PDX 0,4                                                     F5G32710
00524   0 50000 1 12535          CLA BBB+2,1          PERMUTE                                F5G32720
00525   0 60100 4 00564          STO EXCO,4           ENTRANCE-EXIT REQUIREMENTS             F5G32730
00526   1 77777 1 00527 BL08     TXI BL08+1,1,-1                                             F5G32740
00527   2 00001 2 00517          TIX BL09,2,1         COUNT TO 3                             F5G32750
00530  -0 53400 2 00550          LXD 2LD3,2           PLACE PERMUTED                         F5G32760
00531   0 50000 2 00564 BL10     CLA EXCO,2           ENTRANCE-EXIT COND.                    F5G32770
00532   0 60100 1 12532          STO BBB-1,1          BACK IN BB                             F5G32780
00533   1 77777 1 00534 BL11     TXI BL11+1,1,-1                                             F5G32790
00534   2 00001 2 00531          TIX BL10,2,1         COUNT TO 3                             F5G32800
00535   0 50000 0 00564 BL05     CLA BLV1             PREPARE TO DEAL WITH                   F5G32810
00536   0 40000 0 00315          ADD ONEA             WITH NEXT BB                           F5G32820
00537   0 60100 0 00564          STO BLV1                                                    F5G32830
00540   0 02000 0 00346          TRA BL3                                                     F5G32840
00541   0 07400 4 00067 BL06     TSX SE1,4  PUT EDN MARK INTO THE DUMMEY BB                  F5G32850
00542   0 50000 0 00556          CLA EN2MK                                                   F5G32860
00543   0 60100 1 12540          STO BBB+5,1                                                 F5G32870
00544   0 50000 0 00602          CLA BLV07            STORE                                  F5G32880
00545  -0 53400 2 00603          LXD BLV08,2          OLD                                    F5G32890
00546   0 60100 2 05263          STO STAG,2           STAG WORD                              F5G32900
00547   0 02000 0 00030          TRA R                READ NEXT PART                         F5G32910
00550   0 00003 0 00000  2LD3        0,0,3                                                  F5G32920
00551   0 00011 0 00000  2LD9        0,0,9                                                  F5G32930
00552   0 00000 0 00002 TWO          2                                                      F5G32940
00553   0 00000 0 77777  2AMSK       -1                   ADDRESS MASK                      F5G32950
00554   0 00000 7 77777 RMSK         -1,-1                RIGHT HALF MASK                   F5G32960
00555 -377770077777      SALM   OCT -377770077777       MS    MASK OUT SXD AND LXD PRED REULTS F5G32970
00556   3 77777 7 77777  EN2MK  PTH -1,-1,-1            PUT IN LOCATION OF DUMMEY BB      F5G32980
00557   0 00004 4 00000 BITMK        0,4,4                MASK TO EXTRACT ONE SXD AND LXD BIT F5G32990
00560 -377777000000      LMSK   OCT -377777000000                                         F5G33000
                         00564 EXCO   BES 3               THE ENTRANCE-EXIT CONDITIONS  PERMUTED F5G33010
00564   0 00000 0 00000 BLV1                              BBNO.                             F5G33020
00565   0 00000 0 00000 BLV2                              INDEX IN BB LIST                  F5G33030
00566   0 00000 0 00000 BLV3                              TEST CONSTANT                     F5G33040
00567   0 00000 0 00000 BLV4                              INDEX OF BB                       F5G33050
00570   0 00000 0 00000 BLV5                              1ST PRED NO. IN NEXT BB           F5G33060
00571   0 00000 0 00000 BLV6                              UST TAG IN NEXT BB                F5G33070
00572   0 00000 0 00000 BLV7                              PERMUTTTION NOS.                  F5G33080
00573   0 00000 0 00000 BLV8                              OLD PRED ENTRY                    F5G33090
00574   0 00000 0 00000 BLV9                              NEW, PERMUTED, PRED ENTRY         F5G33100
00575   0 00000 0 00000 BLV01                             CURRENT PRED. NO.                 F5G33110
00576   0 00000 0 00000 BLV03                             NO. OF STAG WORD, INITIALLY ZERO  F5G33120
00577   0 00000 0 00000 BLV04                             COUNTER TO 9, INITIALLY ZERO      F5G33130
00600   0 00000 0 00000 BLV05                             COUNT OF NO. OF TAGS IN BB        F5G33140
00601   0 00000 0 00000 BLV06                             STAG WORD                         F5G33150
00602   0 00000 0 00000 BLV07                             NEW, PERMUTED , STAG WORD         F5G33160
00603   0 00000 0 00000 BLV08                             INDEX OF OLD STAG WORD            F5G33170
                         00604        BSS PTL2       SPACE FOR PATCHES                     F5G33180
00655   0 00000 0 00000 BLIST                                                               F5G33190
                                                                                            F5G33200
                                EDITOR RECORD NO. 86                                        F5G33210
                          FOR CONTROL CARD INFORMATION, SEE END OF ASSEMBLY.                F5G33230
                               DIAGNOSTIC CALLER FOLLOWS
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                                       PART 3                                          F5G33240
                          CHANGE LXD AND SXD RESULTS TO BE COMPATIBLE WITH GO TO       F5G33250
                          N RESTRICTION.  MODIFY ASSIGN CONSTANT TABLE.                F5G33260
                           C CONTAINS THE BB NO. OF THE GO TO N                        F5G33270
                                                                                       F5G33280
                   00320        ORG C+1                                                F5G33290
00320  0 76200 0 00222 START    RTB ACTPE           LOCATE THE END OF FILE BEFORE ASSIGN CONSTANTF5G33300
00321  0 70000 0 00573          CPY ACV12                                              F5G33310
00322  0 02000 0 00320          TRA START                                              F5G33320
00323  0 02000 0 00330          TRA RDIN                                               F5G33330
00324  0 02000 0 00320          TRA START                                              F5G33340
00325  0 76400 0 00202 ERR      BST ACTPE           BACKSPACE TAPE TO TRY AGAIN        F5G33350
00326  2 00001 2 00331          TIX AAC2,2,1        COUNT TO 5                         F5G33360
00327  0 07400 4 00004          TSX 4,4       TO DIAGNOSTIC                            F5G33370
00330 -0 53400 2 00555  RDIN    LXD 3LD3,2                                             F5G33380
00331  0 76200 0 00222 AAC2     RTB ACTPE                                              F5G33390
00332  0 70000 0 00573          CPY ACV12           COPY THE EXTRA WORD                F5G33400
00333  0 53400 1 00314          LXA ZERO,1                                             F5G33410
00334  0 70000 1 00647 AAC1     CPY ASCON,1                                            F5G33420
00335  1 77777 1 00334          TXI AAC1,1,-1                                          F5G33430
00336  0 07400 4 00004          TSX 4,4                                                F5G33440
00337  0 76600 0 00333          IOD                 CHECK      REDUNDANCY BITS         F5G33450
00340 -0 76000 0 00012          RTT                                                    F5G33460
00341  0 02000 0 00325          TRA ERR             THERR IS AN ERROR                  F5G33470
00342  0 76200 0 00222          RTB ACTPE                                              F5G33480
00343  0 76200 0 00222          RTB ACTPE                                              F5G33490
00344  0 76200 0 00222          RTB ACTPE                                              F5G33500
00345  0 76600 0 00333          IOD                                                    F5G33510
00346 -0 63400 1 00527          SXD ACV1,1          O.K. STORE RECORD  OF NO. OF ENTRIES F5G33520
00347 -0 63400 1 00541          SXD AC22,1                                             F5G33530
00350  0 50000 0 00317          CLA C                                                  F5G33540
00351  0 56000 0 00560 AC15     LDQ ACK1            GET BB NO. OF 1ST GO TO N          F5G33550
00352  0 04000 0 00520          TLQ AC16            WAS THIS THE LAST GO TO N          F5G33560
00353  0 40000 0 00315          ADD ONEA            NO                                 F5G33570
00354  0 07400 4 00067          TSX SE1,4                                              F5G33580
00355 -0 50000 1 12533          CAL BBB,1           FIND NO. OF 1ST SUCC IN NEXT BB    F5G33590
00356  0 77100 0 00022          ARS 18                                                 F5G33600
00357  0 62100 0 00562          STA ACV3                                               F5G33610
00360  0 50000 0 00317          CLA C                                                  F5G33620
00361  0 07400 4 00067          TSX SE1,4                                              F5G33630
00362  0 50000 0 00314          CLA ZERO            CLEAR THE COMBINED SXDD CASE       F5G33640
00363  0 60100 0 00563          STO ACV4                                               F5G33650
00364 -0 50000 1 12533          CAL BBB,1           FIND THE NO. OF 1ST SUCC IN THIS BB F5G33660
00365  0 77100 0 00022          ARS 18                                                 F5G33670
00366 -0 32000 0 00552          ANA AMSK                                               F5G33680
00367  0 60100 0 00561 AC13     STO ACV2                                               F5G33690
00370  0 34000 0 00562          CAS ACV3            IS THIS SUCC IN SAME BB            F5G33700
00371  0 02000 0 00373          TRA AAC3            YES                                F5G33710
00372  0 02000 0 00506          TRA AC14            NO                                 F5G33720
00373  0 76700 0 00022 AAC3     ALS 18                                                 F5G33730
00374  0 07400 4 00044          TSX SE6,4           YES GET BB NO. OF SUCESSOR         F5G33740
00375 -0 50000 1 16734          CAL SUCC,1                                             F5G33750
00376  0 62100 0 00567          STA ACV8                                               F5G33760
00377  0 40000 0 00315          ADD ONEA            FIN NO. OF 1ST PRED ENTRY NEXT BBB F5G33770
00400  0 07400 4 00067          TSX SE1,4
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00401   0 50000 1 12533        CLA BBB,1                                                F5G33780
00402   0 62100 0 00565        STA ACV6                                                 F5G33790
00403   0 50000 0 00314        CLA ZERO                                                 F5G33800
00404   0 60100 0 00571        STO ACV10       PRESET COMBINED LXD CASE TO 0            F5G33810
00405   0 50000 0 00567        CLA ACV8        FIND NO. OF 1ST PRED  IN THIS BB         F5G33820
00406   0 07400 4 00067        TSX SE1,4                                                F5G33830
00407  -0 50000 1 12533        CAL BBB,1                                                F5G33840
00410  -0 32000 0 00552        ANA AMSK                                                 F5G33850
00411   0 62100 0 00570        STA ACV9        RECORD 1ST PRED FOR FUTURE USE           F5G33860
00412   0 62100 0 00566 AC7    STA ACV7                                                 F5G33870
00413   0 34000 0 00565        CAS ACV6        IS THIS PRED IN SAME BB                  F5G33880
00414   0 02000 0 00416        TRA AC4                                                  F5G33890
00415   0 02000 0 00444        TRA AC8         NO                                       F5G33900
00416   0 07400 4 00055 AC4    TSX SE5,4       IS THIS THE TRANSFER FROM CURRENTLY CONSIDEREF5G33910
00417  -0 50000 1 15674        CAL PRED,1      ED GO TO NP                              F5G33920
00420  -0 32000 0 00552        ANA AMSK                                                 F5G33930
00421   0 40200 0 00317        SUB C                                                    F5G33940
00422  -0 10000 0 00427        TNZ AC5         IF NOT SKIP THE ORING OF SXD CASE        F5G33950
00423  -0 50000 1 15674        CAL PRED,1      OR THE SXD CASE INTO COMBINED SXD CASE   F5G33960
00424  -0 60200 0 00563        ORS ACV4                                                 F5G33970
00425  -0 50000 0 00554        CAL NTMSK                                                F5G33980
00426   0 32000 1 15674        ANS PRED,1                                               F5G33990
00427  -0 50000 1 15674 AC5    CAL PRED,1      IS THE BB WHICH IS PREDECESSOR           F5G34000
00430  -0 63400 1 00572        SXD ACV11,1     A GO TO N                                F5G34010
00431   0 07400 4 00067        TSX SE1,4                                                F5G34020
00432   0 50000 1 12533        CLA BBB,1                                                F5G34030
00433   0 77100 0 00041        ARS 33                                                   F5G34040
00434   0 40000 0 00315        ADD ONEA                                                 F5G34050
00435  -0 10000 0 00441        TNZ AC6                                                  F5G34060
00436  -0 53400 2 00572        LXD ACV11,2     YES, OR THE LXD XCASE INTO THE           F5G34070
00437  -0 50000 2 15674        CAL PRED,2      COMBINED LXD CASE                        F5G34080
00440  -0 60200 0 00571        ORS ACV10                                                F5G34090
00441   0 50000 0 00566 AC6    CLA ACV7                                                 F5G34100
00442   0 40000 0 00315        ADD ONEA                                                 F5G34110
00443   0 02000 0 00412        TRA AC7                                                  F5G34120
00444  -0 50000 0 00571 AC8    CAL ACV10       IS THE COMBINED LXD CASE ZERO            F5G34130
00445  -0 32000 0 00553        ANA TMSK                                                 F5G34140
00446   0 10000 0 00503        TZE AC12                                                 F5G34150
00447   0 50000 0 00567        CLA ACV8        NO, HAS THIS BB ALREADY BEEN             F5G34160
00450   0 07400 4 00067        TSX SE1,4       CONSIDERED                               F5G34170
00451   0 56000 1 12533        LDQ BBB,1       AS A SUCCESSOR TO                        F5G34180
00452  -0 77300 0 00024        RQL 20          A GO TO N                                F5G34190
00453   0 16200 0 00455        TQP AC18                                                 F5G34200
00454   0 02000 0 00503        TRA AC12                                                 F5G34210
00455   0 50000 0 00557 AC18   CLA LT1                                                  F5G34220
00456  -0 60200 1 12533        ORS BBB,1       RECORD THAT THIS BB HAS BEEN CONSIDERED AS F5G34230
00457   0 50000 0 00570        CLA ACV9        ECT..PE  PREPARE TO SCAN ALL PRED ENTRYS F5G34240
00460   0 62100 0 00566 AC11   STA ACV7                                                 F5G34250
00461   0 34000 0 00565        CAS ACV6        IS THIS PRED IN SAME BB                  F5G34260
00462   0 02000 0 00464        TRA AC9                                                  F5G34270
00463   0 02000 0 00531        TRA AC19        NO                                       F5G34280
00464   0 07400 4 00055 AC9    TSX SE5,4       DETERMINE IF THE BB WHICH                F5G34290
00465  -0 63400 1 00572        SXD ACV11,1     IS THE PREDECESSOR OF THIS ONE           F5G34300
00466   0 50000 1 15674        CLA PRED,1      IS A GO TO N                             F5G34310
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00467   0 07400 4 00067         TSX SE1,4                                       F5G34320
00470   0 50000 1 12533         CLA BBB,1                                       F5G34330
00471   0 77100 0 00041         ARS 33                                          F5G34340
00472   0 40000 0 00315         ADD ONEA                                        F5G34350
00473  -0 10000 0 00500         TNZ AC10                                        F5G34360
00474  -0 53400 2 00572         LXD ACV11,2    IT IS A GO TO N                  F5G34370
00475   0 50000 0 00571         CLA ACV10      REPLACE LXD CASE BY THE          F5G34380
00476  -0 32000 0 00553         ANA TMSK       COMBINED LXD CASE                F5G34390
00477  -0 60200 2 15674         ORS PRED,2                                      F5G34400
00500   0 50000 0 00566 AC10    CLA ACV7       ARRANGE TO TREAT NEXT PRED ENTRY F5G34410
00501   0 40000 0 00315         ADD ONEA                                        F5G34420
00502   0 02000 0 00460         TRA AC11                                        F5G34430
00503   0 50000 0 00561 AC12    CLA ACV2                                        F5G34440
00504   0 40000 0 00315         ADD ONEA       ARRANGE TO TREAT NEXT SUCC ENTRY F5G34450
00505   0 02000 0 00367         TRA AC13                                        F5G34460
00506   0 50000 0 00317 AC14    CLA C          STORE COMBINED                   F5G34470
00507   0 07400 4 00067         TSX SE1,4      SXDCASE IN PREFIX                F5G34480
00510   0 50000 0 00563         CLA ACV4       OF 2ED WORD OF BBB ENTRY         F5G34490
00511   0 76700 0 00017         ALS 15                                          F5G34500
00512   0 63000 1 12534         STP BBB+1,1                                     F5G34510
00513   0 50000 1 12534         CLA BBB+1,1    GET NEXT GO TO N NUMBER          F5G34520
00514   0 77100 0 00022         ARS 18                                          F5G34530
00515  -0 32000 0 00552         ANA AMSK                                        F5G34540
00516   0 60100 0 00317         STO C                                           F5G34550
00517   0 02000 0 00351         TRA AC15                                        F5G34560
00520   0 76600 0 00222 AC16    WTB ACTPE      WRITE ASSIGN CONSTANTS BACK ON TAPE F5G34570
00521   0 53400 1 00314         LXA ZERO,1                                      F5G34580
00522  -0 53400 2 00527         LXD ACV1,2                                      F5G34590
00523   0 70000 0 00573         CPY ACV12                                       F5G34600
00524  -3 00000 2 00030         TXL R,2,0      IF NO ASSIGN CONST.. GO TO NEXT PART F5G34610
00525   0 70000 1 00647 AC17    CPY ASCON,1                                     F5G34620
00526   1 77777 1 00527         TXI ACV1,1,-1                                   F5G34630
00527  -3 00000 1 00030 ACV1    TXL R,1,SET                                     F5G34640
00530   0 02000 0 00525         TRA AC17                                        F5G34650
00531   0 50000 0 00567 AC19    CLA ACV8                                        F5G34660
00532   0 07400 4 00067         TSX SE1,4                                       F5G34670
00533   0 53400 2 00314         LXA ZERO,2                                      F5G34680
00534   0 50000 1 12540 AC25    CLA BBB+5,1                                     F5G34690
00535   0 34000 2 00647 AC23    CAS ASCON,2    IS THIS ASSIGN CONST. EQUAL TO THE F5G34700
00536   0 02000 0 00540         TRA AC20       LOCATION OF 1ST INST IN BB       F5G34710
00537   0 02000 0 00543         TRA AC24       YES                              F5G34720
00540  -3 00000 2 00542 AC20    TXL AC21,2,0                                    F5G34730
00541  -3 00000 2 00503 AC22    TXL AC12,2,SET                                  F5G34740
00542   1 77777 2 00535 AC21    TXI AC23,2,-1                                   F5G34750
00543  -0 50000 0 00571 AC24    CAL ACV10      REPLACE ASSIGN CONST. BY NEW     F5G34760
00544  -0 32000 0 00553         ANA TMSK       LOCATION SYMBOL                  F5G34770
00545   0 77100 0 00005         ARS 5                                           F5G34780
00546   0 40000 0 00567         ADD ACV8                                        F5G34790
00547   0 36100 0 00556         ACL LXDC                                        F5G34800
00550   0 60200 2 00647         SLW ASCON,2                                     F5G34810
00551   0 02000 0 00534         TRA AC25                                        F5G34820
00552   0 00000 0 77777 AMSK    HTR -1                                          F5G34830
00553   0 00000 7 00000 TMSK    HTR 0,-1                                        F5G34840
00554 -377770777777     NTMSK   OCT 777770777777                                F5G34850
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00555   0 00005 0 00000  3LD3      0,0,5                                                                F5G34860
00556  +150000000000     LXDC   OCT 150000000000      THE NUMBER IDENTIFYING THE LOC. OF AN LXD        F5G34870
00557   0 00000 1 00000  LT1    HTR 0,1                                                                  F5G34880
00560  +000000077776     ACK1   OCT 77776                                                              F5G34890
00561   0 00000 0 00000  ACV2                NO. OF CURRENT SUCC. OF THIS BB  IN ADDR.                F5G34900
00562   0 00000 0 00000  ACV3                NO. OF 1ST SUCC IN NEXT BB   IN ADDR                     F5G34910
00563   0 00000 0 00000  ACV4                COMBINED SXD CASE  LAST OCTAL DIGIT IN DECR               F5G34920
00564   0 00000 0 00000  ACV5                NO. OF CURRENT PRED   IN ADDR                            F5G34930
00565   0 00000 0 00000  ACV6                NO. OF 1ST PRED IN NEXT BB  IN ADDR                      F5G34940
00566   0 00000 0 00000  ACV7                MO. OF CURRENT PRED IN THIS BB   IN ADDR                 F5G34950
00567   0 00000 0 00000  ACV8                BB NO. OF SUCCESSOR   IN ADDR                            F5G34960
00570   0 00000 0 00000  ACV9                NO. OF 1ST PRED IN THE SUCCESSOR BB   IN ADDRF5G34970
00571   0 00000 0 00000  ACV10               THE COMBINED LXD CASE                                    F5G34980
00572   0 00000 0 00000  ACV11               TEMP. STORE FOR PRED TABLE INDEX   AT AC5               F5G34990
00573   0 00000 0 00000  ACV12               EXTRA WORD FROM ASSIGN CONSTANT RECORD                   F5G35000
00574   0 00000 0 00000  ACV13               TEMP. STORE FOR LOCATION OF 1ST INST. IN BB              F5G35010
                 00647  ASCON  BES PTL3        SPACE FOR PATCHES                                      F5G35020
                                            EDITOR RECORD NO. 88                                     F5G35030
                                       FOR CONTROL CARD INFORMATION, SEE END OF ASSEMBLY.             F5G35040
                                            DIAGNOSTIC CALLER FOLLOWS                                F5G35060
                                              PART 4                                                 F5G35070
                                       COMPILE INSTRUCTIONS FROM PREVIOUS RESULTS                     F5G35080
                                        CONSTANTS                                                    F5G35090
                 00317          ORG C                                                                F5G35100
00317   0 00000 0 00003  L3          3                                                               F5G35110
00320   0 00000 0 00004  L4          4                                                               F5G35120
00321   0 00000 0 00007  L7          7                                                               F5G35130
00322   0 00000 0 00023  L19         19                                                              F5G35140
                 00316  LD1    SYN ONED                                                             F5G35150
00323   0 00002 0 00000  LD2         0,0,2                                                           F5G35160
00324   0 00003 0 00000  LD3         0,0,3                                                           F5G35170
00325   0 00004 0 00000  LD4         0,0,4                                                           F5G35180
00326   0 00007 0 00000  LD7         0,0,7                                                           F5G35190
00327   0 00010 0 00000  LD8         0,0,8                                                           F5G35200
00330   0 00011 0 00000  LD9         0,0,9                                                           F5G35210
00331   0 00014 0 00000  LD12        0,0,12                                                          F5G35220
00332   0 00000 7 00000  LT7         0,7                                                             F5G35230
00333   0 00000 0 77754  LM20        -20                                                             F5G35240
00334   0 00000 0 77774  LM4         -4                                                              F5G35250
00335   0 77777 0 00000  DECMK       0,0,-1          DECREMENT MASK                                  F5G35260
00336   3 77777 7 77777  ENDMK   PTH -1,-1,-1                                                        F5G35270
00337   0 00000 0 77777  ADDMK       -1                                                              F5G35280
00340  +000000777770     STMSK  OCT 777770                                                          F5G35290
00341   0 00007 7 00000  PRMK        0,7,7           MASK FOR PRED RESULTS                           F5G35300
00342   0 00000 7 77777  TAGMK       -1,-1          MASK FOR TAU- TAGS                              F5G35310
00343  -3 77777 0 00000  LFTMSK  MTH 0,0,-1                                                         F5G35320
                 00343  SMK3   SYN LFTMSK                                                          F5G35330
00344   634743000000     LTPL   BCD 1TPL000                                                        F5G35340
00345   436747000000     LLXP   BCD 1LXP000                                                        F5G35350
00346   627045000000     LSYN   BCD 1SYN000                                                        F5G35360
00347   242524000000     LDED   BCD 1DED000                                                        F5G35370
00350   635121000000     LTRA   BCD 1TRA000                                                        F5G35380
00351   636267000000     LTSX   BCD 1TSX000                                                        F5G35390
00352   226262000000      LBSS  BCD 1BSS000          BSS IN BCD.                                    F5G35391
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00353 +076225000000     LPSE   OCT 76225000000
00354 +060000000000     GSYM   OCT 60000000000      GARBAGE SYMBLE
00355   0 00004 0 00004 T4SYM  PZE 4,0,4             TAG 4 AND RELATIVE PART 4
00356   0 00000 0 00004                4            4 NUMBERS TO CONVERT S-TAG
00357   0 00000 0 00002                2
00360   0 00000 0 00001                1
00361   0 00000 0 00000 VSTAG  PZE 0
00362   0 00000 0 00001 RECSC  HTR RECNO             ADDR, NO. OF RECS. BROUGHT IN , C.I.T.
00363   0 02000 0 00000  LCOUT TRA -                 TRANSFER TO EXIT ROUTINE
00364 +035121000000            OCT 35121000000      TRA OP CODE
00365 +041104000000            OCT 41104000000      PSE-TRA
00366 -033642000000            OCT -33642000000     DCT-PSE
00367 -024000000000            OCT -24000000000     RTT-DCT
00370 +027642000000            OCT 27642000000      MSE-RTT
00371 -007100000000            OCT -7100000000      TZE-MSE
00372 -032154000000            OCT -32154000000     HPR-TZE
00373 +031316000000     LNTOP  OCT 31316000000      TSX-HPR
00374 +035121000000            OCT 35121000000
00375 +001622000000            OCT 1622000000       TXL-TRA
00376 -031772000000            OCT -31772000000     HPR-TXL
00377 +031400000000     LTROP  OCT 31400000000      TTR-HPR
00400 -370000000000     FSTLT  OCT -370000000000
00401 -230000000000     FSTT   OCT -230000000000
00402 +170000000000     PCC    OCT 170000000000     MEANS LOCATION OF THIS INST.
00403 -300000000000     PFXMK  OCT -300000000000
00404 +000770000000     XXPSX  OCT 770000000        CONSTANTS TO TEST PSE ADDR.
00405 +000160000000     XX16X  OCT 160000000
00406 +000360000000     XX360  OCT 360000000
00407 +000000777777     SHK1   OCT 777777           CONST. TO EXTRACT R. HALF WORD
                  00320 SHK2   SYN L4
00410 +160000000000     SIK2   OCT 160000000000     I.D. FOR LOCATION OF SXD
00411  626724000000     SIK3   BCD 1SXD000         SXD IN BCD
                  00411 LSXD   SYN SIK3
                  00410 IDSXD  SYN SIK2
00412   0 00000 0 00144 SKK1       LCLST
                  00350 SLK1   SYN LTRA            TRA IN BCD
00413 +150000000000     SMK1   OCT 150000000000     I.D. FOR LOCATION OF LXD
00414  436724000000     SMK2   BCD 1LXD000         LXD IN BCD
                  00414 LLXD   SYN SMK2

                                                   FOR SMK3 SEE LFTMSK
00415 +140000000000     SMK4   OCT 140000000000     I.D. FOR TAU-TAG
                  00413 SLK2   SYN SMK1
                  00413 IDLXD  SYN SMK1
                  00415 IDTAG  SYN SMK4
00416 -000000000000     Z1K3   OCT -0
                  00416 MZE    SYN Z1K3
00417   0 77776 0 00000 Z2K1       0,0,-2            THE INDEXES NEEDED TO REFER
00420   0 77772 0 00000                0,0,-6       TO THE BOTTOM POSITIONS
00421   0 77766 0 00000                0,0,-10      IN LIST1, LIST2, LIST3, RESPT.
00422   0 00007 0 00003 Z2K2   HTR 3,0,7            NO. OF LISTS, NO. OF CASES
00423   0 00000 0 00001 CASE   HTR 1
00424   0 00000 0 00002                2
00425   0 00000 0 00004                4
00426   0 00000 0 00003                3
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F5G35400
F5G35410
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F5G35930

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00427   0 00000 0 00005                5                                                F5G35940
00430   0 00000 0 00006                6                                                F5G35950
00431   0 00000 0 00007                7                                                F5G35960
00432 +000032212110     Z2K3    OCT 32212110        CONST. TO DETERMINE NO. 1 S IN 3 BITS F5G35970
00433 +000030000000     Z2K4    DEC 3B14                                                 F5G35980
00434   0 00000 0 00007 Z2K5    HTR 7                                                    F5G35990
00435   0 00000 0 77777 Z4K1           -1                                                F5G36000
00436   0 00000 0 00000 Z4K2           0                INDEX OF ST SXD CASE             F5G36010
00437   0 00000 0 01000 LNSXD          NSXD*4           NO. OF SXD IN SXD LIST           F5G36020
00440   0 77770 0 00000 Z7K1           0,0,-8           INDEAXES OF ASSOCIATED SXD CASES F5G36030
00441   0 77764 0 00000                0,0,-12                                           F5G36040
00442   0 77760 0 00000                0,0,-16                                           F5G36050
                                       THE DEFINITION OF TEMP. AND VARIABLE STORAGE LOCATIONS F5G36060
00443 -0 00001 0 00000 BBNO     MZE 0,0,1           DECR., CURRENT BB NO. BEING SCANNED F5G36070
00444   0 00000 0 00000 NXTLOC                      LOCATUON OF 1ST INST OF THE BB       F5G36080
00445   0 00000 0 00000 OUTBX                       TEMP. STORAGE OF RETURN INDEXES      F5G36090
00446   0 00000 0 00000 ERRBX                       ERROR INDICATOR                      F5G36100
00447   0 00000 0 00000 BBOX                        TEMP. STORE FOR INDEXES, MAINLY 2    F5G36110
00450   0 00000 0 00000 BBOX1                       ANOTHER  OF SAME                     F5G36120
00451   0 00000 0 00000 ABOX                        TEMP. STORE , INDEX 1                F5G36130
00452   0 00000 0 00000 TAG                         TAU-TAG FROM AN INST.                F5G36140
00453   0 00000 0 00000 STAGN1                      WORD FROM STAG SHIFTED LEFT MULTIPLE OF I F5G36150
00454   0 00000 0 00000 STAGN2                      SAME WORD SHIFTED BY ONES            F5G36160
00455   0 00000 0 00000 9CNT                        COUNT TO 9, 9 TAGS IN STAG WORD      F5G36170
00456 -000000000001     STGWD   DEC -1              NO. OF STAG ENTRY BEING CONSIDERED   F5G36180
00457   0 00000 0 00000 TMP10                       TEMP. STORE , LASTS ONLY 10 INSTRS.  F5G36190
00460   0 00000 0 00000 CIND                        + OR - MEANS IR4 ISNT OR IS NECESSARY F5G36200
00461 -0 00000 0 00000  CPIND MZE                 + OR - MEANS COMPILE/DONT COMPILE      F5G36210
00462   0 00000 0 00000 ARG1                        U  1ST ARGUMENT FOR SUBROUTINES      F5G36220
00463   0 00000 0 00000 MBOX                        NO. OF TRANSFERS IN GO TO VECTOR     F5G36230
00464   0 00000 0 00000 SUCNO                       NO. OF A SUCCESSOR, GOV ROUTINE      F5G36240
00465   0 00000 0 00000 SXD0                        LXD CASE IN DECR., PRED NO. IN ADDR. F5G36250
00466   0 00000 0 00000 SXD1                        3 TAU TAGS WHICH MUST BE STORED      F5G36260
00467   0 00000 0 00000 SXD2                        FROM IR1,2,3                         F5G36270
00470   0 00000 0 00000 SXD3                        RESPT.                               F5G36280
00471   0 00000 0 00000 SADV1                       RETURN INDEX                         F5G36290
00472   0 00000 0 00000 SADV2                       LOCATION OF 1ST INST IN SUCCESSOR BB F5G36300
00473   0 00000 0 00000 SADV3                       NO. OF CURRENT PRED                  F5G36310
00474   0 00000 0 00000 SADV4                       NO. OF 1ST PRED IN SUCCESSOR BB      F5G36320
00475   0 00000 0 00000 SADV5                       THE SUCCESSOR BB NO.                 F5G36330
00476   0 00000 0 00000 SHV1                        RETURN INDEX                         F5G36340
00477   0 00000 0 00000 SHV2                        ENTRY FROM PRED.                     F5G36350
00500   0 00000 0 00000 SIV1                        INDEX OF SXD CASE RELATIVE TO SXST   F5G36360
00501   0 00000 0 00000 SIV2                        RETURN INDEX                         F5G36370
00502   0 00000 0 00000 SIV3                        LOCATION OF 1ST INST. IN SXD GROUP   F5G36380
00503   0 00000 0 00000 SIV4                        TEMP. STORE                          F5G36390
00504   0 00000 0 00000 SIV5                        STORE FOR INDEX OF TAU TAG IN SXD CASE F5G36400
00505   0 00000 0 00000 SIV6                        STOER FOR THE TAG                    F5G36410
00506   0 00000 0 00000 SJV1                        LXD CASE IN DECR.                    F5G36420
00507   0 00000 0 00000 SJV2                        RETURN INDEX                         F5G36430
00510   0 00000 0 00000 SJV3                                                             F5G36440
                        00655 CLST      BES LCLST           THE NEW LIST OF COMPILED INST. F5G36450
00655   0 00144 0 00000 SKV1            0,0,LCLST           INDEX FOR NEXT ENTRY IN CLST F5G36460
                                        SKV1 COMES ALREADY INITIALIZED                   F5G36470
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00656   0 00000 0 00000 SLV1                        RETURN INDEX                                          F5G36480
00657   0 00000 0 00000 SLV2                        LOCATION TO BE ATTACHED TO TRA                        F5G36490
00660   0 00000 0 00000 SLV3                        + OR - MEANS  ISNT OR IS HANGING TRA0                 F5G36500
00661   0 00000 0 00000 SMV1                        RETURN INDEX                                          F5G36510
00662   0 00000 0 00000 SMV2                        TAG TO BE COMPILED                                    F5G36520
00663   0 00000 0 00000 SMV3                        STORE INDEX OF QUANTITY IN LIST                       F5G36530
00664   0 00000 0 00000 SMV4                        LOCATION , TEMP. STORE                                F5G36540
00665   0 00000 0 00000 Z1V2                        NO. OF 1ST PRED. IN NEXT BB                           F5G36550
00666   0 00000 0 00000 Z1V3                        NO. OF PRED BEING CONSIDERED                          F5G36560
00667   0 00000 0 00000 Z1V5                        THE CASES                                             F5G36570
00670   0 00000 0 00000 Z1V8                        THE LOC. OF 1ST PRED IN BB,  USED IN Z4               F5G36580
00671   0 00000 0 00000 Z2V1                        IN DECREMENTS, THE INDEXES                            F5G36590
00672   0 00000 0 00000                             THE TOP ENTRIES                                       F5G36600
00673   0 00000 0 00000                             IN THE 3 LXD LISTS                                    F5G36610
00674   0 00000 0 00000 Z2V2                        IN ADDR., NO. OF 1S IN DIFFERENCE                     F5G36620
00675   0 00000 0 00000 Z2V3                        IN DECR., INDEX OF LIST GIVING MIN. DIFFERENC         F5G36630
                        00676 LIST1  BSS 4                                                                F5G36640
                        00702 LIST2  BSS 4                                                                F5G36650
                        00706 LIST3  BSS 4                                                                F5G36660
                        00715 LLIND  BES 3          + OR - MEANS LIST NOT TO BE OR TOBE COMPILED          F5G36670
00715   0 00000 0 00000 Z4V1                        TEMP. STORE , LXD CASE IN ADDR.                       F5G36680
00716   0 00000 0 00000 Z5V1                        INDEX IN SYN TABLE                                    F5G36690
00717   0 00000 0 00000 Z7V1                        INDEX OF LIST                                         F5G36700
00720   0 00000 0 00000 Z7V2                        + OR - MEANS 1ST OR 2ED TIME THRU                     F5G36710
                        00735 NDINS  BES 12         BLOCK FOR 3 EXTRA COMPILED INST.                      F5G36720
                        01101 INST   BES RECNO*100  THE BLOCK FOR THE COMPILED INSTR                      F5G36730
01101 -0 00000 0 00000 SXST  MZE                    - OR + MEANS NO SEQUENTIAL TRANSFER OR S. T.          F5G36740
                        01102        BSS 3                                                                F5G36750
                                      THE SXD INST. ASSOCIATED WITH SEQUENTIAL TRANSFER                   F5G36760
                        01105 SXAS0  BSS 4           ASSOCIATED WITH 0 LXD CASE                           F5G36770
                        01111 SXAS1  BSS 4           WITH 1ST LXD LIST                                    F5G36780
                        01115 SXAS2  BSS 4           2ED LIST                                             F5G36790
                        01121 SXAS3  BSS 4           3RD                                                  F5G36800
                        01125 SXAS   BSS 4*NSXD      THE LIST OF SXD INST.                                F5G36810
02125 -0 00000 0 00000 SYN   MZE                    SYN CARD TABLE STORED BACKWARD                        F5G36820
                       WHEN ENTERED WITH PRESENT BB NO. IN ADDR OF ARG1 AND BBNO.                         F5G36830
                        OFA SUCCESSOR BB IN ADDR. OF AC, SAD FIGURES OUT WHAT THE ADF5G36840
                       DRESS OF CORRESPONDING TRANSFER INST.  SHOULD BE AND RETURNS F5G36850
                        WITH THE ADDR IN LOGICAL AC                                                       F5G36860
02126 -0 63400 4 00471 SAD   SXD SADV1,4           STORE RETURN                                          F5G36870
02127 -0 32000 0 00337       ANA ADDMK            STORE THE SUCC. NO.                                   F5G36880
02130   0 60100 0 00475      STO SADV5                                                                  F5G36890
02131   0 07400 4 00067      TSX SE1,4                                                                  F5G36900
02132   0 50000 1 12540      CLA BBB+5,1                                                                F5G36910
02133   0 60100 0 00472      STO SADV2                                                                  F5G36920
02134   0 50000 1 12533      CLA BBB,1                                                                  F5G36930
02135 -0 32000 0 00337       ANA ADDMK                                                                  F5G36940
02136   0 60200 0 00474      SLW SADV4                                                                  F5G36950
02137   0 60200 0 00473 SAD1 SLW SADV3                                                                  F5G36960
02140   0 07400 4 00055      TSX SE5,4                                                                  F5G36970
02141   0 50000 1 15674      CLA PRED,1                                                                 F5G36980
02142 -0 32000 0 00337       ANA ADDMK            IS THIS THE CORRECT                                   F5G36990
02143   0 40200 0 00462      SUB ARG1             PRED ENTRY                                            F5G37000
02144   0 10000 0 02150      TZE SAD2                                                                   F5G37010
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02145 -0 50000 0 00473        CAL SADV3          NO, TRY NEXT RETURN                          F5G37020
02146  0 40000 0 00315        ADD ONEA                                                        F5G37030
02147  0 02000 0 02137        TRA SAD1                                                        F5G37040
02150 -0 50000 1 15674 SAD2   CAL PRED,1         IS THE SXD CASE 0                            F5G37050
02151 -0 32000 0 00326        ANA LD7                                                         F5G37060
02152  0 10000 0 02160        TZE SAD3           YES                                          F5G37070
02153  0 50000 0 00473        CLA SADV3          NO, FORM THE SYMBOLIC ADDR.                  F5G37080
02154  0 40200 0 00474        SUB SADV4          AS ID FOR SXD PLUS NO. OF PRED WITHIN        F5G37090
02155  0 76700 0 00012        ALS 10             THE BB * 1024    PLUS BB NO.                 F5G37100
02156  0 40000 0 00410        ADD IDSXD                                                       F5G37110
02157  0 02000 0 02165        TRA SAD6                                                        F5G37120
02160  0 50000 1 15674 SAD3   CLA PRED,1         IS THE LXD CASE ZERO                         F5G37130
02161 -0 32000 0 00332        ANA LT7                                                         F5G37140
02162  0 10000 0 02170        TZE SAD4                                                        F5G37150
02163  0 77100 0 00005        ARS 5              NO, FORM TH SYMBOLIC ADDR.                   F5G37160
02164  0 40000 0 00413        ADD IDLXD          AS 1024* LXD CASE PLUS BB NO. PLUS           F5G37170
02165  0 40000 0 00475 SAD6   ADD SADV5          I. D. FOR AN LXD                             F5G37180
02166 -0 53400 4 00471 SAD5   LXD SADV1,4                                                     F5G37190
02167  0 02000 4 00001        TRA 1,4                                                         F5G37200
02170 -0 50000 0 00472 SAD4   CAL SADV2                                                       F5G37210
02171  0 02000 0 02166        TRA SAD5                                                        F5G37220
                              THIS ROUTINE COMPILES CURRENT INST) IF INDICATOR IN CPIND     F5G37230
                              INDICATES IT SHOULD BE                                        F5G37240
02172  0 50000 0 00461 SCMI   CLA CPIND          SHOULD INST. BE COMPILED                     F5G37250
02173  0 12000 0 02206        TPL SCMI1                                                       F5G37260
02174 -0 63400 4 00457        SXD TMP10,4        YES, COMPILE THE INST                        F5G37270
02175  0 50000 2 01101        CLA INST,2                                                      F5G37280
02176  0 07400 4 02367        TSX SK,4                                                        F5G37290
02177  0 50000 2 01100        CLA INST-1,2                                                    F5G37300
02200  0 07400 4 02367        TSX SK,4                                                        F5G37310
02201  0 50000 2 01077        CLA INST-2,2                                                    F5G37320
02202  0 07400 4 02367        TSX SK,4                                                        F5G37330
02203  0 50000 2 01076        CLA INST-3,2                                                    F5G37340
02204  0 07400 4 02367        TSX SK,4                                                        F5G37350
02205 -0 53400 4 00457        LXD TMP10,4                                                     F5G37360
02206 -0 76000 0 00003 SCMI1  SSM                                                             F5G37370
02207  0 60100 0 00461        STO CPIND          RECORD INST SHOULD BE COMPILED               F5G37380
02210  0 02000 4 00001        TRA 1,4                                                         F5G37390
                              DETERMINE AN SXD CASE SUBROUTINE                              F5G37400
02211 -0 63400 4 00476 SH     SXD SHV1,4         STORE RETURN                                 F5G37410
02212  0 53400 4 00320        LXA SHK2,4         CLEAR                                        F5G37420
02213  0 56000 0 00314        LDQ ZERO           THE                                          F5G37430
02214 -0 60000 4 00471 SH1    STQ SXD0+4,4       SXD                                          F5G37440
02215  2 00001 4 02214        TIX SH1,4,1        POSITIONS 0-3                                F5G37450
02216  0 62100 0 00465        STA SXD0           STORE THE PRED NO.                           F5G37460
02217  0 07400 4 00055        TSX SE5,4          GET INDEX OF PRED                            F5G37470
02220  0 50000 1 15674        CLA PRED,1         GET AND                                      F5G37480
02221  0 60100 0 00477        STO SHV2           STORE PRED ENTRY                             F5G37490
02222  0 07400 4 00067        TSX SE1,4          GET INDEX OF BBB TABLE ENTRY                 F5G37500
02223 -0 53400 4 00324        LXD LD3,4          NO, SET COUNT TO 3                           F5G37510
02224  0 56000 0 00477 SH2    LDQ SHV2           IS                                           F5G37520
02225 -0 77300 4 00022        RQL 18,4           SXD REQUIRED                                 F5G37530
02226  0 16200 0 02232        TQP SH3            FOR THIS I.R.                                F5G37540
02227  0 50000 1 12535        CLA BBB+2,1        YES, GET AND                                 F5G37550
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02230 -0 32000 0 00342        ANA TAGMK          EXTRACT THE                          F5G37560
02231  0 60100 4 00471        STO SXD1+3,4       EXIT CONDITIONS                      F5G37570
02232  1 77777 1 02233 SH3    TXI SH3+1,1,-1     DOWN THE EXIT CONDITIONS             F5G37580
02233  2 00001 4 02224        TIX SH2,4,1        COUNT TO 3                           F5G37590
02234 -0 50000 0 00477 SH4    CAL SHV2           GET                                  F5G37600
02235 -0 32000 0 00332        ANA LT7            AND STORE                            F5G37610
02236  0 76700 0 00003        ALS 3              LXD CASE                             F5G37620
02237  0 62200 0 00465        STD SXD0                                                F5G37630
02240 -0 53400 4 00476        LXD SHV1,4                                              F5G37640
02241  0 02000 4 00001        TRA 1,4            RETURN                               F5G37650
                              COMPILE AN SXD CASE SUBROUTINE                          F5G37660
02242 -0 63400 4 00501 SI     SXD SIV2,4         STORE RETURN                         F5G37670
02243 -0 63400 1 00500        SXD SIV1,1         STORE INDEX OF SXD CASE              F5G37680
02244  0 07400 4 02426        TSX SL1,4          RECORD ANY HANGING TRANSFER          F5G37690
02245 -0 50000 0 00443        CAL BBNO                                                F5G37700
02246  0 77100 0 00022        ARS 18                                                  F5G37710
02247  0 60100 0 00657        STO SLV2           STORE BB NO.                         F5G37720
02250  0 07400 4 00067        TSX SE1,4          GET INDEX OF BB                      F5G37730
02251  0 50000 1 12533        CLA BBB,1                                               F5G37740
02252 -0 32000 0 00337        ANA ADDMK                                               F5G37750
02253  0 60100 0 00503        STO SIV4           STORE LOC. OF 1ST PRED IN BB         F5G37760
02254 -0 53400 1 00500        LXD SIV1,1         FORM                                 F5G37770
02255  0 50000 1 01101        CLA SXST,1         LOC. OF THIS PRED -                  F5G37780
02256 -0 32000 0 00337        ANA ADDMK          LOC. OF 1ST  PRED IN BB              F5G37790
02257  0 40200 0 00503        SUB SIV4                                                F5G37800
02260  0 76700 0 00012        ALS 10                                                  F5G37810
02261  0 40000 0 00657        ADD SLV2                                                F5G37820
02262  0 40000 0 00410        ADD SIK2                                                F5G37830
02263  0 60100 0 00657        STO SLV2           STORE THE LOC. OF 1ST SXD            F5G37840
02264 -0 53400 2 00324        LXD LD3,2                                               F5G37850
02265  0 50000 1 01102 SI2    CLA SXST+1,1                                            F5G37860
02266  0 10000 0 02305        TZE SI1            IS THIS TAG 0                        F5G37870
02267 -0 63400 1 00504        SXD SIV5,1         NO, PRESERVE INDEX 1                 F5G37880
02270  0 60100 0 00505        STO SIV6           PRESERVE THE TAG                     F5G37890
02271  0 50000 0 00657        CLA SLV2           PUT LOCATION WORD ON TAPE            F5G37900
02272  0 07400 4 02367        TSX SK,4                                                F5G37910
02273  0 50000 0 00314        CLA ZERO           AND RESET TO 0                       F5G37920
02274  0 60100 0 00657        STO SLV2                                                F5G37930
02275  0 50000 0 00411        CLA SIK3           PUT SXD ON TAPE                      F5G37940
02276  0 07400 4 02367        TSX SK,4                                                F5G37950
02277  0 50000 0 00505        CLA SIV6           14*2**-5+TAU-TAG IS                  F5G37960
02300  0 40000 0 00415        ADD SMK4           SYMBOLIC ADDRESS                     F5G37970
02301  0 07400 4 02367        TSX SK,4                                                F5G37980
02302  0 50000 2 00361        CLA VSTAG,2                                             F5G37990
02303  0 07400 4 02367        TSX SK,4           PUT S-TAG ON TAPE                    F5G38000
02304 -0 53400 1 00504        LXD SIV5,1                                              F5G38010
02305  1 77777 1 02306 SI1    TXI SI1+1,1,-1                                          F5G38020
02306  2 00001 2 02265        TIX SI2,2,1        COUNT TO 3, FORM N+1                 F5G38030
02307 -0 53400 1 00500        LXD SIV1,1                                              F5G38040
02310  0 50000 1 01101        CLA SXST,1                                              F5G38050
02311 -0 73400 2 00000        PDX 0,2                                                 F5G38060
02312 -3 00000 2 02321        TXL SI3,2,0        IS THE LXD CASE 0                    F5G38070
02313 -3 00000 1 02325        TXL SI4,1,0        NO, IS THIS THE ST POSITION          F5G38080
02314  3 77757 1 02334        TXH SI6,1,-16-1    IS THIS ASSOCIATED WITH A LIST       F5G38090
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02315   0 77100 0 00022 SI5     ARS 18                  NO                                          F5G38100
02316   0 07400 4 02403         TSX SL,4                COMPILE A TRA TO LXD CASE                   F5G38110
02317  -0 53400 4 00501         LXD SIV2,4                                                          F5G38120
02320   0 02000 4 00003         TRA 3,4                 RETURN TO LOC. OF TSX + 3                   F5G38130
02321   0 50200 0 00315 SI3     CLS ONEA                RECORD THAT THERE IS                        F5G38140
02322   0 60100 0 00660         STO SLV3                A HANGING TRA TO 0 CASE                     F5G38150
02323  -0 53400 4 00501         LXD SIV2,4                                                          F5G38160
02324   0 02000 4 00001         TRA 1,4                 RETURN TO LOC. OF TSX +1                    F5G38170
02325   0 60100 0 00465 SI4     STO SXD0                STORE LXD CASE AS ARG FOR SJ                F5G38180
02326   0 07400 4 02336         TSX SJ,4                IS SXD CASE INST POS. ASSOC. WITH LIST      F5G38190
02327   0 00000 0 00000                                 SHOULDENT BE WITH CASE 0                    F5G38200
02330   0 02000 0 02334         TRA SI6                 YES                                         F5G38210
02331  -0 53400 1 00500         LXD SIV1,1              NO                                          F5G38220
02332   0 50000 1 01101         CLA SXST,1                                                          F5G38230
02333   0 02000 0 02315         TRA SI5                 GO TO COMPILE TRA TO LXD CASE               F5G38240
02334  -0 53400 4 00501 SI6     LXD SIV2,4              RETURN TO 2 FOLLOWING TSX WITH              F5G38250
02335   0 02000 4 00002         TRA 2,4                 INDEX OF TOP QUANTITY IN 1 AND LIST INDEX IN2F5G38260
                                 DETERMINE IF THE SXD CASE IS ASSOCIATED WITH AN LXD LIST           F5G38270
                                                                                                    F5G38280
02336  -0 63400 4 00507 SJ      SXD SJV2,4                                                          F5G38290
02337   0 50000 0 00465         CLA SXD0                                                            F5G38300
02340  -0 32000 0 00335         ANA DECMK                                                           F5G38310
02341   0 60100 0 00506         STO SJV1                                                            F5G38320
02342   0 10000 0 02363         TZE SJ3                 IS THIS THE 0 LXD CASE                      F5G38330
02343  -0 53400 4 00314         LXD ZERO,4              NO, SET COUNT TO 3, N TO 1                  F5G38340
02344  -0 53400 2 00324         LXD LD3,2               2 HAS THE COUNTER                           F5G38350
02345   0 50000 4 01111 SJ2     CLA SXAS1,4                                                         F5G38360
02346   0 12000 0 02357         TPL SJ1                 DOES THE LIST ALREADY HAVE SXD              F5G38370
02347   0 50000 2 00674         CLA Z2V1+3,2            NO                                          F5G38380
02350  -0 73400 1 00000         PDX 0,1                 GET INDEX OF TOP QUANTITY                   F5G38390
02351   0 50000 1 00676         CLA LIST1,1                                                         F5G38400
02352   0 76700 0 00022         ALS 18                                                              F5G38410
02353   0 40200 0 00506         SUB SJV1                IS THIS CASE SAME AS CASE HEADUNG LIST N    F5G38420
02354  -0 10000 0 02357         TNZ SJ1                                                             F5G38430
02355  -0 53400 4 00507         LXD SJV2,4              YES                                         F5G38440
02356   0 02000 4 00002         TRA 2,4                 RETURN, INDEX OF TOP OF LIST IN 1           F5G38450
02357   1 77777 4 02360 SJ1     TXI SJ1+1,4,-1                                                      F5G38460
02360   2 00001 2 02345         TIX SJ2,2,1             COUNT TO 3                                  F5G38470
02361  -0 53400 4 00507         LXD SJV2,4                                                          F5G38480
02362   0 02000 4 00003         TRA 3,4                                                             F5G38490
02363  -0 53400 4 00507 SJ3     LXD SJV2,4                                                          F5G38500
02364   0 50000 0 01105         CLA SXAS0                                                           F5G38510
02365   0 12000 4 00003         TPL 3,4                                                             F5G38520
02366   0 02000 4 00001         TRA 1,4                                                             F5G38530
                                 PUT WORD OF COMPILED INST ON TAPE                                  F5G38540
02367  -0 53400 1 00655 SK      LXD SKV1,1                                                          F5G38550
02370   0 60100 1 00655         STO CLST,1              STORE THE WORD IN CLST                      F5G38560
02371   2 00001 1 02401         TIX SK1,1,1             COUNT NO OF WORDS  IS CLST FULL             F5G38570
02372   0 53400 1 00412         LXA SKK1,1              YES                                         F5G38580
02373  -0 63400 1 00655         SXD SKV1,1              RESET THE INDEX                             F5G38590
02374   0 76600 0 00223         WTB OTAPE               WRITE THE BLOCK ON                          F5G38600
02375   0 70000 1 00655 SK2     CPY CLST,1              THE OUTPUT TAPE                             F5G38610
02376   2 00001 1 02375         TIX SK2,1,1                                                         F5G38620
02377   0 76600 0 00333         IOD                                                                 F5G38630
02400   0 02000 4 00001         TRA 1,4
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02401 -0 63400 1 00655 SK1     SXD SKV1,1          STORE INDEX OF NEXT WORD                          F5G38640
02402  0 02000 4 00001         TRA 1,4                                                               F5G38650
                                 SUBROUTINE FOR COMPILING TRA TO LXD CASE                          F5G38660
                                                                                                   F5G38670
02403 -0 32000 0 00434 SL      ANA Z2K5            FORM                                              F5G38680
02404  0 76700 0 00012         ALS 10              THE                                               F5G38690
02405  0 40000 0 00413         ADD SLK2            ADDRESS                                           F5G38700
02406  0 60100 0 00657         STO SLV2            OF                                                F5G38710
02407  0 50000 0 00443         CLA BBNO            THE                                               F5G38720
02410 -0 32000 0 00335         ANA DECMK                                                             F5G38730
02411  0 77100 0 00022         ARS 18              TRA IN                                            F5G38740
02412 -0 60200 0 00657         ORS SLV2            SLV2                                              F5G38750
02413 -0 63400 4 00656         SXD SLV1,4          STORE RETURJ                                      F5G38760
02414  0 50000 0 00314 SL2     CLA ZERO            PUT 0 LOCATION                                    F5G38770
02415  0 07400 4 02367         TSX SK,4            ON TAPE                                           F5G38780
02416  0 50000 0 00350         CLA LTRA                                                              F5G38790
02417  0 07400 4 02367         TSX SK,4            PUT SYMB. ADDR. ON TAPE                           F5G38800
02420  0 50000 0 00657         CLA SLV2                                                              F5G38810
02421  0 07400 4 02367         TSX SK,4            PUT SYMB. ADDR ON TAPE                            F5G38820
02422  0 50000 0 00314         CLA ZERO                                                              F5G38830
02423  0 07400 4 02367         TSX SK,4            ANOTHER 0                                         F5G38840
02424 -0 53400 4 00656         LXD SLV1,4                                                            F5G38850
02425  0 02000 4 00001         TRA 1,4                                                               F5G38860
                                 SUBROUTINE FOR PUTTING HANGING TRA 0 ON TAPE                      F5G38870
02426  0 50000 0 00660 SL1     CLA SLV3                                                              F5G38880
02427  0 12000 4 00001         TPL 1,4             RETURN IF THERE IS NO HANGING TRA0                F5G38890
02430 -0 63400 4 00656         SXD SLV1,4          OTHERWISE , STORE RETURN AND                      F5G38900
02431  0 50000 0 00443         CLA BBNO            GET                                               F5G38910
02432  0 07400 4 00070         TSX SE,4            THE                                               F5G38920
02433  0 50000 1 12540         CLA BBB+5,1         SYMBOLIC LOCATION                                 F5G38930
02434  0 60100 0 00657         STO SLV2            OF 1ST INST IN BB AND                             F5G38940
02435  0 50000 0 00314         CLA ZERO            STORE IN SYNBOLIS ADDR WORD                       F5G38950
02436  0 60100 0 00660         STO SLV3            SET INDICATOR TO SAY NO HANGING TRA               F5G38960
02437  0 02000 0 02414         TRA SL2                                                               F5G38970
                                 COMPILE AN LXD LIST                                               F5G38980
02440  0 50000 2 00715 SM      CLA LLIND,2         IMMEDIATELY RETURN IF LIST IS                     F5G38990
02441  0 12000 4 00001         TPL 1,4             ALREADY COMPOLED                                  F5G39000
02442  0 60200 2 00715         SLW LLIND,2         RECORD LIST ALREADY COMPILED                      F5G39010
02443 -0 63400 4 00661         SXD SMV1,4          STORE RETURN                                      F5G39020
02444  0 50000 2 00422         CLA Z2K1+3,2        COMPUTE THE                                       F5G39030
02445  0 40200 0 00316         SUB ONED            INDEX OF SUB BOTTEM                               F5G39040
02446  0 62200 0 02453         STD SM1             POSITION OF LIDT                                  F5G39050
02447  0 62200 0 02513         STD SM5             SET END TEST                                      F5G39060
02450  0 50000 1 00676 SM6     CLA LIST1,1                                                           F5G39070
02451 -0 12000 0 02521         TMI SM8             DOES THIS ELEMENT OF LIST REPRESENT AN LXD        F5G39080
02452 -3 00000 1 02454         TXL SM1+1,1,0                                                         F5G39090
02453 -3 00000 1 02455 SM1     TXL SM10,1,SET      YES, IS ELEMENT IN SUB BOTTOM POS.                F5G39100
02454 -0 40000 1 00677         SBM LIST1+1,1       NO                                                F5G39110
02455  0 60100 0 00662 SM10    STO SMV2            STORE THE TAG AWAY                                F5G39120
02456  0 50000 0 00443         CLA BBNO            FORN                                              F5G39130
02457 -0 32000 0 00335         ANA DECMK           THE                                               F5G39140
02460  0 76500 0 00034         LRS 28              LOCATION                                          F5G39150
02461  0 50000 1 00676         CLA LIST1,1                                                           F5G39160
02462  0 76300 0 00012         LLS 10                                                                F5G39170
02463  0 40000 0 00413         ADD SMK1
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02464 -0 63400 1 00663        SXD SMV3,1          STORE INDEX OF LIST QUANTITY                          F5G39180
02465  0 60100 0 00664        STO SMV4                                                                  F5G39190
02466  0 07400 4 02426        TSX SL1,4           RECORD ANY HANGING TRAO                               F5G39200
02467  0 50000 0 00664        CLA SMV4                                                                  F5G39210
02470  0 07400 4 02367        TSX SK,4            COMPILE THE LOCATION                                  F5G39220
02471  0 50000 0 00414        CLA SMK2                                                                  F5G39230
02472  0 07400 4 02367        TSX SK,4            COMPILE LXD                                           F5G39240
02473  0 50000 0 00443        CLA BBNO                                                                  F5G39250
02474  0 07400 4 00070        TSX SE,4            FIND INDEX OF BB                                      F5G39260
02475  0 50000 0 00662        CLA SMV2                                                                  F5G39270
02476  0 34000 0 00320 SM3    CAS L4              IS THIS THE CORRECT ENT. REQUIREMENT                  F5G39280
02477  0 02000 0 02501        TRA SM2                                                                   F5G39290
02500  0 02000 0 02503        TRA SM4             YES                                                   F5G39300
02501  0 76700 0 00001 SM2    ALS 1               NO, SHIFT IT LEFT ONE                                 F5G39310
02502  1 77777 1 02476        TXI SM3,1,-1        AND INDEX TO NEXT ENRR. REQUIREMENT                   F5G39320
02503 -0 50000 1 12535 SM4    CAL BBB+2,1         FORM                                                  F5G39330
02504  0 77100 0 00022        ARS 18              AND COMPILE                                           F5G39340
02505  0 40000 0 00415        ADD SMK4            THE                                                   F5G39350
02506  0 07400 4 02367        TSX SK,4                                                                  F5G39360
02507  0 50000 0 00662        CLA SMV2            COMPILE THE TAG                                       F5G39370
02510  0 07400 4 02367        TSX SK,4                                                                  F5G39380
02511 -0 53400 1 00663        LXD SMV3,1          IS THE ELEMENT IN SUB BOTTOM POSITION                 F5G39390
02512 -3 00000 1 02514        TXL SM5+1,1,0                                                             F5G39400
02513 -3 00000 1 02515 SM5    TXL SM7,1,SET                                                             F5G39410
02514  1 77777 1 02450        TXI SM6,1,-1        NO, INDEX TO NEXT LIST POS.                           F5G39420
02515  0 50200 0 00315 SM7    CLS ONEA                                                                  F5G39430
02516  0 60100 0 00660        STO SLV3            RECORD THAT THERE IS HANGING TRA 0                    F5G39440
02517 -0 53400 4 00661 SM9    LXD SMV1,4                                                                F5G39450
02520  0 02000 4 00001        TRA 1,4             RETURN                                                F5G39460
02521  0 10000 0 02515 SM8    TZE SM7             GO TO RECORD HANGING TRA                              F5G39470
02522  0 76000 0 00003        SSP                                                                       F5G39480
02523  0 07400 4 02403        TSX SL,4            RECORD A TRA TO LXD CASE                              F5G39490
02524  0 02000 0 02517        TRA SM9                                                                   F5G39500
                              THE METHODS OF BRINGNNG IN BLOCKS OF COMPILED INST. AND                   F5G39510
                              CHECKING FOR ENDINGS IS THE SAME AS IN PASS 2 OF FLOW ANAL.               F5G39520
02525 -2 00144 2 02527 FNDAS  TNX 2FNDS,2,ZINST   IS BLOCK OF INST. ALL USED                           F5G39530
02526  0 07400 4 03472        TSX RDINS,4         YES, READ IN NEXT BLOCK                               F5G39540
02527 -0 50000 2 01076 2FNDS  CAL INST-3,2        IS THIS INST. TAGGED                                  F5G39550
02530 -0 32000 0 00340        ANA STMSK                                                                 F5G39560
02531  0 10000 0 03336        TZE CI7A                                                                  F5G39570
02532 -0 53400 4 00455 CI4    LXD 9CNT,4          YES                                                   F5G39580
02533  2 00001 4 02547        TIX CI5,4,1         COUNT TO 9, IS STAG WORD EXHAUSTED                    F5G39590
02534 -0 63400 2 00447        SXD BBOX,2          YES, GET ANOTHER                                      F5G39600
02535  0 50000 0 00456        CLA STGWD           INCREASE THE NO. OF CURRENT STAG WORD                 F5G39610
02536  0 40000 0 00315        ADD ONEA                                                                  F5G39620
02537  0 60100 0 00456        STO STGWD                                                                 F5G39630
02540  0 07400 4 00032        TSX SE4,4           GET INDEX OF NEXT STAG WORD                           F5G39640
02541  0 50000 1 05263        CLA STAG,1                                                                F5G39650
02542  0 60100 0 00454        STO STAGN2          GET AND STORE                                         F5G39660
02543  0 76700 0 00002        ALS 2                                                                     F5G39670
02544  0 60100 0 00453        STO STAGN1          THE STAG WORD                                         F5G39680
02545 -0 53400 2 00447        LXD BBOX,2          RESTORE INDEX REGISER 2                               F5G39690
02546 -0 53400 4 00330        LXD LD9,4           RESET COUNT TO 9                                      F5G39700
02547 -0 63400 4 00455 CI5    SXD 9CNT,4                                                                F5G39710
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02550 -0 50000 2 01076          CAL INST-3,2
02551 -0 32000 0 00342          ANA TAGMK
02552  0 60100 0 00452          STO TAG
02553 -0 50000 0 00453          CAL STAGN1
02554 -0 32000 0 00324          ANA LD3
02555 -0 73400 4 00000          PDX 0,4
02556 -0 50000 4 00361          CAL VSTAG,4
02557  0 62100 2 01076          STA INST-3,2
02560  0 40200 0 00320          SUB L4
02561 -0 10000 0 02564          TNZ CI5A
02562 -0 76000 0 00003          SSM
02563  0 60100 0 00460          STO CIND
02564 -0 50000 0 00454 CI5A     CAL STAGN2
02565  0 76700 0 00011          ALS 9
02566 -0 76000 0 00001          PBT
02567  0 02000 0 02602          TRA SKLX
02570  0 50000 0 00314          CLA ZERO
02571  0 07400 4 02367          TSX SK,4
02572  0 50000 0 00414          CLA SMK2
02573  0 07400 4 02367          TSX SK,4
02574  0 50000 0 00452          CLA TAG
02575 -0 50100 0 00415          ORA SMK4
02576  0 07400 4 02367          TSX SK,4
02577  0 50000 2 01076          CLA INST-3,2
02600 -0 32000 0 00337          ANA ADDMK
02601  0 07400 4 02367          TSX SK,4
02602 -0 50000 2 01100 SKLX     CAL INST-1,2
02603 -0 32000 0 00343          ANA LFTMSK
02604  0 60200 0 00457          SLW TMP10
02605  0 50000 0 00457          CLA TMP10
02606  0 34000 0 00345          CAS LLXP
02607  0 02000 0 02637          TRA CI1
02610  0 02000 0 02612          TRA SKLY
02611  0 02000 0 02637          TRA CI1
02612 -0 50000 0 00454  SKLY    CAL STAGN2
02613  0 76700 0 00011          ALS 9
02614 -0 76000 0 00001          PBT
02615  0 02000 0 03462          TRA CI3A
02616  0 50000 2 01076          CLA INST-3,2
02617  0 60200 0 00461          SLW CPIND
02620 -0 32000 0 00337          ANA ADDMK
02621  0 40200 0 00320          SUB L4
02622 -0 10000 0 02667          TNZ CI6
02623 -0 50000 2 01074          CAL INST-5,2
02624 -0 32000 0 00343          ANA LFTMSK
02625  0 60200 0 00457          SLW TMP10
02626  0 50000 0 00457          CLA TMP10
02627  0 40200 0 00414          SUB LLXD
02630 -0 10000 0 02667          TNZ CI6
02631  0 50000 2 01072          CLA INST-7,2
02632 -0 32000 0 00337          ANA ADDMK
02633  0 40200 0 00320          SUB L4
02634 -0 10000 0 02667          TNZ CI6
02635  0 76000 0 00141          PSE 97
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                                                                F5G39720
                                                                F5G39730
EXTRACT THE TAG                                                 F5G39740
                                                                F5G39750
                                                                F5G39760
EXTRACT THE S-TAG                                               F5G39770
                                                                F5G39780
CONVERT S-TAG TO 1,2, OR 4                                      F5G39790
REPLACE TAU-TAG BY S-TAG                                        F5G39800
IS THE TAG 4                                                    F5G39810
                                                                F5G39820
                                                                F5G39830
YES, RECORD IR 4 NECESSARY                                      F5G39840
                                                                F5G39850
                                                                F5G39860
IS AN LXD NECESSARY                                             F5G39870
NO                                                              F5G39880
YES                                                             F5G39890
COMPILE LOCATION OF 0                                           F5G39900
COMPILE LXD                                                     F5G39910
                                                                F5G39920
COMPILE THE SYMB. ADDR. OF THE CELL                             F5G39930
                                                                F5G39940
                                                                F5G39950
COMPILE THE S-TAG                                               F5G39960
                                                                F5G39970
                                                                F5G39980
                                                                F5G39990
                                                                F5G40000
                                                                F5G40010
IS THIS AN LXP                                                  F5G40020
                                                                F5G40030
  YES.                                                          F5G40031
                                                                F5G40032
                                                                F5G40040
                                                                F5G40041
  IS LXD NECESSARY.                                             F5G40042
  NO.                                                           F5G40043
  YES.  IS S-TAG=4.                                             F5G40044
  RECORD DONT COMPILE.                                          F5G40045
                                                                F5G40046
                                                                F5G40047
  NOT 4.                                                        F5G40048
  IS NEXT INSTR                                                 F5G40049
                                                                F5G40050
  AN LXD                                                        F5G40051
                                                                F5G40052
  WITH REAL                                                     F5G40053
  IR4.                                                          F5G40054
                                                                F5G40055
  IF SO,                                                        F5G40056
                                                                F5G40057
  TURN ON                                                       F5G40058
                                                                F5G40059
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02636   0 02000 0 02667          TRA CI6          SENSE LIGHT.                                    F5G40060
02637   0 34000 0 00347  CI1     CAS LDED         IS IT A DED                                     F5G40061
02640   0 02000 0 02642          TRA CI2                                                          F5G40062
02641   0 02000 0 03462          TRA CI3A         YES                                             F5G40070
02642   0 50000 0 00454  CI2     CLA STAGN2                                                       F5G40080
02643   0 12000 0 02667          TPL CI6          IS SXD REQUIRED                                 F5G40090
02644   0 50000 2 01101          CLA INST,2       NEITHER LXP NOR DED, COMPILE THE                F5G40100
02645   0 07400 4 02367          TSX SK,4         INST.                                           F5G40110
02646   0 50000 2 01100          CLA INST-1,2                                                     F5G40120
02647   0 07400 4 02367          TSX SK,4                                                         F5G40130
02650   0 50000 2 01077          CLA INST-2,2                                                     F5G40140
02651   0 07400 4 02367          TSX SK,4                                                         F5G40150
02652   0 50000 2 01076          CLA INST-3,2                                                     F5G40160
02653   0 07400 4 02367          TSX SK,4                                                         F5G40170
02654   0 50000 0 00314          CLA ZERO         YES, COMPILE AN SXD, ZERO LOCATION              F5G40180
02655   0 60100 0 00461          STO CPIND        RECORD THAT THIS INST. SHOULDNT BE COMPILED     F5G40190
02656   0 07400 4 02367          TSX SK,4                                                         F5G40200
02657   0 50000 0 00411          CLA SIK3         SXD IN BCD                                      F5G40210
02660   0 07400 4 02367          TSX SK,4                                                         F5G40220
02661   0 50000 0 00452          CLA TAG          SYMB. ADDR. OF TAU-TAG CELL                     F5G40230
02662  -0 50100 0 00415          ORA SMK4                                                         F5G40240
02663   0 07400 4 02367          TSX SK,4                                                         F5G40250
02664   0 50000 2 01076          CLA INST-3,2     AND TAG WORD                                    F5G40260
02665  -0 32000 0 00337          ANA ADDMK                                                        F5G40270
02666   0 07400 4 02367          TSX SK,4                                                         F5G40280
02667  -0 50000 0 00453  CI6     CAL STAGN1       NO SXD REQUIRED.                                F5G40290
02670   0 76700 0 00002          ALS 2                                                            F5G40300
02671   0 60200 0 00453          SLW STAGN1                                                       F5G40310
02672  -0 50000 0 00454          CAL STAGN2                                                       F5G40320
02673   0 76700 0 00001          ALS 1                                                            F5G40330
02674   0 60200 0 00454          SLW STAGN2                                                       F5G40340
02675   0 02000 0 02700          TRA CKLOC        GO TO CHECK FOR ENDINGS                         F5G40350
02676  -0 76000 0 00003  CI7     SSM                                                              F5G40360
02677   0 60100 0 00461          STO CPIND        RECODD LATER COMPILING NECESSARY                F5G40370
                                  NOW THE END OF BB IS CHECKED FOR                               F5G40380
02700   0 50000 2 01101  CKLOC   CLA INST,2       IF NO LOCATION SYMBOL , THIS CANT BE            F5G40390
02701   0 10000 0 02723          TZE TR3S         ENSING OTHER THAN CERTAINTY                     F5G40400
02702   0 50000 2 01075          CLA INST-4,2     IS THIS LAST INST IN BB                         F5G40410
02703   0 40200 0 00444          SUB NXTLOC                                                       F5G40420
02704   0 10000 0 02743          TZE ENDBB        YES, LOOK FOR TYPE OF ENDING                    F5G40430
02705  -0 53400 4 00327          LXD LD8,4        NO, CHECK FOR ENDING OF GROUP OF INST           F5G40440
02706  -0 50000 2 01100          CAL INST-1,2                                                     F5G40450
02707  -0 32000 0 00335          ANA DECMK        LOOK AT OP CODE                                 F5G40460
02710   0 40200 4 00374  SUBP    SUB LNTOP+1,4    COMPARE TO OP CODES OF POSSIBLE                 F5G40470
02711   0 10000 4 02737          TZE TRTIN+1,4    ENDINGS    TRANSFER WHEN FOUND                  F5G40480
02712   2 00001 4 02710          TIX SUBP,4,1     TRY NEXT POSSIBILITY                            F5G40490
02713  -0 50000 2 01100          CAL INST-1,2     NOT FOUND, LOOK FORCONDITIONAL TRANSFER         F5G40500
02714  -0 32000 0 00400  6ANA    ANA FSTLT                                                        F5G40510
02715   0 60200 0 00457          SLW TMP10                                                        F5G40520
02716   0 50000 0 00457          CLA TMP10                                                        F5G40530
02717   0 40200 0 00401          SUB FSTT                                                         F5G40540
02720   0 10000 0 03162          TZE TTYPE        IS A CONDITIONAL TRANSFER                       F5G40550
02721   0 07400 4 02172  NOEND   TSX SCMI,4      NOT AN END OD BB COMPILE INST                   F5G40560
02722   1 00004 2 02525          TXI FNDAS,2,4    IF IT NEEDS TO BE                               F5G40570
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02723   0 50000 2 01075 TR3S   CLA INST-4,2          IS THIS LAST INST IN BB                                F5G40580
02724   0 40200 0 00444        SUB NXTLOC                                                                   F5G40590
02725   0 10000 0 03042        TZE SEQTR             YES                                                    F5G40600
02726   0 02000 0 02721        TRA NOEND             NO                                                     F5G40610
                                TRANSFER VECTOR        SEE SUBP+1 ABOVE                                    F5G40620
02727   0 02000 0 03046        TRA GOTOV             TRA IS OP CODE                                         F5G40630
02730   0 02000 0 03115        TRA IF2PS             PSE                                                    F5G40640
02731   0 02000 0 03171        TRA IF2CS             DCT                                                    F5G40650
02732   0 02000 0 03171        TRA IF2CS             RTT                                                    F5G40660
02733   0 02000 0 03125        TRA MSECS             MSE                                                    F5G40670
02734   0 02000 0 03226        TRA IF3CS             TZE                                                    F5G40680
02735   0 02000 0 03324        TRA STPCSZ              HPR                                                  F5G40690
02736   0 02000 0 02721 TRTIN  TRA NOEND             TSX                                                    F5G40700
                               THE FOLLOWING IS 4 WORD TRANSFER VECTOR, SEE ENDBB BELOW                     F5G40710
02737   0 02000 0 02752        TRA TRACS             TRAIS OP CODE                                          F5G40720
02740   0 02000 0 03037        TRA DOCS              TXL                                                    F5G40730
02741   0 02000 0 03042        TRA PAUSE             HPR                                                    F5G40740
02742   0 02000 0 02755 TRTTR  TRA TRAC3             TTR                                                    F5G40750
02743  -0 53400 4 00325 ENDBB  LXD LD4,4            THIS INST ENDS A BASIC                                 F5G40760
02744   0 50000 2 01100        CLA INST-1,2          BLOCK    LOOKAT OP CODE                                F5G40770
02745  -0 32000 0 00335        ANA DECMK             FOR TYPE OF ENDING                                     F5G40780
02746   0 40200 4 00400 6SUB   SUB LTROP+1,4                                                               F5G40790
02747   0 10000 4 02743        TZE TRTTR+1,4         TRANSFER IF IOUND                                      F5G40800
02750   2 00001 4 02746        TIX 6SUB,4,1          TRY NEXT POSSIBILITY                                   F5G40810
02751   0 02000 0 03042        TRA SEQTR                                                                    F5G40820
02752  -0 50000 2 01077 TRACS  CAL INST-2,2          OP CODE IS TRA    SEE IF ADDRESS                       F5G40830
02753  -0 32000 0 00403        ANA PFXMK             IS IN PROGRAM  UNCONDITITONAL TRANSFER                 F5G40840
02754  -0 10000 0 02772        TNZ GOTON             IF TRANSFER     IT IS A GO TO N                        F5G40850
02755  -0 63400 2 00447 TRAC3  SXD BBOX,2            THIS IS GO TO ALPHA                                    F5G40860
02756  -0 50000 0 00443        CAL BBNO                                                                     F5G40870
02757   0 77100 0 00022        ARS 18                                                                       F5G40880
02760   0 60100 0 00462        STO ARG1              STORE BBNO AS ARGUMENT OF SAD                          F5G40890
02761   0 07400 4 00067        TSX SE1,4                                                                    F5G40900
02762  -0 50000 1 12533        CAL BBB,1                                                                    F5G40910
02763   0 07400 4 00044        TSX SE6,4             GET SUCC. TABLE ENTRY                                  F5G40920
02764  -0 50000 1 16734        CAL SUCC,1                                                                   F5G40930
02765   0 07400 4 02126        TSX SAD,4             GO TO DETERMINE SYMBOLIC ADDRESS                       F5G40940
02766  -0 53400 2 00447        LXD BBOX,2                                                                   F5G40950
02767   0 60200 2 01077        SLW INST-2,2          TEPLACE SYMBOLIC ADDR.                                 F5G40960
02770   0 07400 4 02172        TSX SCMI,4            COMPILE THE INSTR                                      F5G40970
02771   1 00004 2 03544        TXI BEGBB,2,4         BEGINNING OF BB, INDEX TO NEXT INSTR                   F5G40980
02772  -0 63400 2 00447 GOTON  SXD BBOX,2                                                                  F5G40990
02773   0 50000 0 00443        CLA BBNO                                                                     F5G41000
02774   0 07400 4 00070        TSX SE,4                                                                     F5G41010
02775   0 50000 1 12533        CLA BBB,1             CHECK TO MAKE SURE THIS IS GO TO N                     F5G41020
02776   0 77100 0 00041        ARS 33                                                                       F5G41030
02777   0 40000 0 00315        ADD ONEA                                                                     F5G41040
03000   0 10000 0 03002        TZE GON1                                                                     F5G41050
03001   0 07400 4 00004        TSX 4,4          DIAGNOSTIC THIS ISNT GO N                                   F5G41060
03002  -0 50000 1 12534 GON1   CAL BBB+1,1                                                                 F5G41070
03003   0 77100 0 00041        ARS 33                PUT SXD CASE IN TMP10                                  F5G41080
03004   0 60200 0 00457        SLW TMP10                                                                    F5G41090
                                NOW ANY SXD BEFIR GO TO N ARE COMPILED                                      F5G41100
03005  -0 53400 2 00324        LXD LD3,2                                                                    F5G41110
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03006  0 50000 2 00361 GON3   CLA VSTAG,2        DOES THIS THIS IR NEED SXD                          F5G41120
03007 -0 32000 0 00457         ANA TMP10                                                             F5G41130
03010  0 10000 0 03032         TZE GON2                                                              F5G41140
03011 -0 63400 1 00451         SXD ABOX,1        YES                                                 F5G41150
03012  0 56000 0 00314         LDQ ZERO          REPLACE LOCATION BY 0 AND                           F5G41160
03013 -0 53400 4 00447         LXD BBOX,4        PUT LOCATION ON THE                                 F5G41170
03014  0 50000 4 01101         CLA INST,4        SXD INST.                                           F5G41180
03015 -0 60000 4 01101         STQ INST,4        SXDINST                                             F5G41190
03016  0 07400 4 02367         TSX SK,4                                                              F5G41200
03017  0 50000 0 00411         CLA LSXD                                                              F5G41210
03020  0 07400 4 02367         TSX SK,4                                                              F5G41220
03021 -0 53400 1 00451         LXD ABOX,1                                                            F5G41230
03022 -0 50000 1 12535         CAL BBB+2,1                                                           F5G41240
03023 -0 32000 0 00342         ANA TAGMK                                                             F5G41250
03024 -0 50100 0 00415         ORA IDTAG                                                             F5G41260
03025  0 07400 4 02367         TSX SK,4                                                              F5G41270
03026 -0 50000 0 00457         CAL TMP10                                                             F5G41280
03027 -0 32000 2 00361         ANA VSTAG,2                                                           F5G41290
03030  0 07400 4 02367         TSX SK,4                                                              F5G41300
03031 -0 53400 1 00451         LXD ABOX,1                                                            F5G41310
03032  1 77777 1 03033 GON2    TXI GON2+1,1,-1                                                       F5G41320
03033  2 00001 2 03006         TIX GON3,2,1                                                          F5G41330
03034 -0 53400 2 00447         LXD BBOX,2                                                            F5G41340
03035  0 07400 4 02172         TSX SCMI,4        COMPILE THE INST                                    F5G41350
03036  1 00004 2 03544         TXI BEGBB,2,4                                                         F5G41360
03037 -0 75400 0 00000 DOCS    PXD 0,0                                                               F5G41370
03040  0 60100 0 01101         STO SXST          T     RECORD THERE IS SEQUDNTIAL TRANSFER           F5G41380
03041  0 02000 0 02755         TRA TRAC3         OTHERWISE DO EXACTLY AS FOR TRA TRANSFER            F5G41390
03042 -0 75400 0 00000 PAUSE   PXD 0,0                                                               F5G41400
                       03042 SEQTR  SYN PAUSE                                                       F5G41410
03043  0 60100 0 01101         STO SXST          RECORD SEQUENTIAL TRANSFER                          F5G41420
03044  0 07400 4 02172         TSX SCMI,4                                                            F5G41430
03045  1 00004 2 03544         TXI BEGBB,2,4                                                         F5G41440
03046  0 07400 4 02172 GOTOV   TSX SCMI,4        COMPILE INST IF NECESSARY                           F5G41450
03047  0 50000 2 01076         CLA INST-3,2      FIND NO. OF BRANCHES IN VECTOR                      F5G41460
03050  0 40200 0 00316         SUB LD1                                                               F5G41470
03051  0 62200 0 00463         STD MBOX                                                              F5G41480
03052  0 50000 0 00443         CLA BBNO                                                              F5G41490
03053  0 77100 0 00022         ARS 18            STORE BBNO FOR SAD ROUTINE                          F5G41500
03054  0 60100 0 00462         STO ARG1                                                              F5G41510
03055  1 00004 2 03056 GOV4    TXI GOV4+1,2,4                                                        F5G41520
03056 -0 63400 2 00450         SXD BBOX1,2                                                           F5G41530
03057  0 07400 4 00067         TSX SE1,4                                                             F5G41540
03060  0 50000 1 12533         CLA BBB,1                                                             F5G41550
03061  0 60200 0 00464         SLW SUCNO         STORE NO OF 1ST SUCCESSOR                           F5G41560
03062 -0 53400 2 00450         LXD BBOX1,2                                                           F5G41570
03063 -2 00144 2 03065 13TNX   TNX GOV1,2,ZINST  IS BLOCK OF INST ALL USED                           F5G41580
03064  0 07400 4 03472         TSX RDINS,4       T   READ NEXT BLOCK                                 F5G41590
03065 -0 63400 2 00450 GOV1    SXD BBOX1,2                                                           F5G41600
03066 -0 50000 0 00464         CAL SUCNO                                                             F5G41610
03067  0 07400 4 00044         TSX SE6,4                                                             F5G41620
03070  0 50000 1 16734         CLA SUCC,1                                                            F5G41630
03071  0 07400 4 02126         TSX SAD,4         FINF NEW SYMBOLIC ADDR FOR THIS TRANSFER            F5G41640
03072 -0 53400 2 00450         LXD BBOX1,2                                                           F5G41650
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03073   0 60200 0 00457         SLW TMP10       STORE SYMBOLIC ADDR.                    F5G41660
03074  -0 53400 4 00463         LXD MBOX,4                                              F5G41670
03075   2 00001 4 03101         TIX GOV2,4,1    IS THIS THE LAST TRANSFER               F5G41680
03076   0 50000 2 01077         CLA INST-2,2                                            F5G41690
03077   0 40200 0 00444         SUB NXTLOC      1ST INST IN NEXT BB, IS IT              F5G41700
03100   0 10000 0 03104         TZE GOV3                                                F5G41710
03101   0 50000 0 00457 GOV2    CLA TMP10       NO                                      F5G41720
03102   0 60100 2 01077         STO INST-2,2                                            F5G41730
03103   0 07400 4 02172         TSX SCMI,4      COMPILE THE INXT                        F5G41740
03104   1 00004 2 03105 GOV3    TXI GOV3+1,2,4                                          F5G41750
03105  -0 50000 0 00464         CAL SUCNO                                               F5G41760
03106   0 40000 0 00316         ADD ONED                                                F5G41770
03107   0 60200 0 00464         SLW SUCNO                                               F5G41780
03110  -0 53400 4 00463         LXD MBOX,4                                              F5G41790
03111   1 77777 4 03112 GOV5    TXI GOV5+1,4,-1                                         F5G41800
03112  -0 63400 4 00463         SXD MBOX,4                                              F5G41810
03113   3 00000 4 03063         TXH 13TNX,4,0   IS THIS LAST TRA OF VECTOR              F5G41820
03114   0 02000 0 03544         TRA BEGBB       YES                                     F5G41830
03115   0 50000 2 01076 IF2PS   CLA INST-3,2    THIS IS PSE LOOK AT ADDRESS TO          F5G41840
03116  -0 32000 0 00404         ANA XXPSX       SEE IF IT IS 164-6                      F5G41850
03117   0 40200 0 00405         SUB XX16X                                               F5G41860
03120   0 10000 0 03125         TZE PSTCS       YES, IT IS A TEST                       F5G41870
03121   0 50000 2 01076         CLA INST-3,2                                            F5G41880
03122  -0 32000 0 00335         ANA DECMK       NO, SEE IF ADDR IS 360                  F5G41890
03123   0 40200 0 00406         SUB XX360                                               F5G41900
03124  -0 10000 0 02721         TNZ NOEND       NO, THIS ISNT BB END                    F5G41910
03125   0 07400 4 02172 PSTCS   TSX SCMI,4      THIS IS A PSE TEST INST                 F5G41920
                03125 MSECS     SYN PSTCS       OR AN MSE INST                          F5G41930
03126   1 00004 2 03127 PS1     TXI PS1+1,2,4   INEDX TO CONSIEER 1ST TRANSFER          F5G41940
03127  -0 63400 2 00450         SXD BBOX1,2                                             F5G41950
03130  -0 50000 0 00443         CAL BBNO                                                F5G41960
03131   0 77100 0 00022         ARS 18                                                  F5G41970
03132   0 60100 0 00462         STO ARG1        STORE BBNO AS ARGUMENT FOR SAD          F5G41980
03133   0 07400 4 00067         TSX SE1,4                                               F5G41990
03134  -0 50000 1 12533         CAL BBB,1                                               F5G42000
03135   0 60100 0 00464         STO SUCNO       GETNUMBER OF 1ST SUCCESSOR              F5G42010
03136   0 40000 0 00316         ADD LD1                                                 F5G42020
03137   0 07400 4 00044         TSX SE6,4       GET THE SECOND SUCC ENTRY               F5G42030
03140   0 50000 1 16734         CLA SUCC,1                                              F5G42040
03141   0 07400 4 02126         TSX SAD,4                                               F5G42050
03142  -0 53400 2 00450         LXD BBOX1,2                                             F5G42060
03143   0 60200 2 01077         SLW INST-2,2    REPLACE SYMBOLIC ADDRESS                F5G42070
03144   0 07400 4 02172         TSX SCMI,4                                              F5G42080
03145   1 00004 2 03146 PS2     TXI PS2+1,2,4   INCREASE INSTR INDEX                    F5G42090
03146   0 50000 2 01077         CLA INST-2,2    IS THIS A SEQUENTIAL TRANSFER           F5G42100
03147   0 40200 0 00444         SUB NXTLOC                                              F5G42110
03150   0 10000 0 03307         TZE PS3         YES, SKIP COMPILING THE INST            F5G42120
03151  -0 63400 2 00450         SXD BBOX1,2     NO                                      F5G42130
03152   0 50000 0 00464         CLA SUCNO                                               F5G42140
03153   0 07400 4 00044         TSX SE6,4                                               F5G42150
03154   0 50000 1 16734         CLA SUCC,1      DETERMINE THE SYMBOLIC ADDRESS          F5G42160
03155   0 07400 4 02126         TSX SAD,4                                               F5G42170
03156  -0 53400 2 00450         LXD BBOX1,2                                             F5G42180
03157   0 60200 2 01077         SLW INST-2,2    REPLACE SYMBOLIC ADDRESS                F5G42190
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03160   0 07400 4 02172         TSX SCMI,4      COMPILE THE INST.                          F5G42200
03161   1 00004 2 03544         TXI BEGBB,2,4                                              F5G42210
03162   0 50000 2 01077 TTYPE   CLA INST-2,2    IS THIS TRANSFER TO NEXT INST.             F5G42220
03163   0 34000 2 01101         CAS INST,2                                                 F5G42230
03164   0 02000 0 03166         TRA TTYP1                                                  F5G42240
03165   0 02000 0 02721         TRA NOEND       YES                                        F5G42250
03166   0 40200 0 00402 TTYP1   SUB PCC                                                    F5G42260
03167   0 10000 0 02721         TZE NOEND       YES                                        F5G42270
03170   0 02000 0 03173         TRA CNDTR       NO, IS CONDITIONAL TRANSFER                F5G42280
03171   0 07400 4 02172 IF2CS   TSX SCMI,4       THIS IS DCT OR RTT                        F5G42290
03172   1 00004 2 03173 RT1     TXI RT1+1,2,4    INDEX TO CONSIDER 1ST TRANSFER           F5G42300
03173  -0 63400 2 00450 CNDTR   SXD BBOX1,2   STORE BBNO. AS ARGUMENT                      F5G42310
03174  -0 50000 0 00443         CAL BBNO        STORE BBNO AS ARGUMENT                     F5G42320
03175   0 77100 0 00022         ARS 18          OF SAD                                     F5G42330
03176   0 60100 0 00462         STO ARG1                                                   F5G42340
03177   0 07400 4 00067         TSX SE1,4                                                  F5G42350
03200  -0 50000 1 12533         CAL BBB,1                                                  F5G42360
03201   0 60100 0 00464         STO SUCNO                                                  F5G42370
03202   0 07400 4 00044         TSX SE6,4       GET THE 1ST SUCC ENTRY                     F5G42380
03203   0 50000 1 16734         CLA SUCC,1                                                 F5G42390
03204   0 07400 4 02126         TSX SAD,4                                                  F5G42400
03205  -0 53400 2 00450         LXD BBOX1,2                                                F5G42410
03206   0 60200 2 01077         SLW INST-2,2    REPLACE SYMBOLIC ADDRESS                   F5G42420
03207   0 07400 4 02172         TSX SCMI,4      COMPILE THE INST                           F5G42430
03210   1 00004 2 03211 RT2     TXI RT2+1,2,4                                              F5G42440
03211   0 50000 2 01077         CLA INST-2,2    IS THIS A SEQUENTIAL TRANSFER              F5G42450
03212   0 40200 0 00444         SUB NXTLOC                                                 F5G42460
03213   0 10000 0 03307         TZE PS3         YES, SKIP COMPILING THE INST               F5G42470
03214  -0 63400 2 00450         SXD BBOX1,2                                                F5G42480
03215   0 50000 0 00464         CLA SUCNO                                                  F5G42490
03216   0 40000 0 00316         ADD LD1                                                    F5G42500
03217   0 07400 4 00044         TSX SE6,4                                                  F5G42510
03220   0 50000 1 16734         CLA SUCC,1                                                 F5G42520
03221   0 07400 4 02126         TSX SAD,4       DETERMINE THE SYMBOLIC ADDR                F5G42530
03222  -0 53400 2 00450         LXD BBOX1,2                                                F5G42540
03223   0 60200 2 01077         SLW INST-2,2                                               F5G42550
03224   0 07400 4 02172         TSX SCMI,4      COMPILE THE TRANSFER                       F5G42560
03225   1 00004 2 03544         TXI BEGBB,2,4                                              F5G42570
03226  -0 63400 2 00450 IF3CS   SXD BBOX1,2     THIS IS A TZE INST I. E. AN IF             F5G42580
03227  -0 50000 0 00443         CAL BBNO                                                   F5G42590
03230   0 77100 0 00022         ARS 18          STORE BB NO. FOR SUBROUTINE                F5G42600
03231   0 60100 0 00462         STO ARG1                                                   F5G42610
03232   0 07400 4 00067         TSX SE1,4       ARGUMENT                                   F5G42620
03233  -0 50000 1 12533         CAL BBB,1                                                  F5G42630
03234   0 60100 0 00464         STO SUCNO                                                  F5G42640
03235   0 40000 0 00316         ADD LD1         GET THE SUCC ENTRY                         F5G42650
03236   0 07400 4 00044         TSX SE6,4       FOR THE TZE                                F5G42660
03237   0 50000 1 16734         CLA SUCC,1                                                 F5G42670
03240   0 07400 4 02126         TSX SAD,4                                                  F5G42680
03241  -0 53400 2 00450         LXD BBOX1,2                                                F5G42690
03242   0 60200 2 01077         SLW INST-2,2    REPLACE THE SYMBOLIC ADDREAS               F5G42700
03243   0 07400 4 02172         TSX SCMI,4      COMPILE THE TZE                            F5G42710
03244   1 00004 2 03245 IF1     TXI IF1+1,2,4                                              F5G42720
03245  -0 50000 2 01100         CAL INST-1,2    CHECK NEXT INST TO SEE                     F5G42730
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03246 -0 32000 0 00343        ANA LFTMSK      IF IT IS TPL                    F5G42740
03247  0 60200 0 00457        SLW TMP10                                       F5G42750
03250  0 50000 0 00457        CLA TMP10                                       F5G42760
03251  0 40200 0 00344        SUB LTPL                                        F5G42770
03252  0 10000 0 03254        TZE 16CLA                                       F5G42780
03253  0 07400 4 00004 IFHPR  TSX 4,4         IF NOT, DIAGNOSTIC              F5G42790
03254  0 50000 2 01077 16CLA  CLA INST-2,2    DOES THIS EXIT GO TO NEXT BB    F5G42800
03255  0 40200 0 00444        SUB NXTLOC                                      F5G42810
03256 -0 10000 0 03265        TNZ IF2                                         F5G42820
03257  0 50000 2 01073        CLA INST-6,2    YES, DOES NEXT ONE ALSO         F5G42830
03260  0 40200 0 00444        SUB NXTLOC                                      F5G42840
03261 -0 10000 0 03265        TNZ IF2                                         F5G42850
03262 -0 75400 0 00000        PXD 0,0         YES, RECORD SEQUENTIAL TRANSFER F5G42860
03263  0 60100 0 01101        STO SXST                                        F5G42870
03264  1 00010 2 03544        TXI BEGBB,2,8                                   F5G42880
03265 -0 63400 2 00450 IF2    SXD BBOX1,2     COMPILE THE TPL                 F5G42890
03266  0 50000 0 00464        CLA SUCNO                                       F5G42900
03267  0 07400 4 00044        TSX SE6,4                                       F5G42910
03270  0 50000 1 16734        CLA SUCC,1                                      F5G42920
03271  0 07400 4 02126        TSX SAD,4       FIND AND                        F5G42930
03272 -0 53400 2 00450        LXD BBOX1,2     REPLACE                         F5G42940
03273  0 60200 2 01077        SLW INST-2,2    SYMBOLIC ADDRESS                F5G42950
03274  0 07400 4 02172        TSX SCMI,4                                      F5G42960
03275  1 00004 2 03276 IF3    TXI IF3+1,2,4                                   F5G42970
03276 -0 50000 2 01100        CAL INST-1,2    IS THIS TRA                     F5G42980
03277 -0 32000 0 00343        ANA LFTMSK                                      F5G42990
03300  0 60200 0 00457        SLW TMP10                                       F5G43000
03301  0 50000 0 00457        CLA TMP10                                       F5G43010
03302  0 40200 0 00350        SUB LTRA                                        F5G43020
03303 -0 10000 0 03253        TNZ IFHPR       IF NOT , STOP                   F5G43030
03304  0 50000 2 01077        CLA INST-2,2    YES IT IS   IS THIS A           F5G43040
03305  0 40200 0 00444        SUB NXTLOC      SEQUENTIAL TRANSFER             F5G43050
03306 -0 10000 0 03312        TNZ IF4                                         F5G43060
03307 -0 75400 0 00000 PS3    PXD 0,0         YES, RECORD THAT                F5G43070
03310  0 60100 0 01101        STO SXST                                        F5G43080
03311  1 00004 2 03544        TXI BEGBB,2,4                                   F5G43090
03312 -0 63400 2 00450 IF4    SXD BBOX1,2     CONPILE THE TRA                 F5G43100
03313  0 50000 0 00464        CLA SUCNO                                       F5G43110
03314  0 40000 0 00323        ADD LD2                                         F5G43120
03315  0 07400 4 00044        TSX SE6,4                                       F5G43130
03316  0 50000 1 16734        CLA SUCC,1      IF NECESSARY                    F5G43140
03317  0 07400 4 02126        TSX SAD,4       MODIFY THE                      F5G43150
03320 -0 53400 2 00450        LXD BBOX1,2     SYMBOLIC                        F5G43160
03321  0 60200 2 01077        SLW INST-2,2    ADDRESS                         F5G43170
03322  0 07400 4 02172        TSX SCMI,4                                      F5G43180
03323  1 00004 2 03544        TXI BEGBB,2,4                                   F5G43190
03324  0 50000 2 01074 STPCSZ CLA INST-5,2                                    F5G43200
03325  0 40200 0 00350        SUB LTRA                                        F5G43210
03326 -0 10000 0 02721        TNZ NOEND                                       F5G43220
03327  0 50000 2 01101        CLA INST,2                                      F5G43230
03330  0 40200 2 01073        SUB INST-6,2                                    F5G43240
03331 -0 10000 0 02721        TNZ NOEND                                       F5G43250
03332  0 07400 4 02172 STPCS  TSX SCMI,4      COMPILE THE TWO INXT            F5G43260
03333  1 00004 2 03334 STP1   TXI STP1+1,2,4  AND GO TO STAET BB              F5G43270
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03334   0 07400 4 02172          TSX SCMI,4                                                F5G43280
03335   1 00004 2 03544          TXI BEGBB,2,4                                             F5G43290
                                      THIS ROUTINE ELIMINATES EXTRA SXD AND LXD INXT AROUND F5G43300
                                      SUBROUTINE CALL SEQUENCES                             F5G43310
                                                                                            F5G43320
03336  -0 50000 2 01100 CI7A     CAL INST-1,2        IS THIS AN SXD INST                   F5G43330
03337  -0 32000 0 00343          ANA LFTMSK                                                F5G43340
03340   0 60200 0 00457          SLW TMP10                                                 F5G43350
03341   0 50000 0 00457          CLA TMP10                                                 F5G43360
03342   0 40200 0 00411          SUB LSXD                                                  F5G43370
03343  -0 10000 0 03412          TNZ CI7C                                                  F5G43380
03344  -0 50000 2 01076          CAL INST-3,2        YES, DOES IT HAVE TAG 4               F5G43390
03345  -0 32000 0 00337          ANA ADDMK                                                 F5G43400
03346   0 40200 0 00320          SUB L4                                                    F5G43410
03347  -0 10000 0 03412          TNZ CI7C                                                  F5G43420
03350   0 50000 0 00460          CLA CIND            YES, IS IR4 NECESSARY                 F5G43430
03351   0 12000 0 03401          TPL DLSXD                                                 F5G43440
03352  -0 50000 2 01074          CAL INST-5,2        YES, IS THE NEXT INST A TSX           F5G43450
03353  -0 32000 0 00343          ANA LFTMSK                                                F5G43460
03354   0 60200 0 00457          SLW TMP10                                                 F5G43470
03355   0 50000 0 00457          CLA TMP10                                                 F5G43480
03356   0 40200 0 00351          SUB LTSX                                                  F5G43490
03357  -0 10000 0 03412          TNZ CI7C                                                  F5G43500
03360   0 50000 2 01101          CLA INST,2                                                F5G43510
03361   0 07400 4 02367          TSX SK,4            YES, COMPILE AN SXD INSTR , TAG 4, TO F5G43520
03362   0 50000 0 00411          CLA LSXD            SPECIAL TEMP. STORAGE LOC.            F5G43530
03363   0 07400 4 02367          TSX SK,4                                                  F5G43540
03364   0 50000 0 00354          CLA GSYM                                                  F5G43550
03365   0 07400 4 02367          TSX SK,4                                                  F5G43560
03366   0 50000 0 00355          CLA T4SYM                                                 F5G43570
03367   0 07400 4 02367          TSX SK,4                                                  F5G43580
03370   0 50000 2 01075 CMTSX    CLA INST-4,2        COMPILE THE TSX INST                  F5G43590
03371   0 07400 4 02367 CMTS1    TSX SK,4                                                  F5G43600
03372   0 50000 2 01074          CLA INST-5,2                                              F5G43610
03373   0 07400 4 02367          TSX SK,4                                                  F5G43620
03374   0 50000 2 01073          CLA INST-6,2                                              F5G43630
03375   0 07400 4 02367          TSX SK,4                                                  F5G43640
03376   0 50000 2 01072          CLA INST-7,2                                              F5G43650
03377   0 07400 4 02367          TSX SK,4                                                  F5G43660
03400   1 00010 2 02525 CI7B     TXI FNDAS,2,8       LOOK AT NEXT INST   LXF               F5G43670
03401   0 50000 2 01101 DLSXD    CLA INST,2                                                F5G43680
03402   0 07400 4 02367          TSX SK,4     IR4 NOT NECESS.  COMPILE BSS 0.              F5G43690
03403   0 50000 0 00352          CLA LBSS                                                  F5G43700
03404   0 07400 4 02367          TSX SK,4                                                  F5G43710
03405   0 50000 0 00314          CLA ZERO                                                  F5G43720
03406   0 07400 4 02367          TSX SK,4                                                  F5G43730
03407   0 50000 0 00314          CLA ZERO                                                  F5G43740
03410   0 07400 4 02367          TSX SK,4                                                  F5G43750
03411   0 02000 0 03370          TRA CMTSX                                                 F5G43770
03412  -0 50000 2 01100 CI7C     CAL INST-1,2        IS THIS AN LXD                        F5G43780
03413  -0 32000 0 00343          ANA LFTMSK                                                F5G43790
03414   0 60200 0 00457          SLW TMP10                                                 F5G43800
03415   0 50000 0 00457          CLA TMP10                                                 F5G43810
03416   0 40200 0 00414          SUB LLXD                                                  F5G43820
03417  -0 10000 0 02676          TNZ CI7             NO, GO TO COMPILE THE INST
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03420 -0 50000 2 01076         CAL INST-3,2        YES, IS THE TAG 4                                  F5G43830
03421 -0 32000 0 00337         ANA ADDMK                                                              F5G43840
03422  0 40200 0 00320         SUB L4                                                                 F5G43850
03423 -0 10000 0 02676         TNZ CI7             NO, GO TO COMPILE THE INST.                        F5G43860
03424  0 50000 0 00460         CLA CIND            YES.  IS IR4 NECESSARY.                            F5G43870
03425  0 12000 0 03460         TPL CI7E            NO, GO TO REPRESS LATER COMPILING OF INST          F5G43880
03426 -0 76000 0 00141         MSE 97                CHECK FOR LXP WHICH WAS LXD-D.                   F5G43881
03427  0 02000 0 03432         TRA CI7C1             NO SUCH.                                         F5G43882
03430  0 76000 0 00003         SSP                   THERE WAS, SUPPRESS LATER COMPILING              F5G43883
03431  0 02000 0 03460         TRA CI7E              OF INST.                                         F5G43884
03432 -0 50000 2 01074  CI7C1  CAL INST-5,2          IS FOLLOWING INSTR AN SXD.                       F5G43885
03433 -0 32000 0 00343         ANA LFTMSK                                                             F5G43900
03434  0 60200 0 00457         SLW TMP10                                                              F5G43910
03435  0 50000 0 00457         CLA TMP10                                                              F5G43920
03436  0 40200 0 00411         SUB LSXD                                                               F5G43930
03437 -0 10000 0 03450         TNZ CI7D                                                               F5G43940
03440 -0 50000 2 01072         CAL INST-7,2        YES, IS THE TAG A 4                                F5G43950
03441 -0 32000 0 00337         ANA ADDMK                                                              F5G43960
03442  0 40200 0 00320         SUB L4                                                                 F5G43970
03443 -0 10000 0 03450         TNZ CI7D                                                               F5G43980
03444  0 50000 2 01075         CLA INST-4,2     IS SXD FIRST INSTR                                    F5G43990
03445  0 40200 0 00444         SUB NXTLOC    OF NEXT BB.                                              F5G44000
03446  0 10000 0 03450         TZE CI7D      YES, COMPILE LX.                                         F5G44010
03447  1 00010 2 02525         TXI FNDAS,2,8     NO--DELETE LX, SX.                                   F5G44020
03450  0 50000 0 00314 CI7D    CLA ZERO            CLMPILE THE LXD WITH GARBAGE                       F5G44030
03451  0 07400 4 02367         TSX SK,4            SYMBOLADDEAA AND TAG 4                             F5G44040
03452  0 50000 0 00414         CLA LLXD                                                               F5G44050
03453  0 07400 4 02367         TSX SK,4                                                               F5G44060
03454  0 50000 0 00354         CLA GSYM                                                               F5G44070
03455  0 07400 4 02367         TSX SK,4                                                               F5G44080
03456  0 50000 0 00355         CLA T4SYM                                                              F5G44090
03457  0 07400 4 02367         TSX SK,4                                                               F5G44100
03460  0 60100 0 00461 CI7E    STO CPIND           SURPRESS LATER COMPILING INST  SET +               F5G44110
03461  0 02000 0 02700         TRA CKLOC                                                              F5G44120
03462  0 50000 2 01076 CI3A    CLA INST-3,2        IS THE S-TAG EQUAL TO 4                            F5G44130
03463  0 60200 0 00461         SLW CPIND           RECORD INST. NOT TO BE COMPILED                    F5G44140
03464 -0 32000 0 00337         ANA ADDMK                                                              F5G44150
03465  0 40200 0 00320         SUB L4                                                                 F5G44160
03466 -0 10000 0 02667         TNZ CI6                                                                F5G44170
03467 -0 75400 0 00000         PXD 0,0             YES, RECORD IR4 NOT NECESSARY                      F5G44180
03470  0 60100 0 00460         STO CIND                                                               F5G44190
03471  0 02000 0 02667         TRA CI6             SINCE LXP OR DED, SKIP COMPILING INST.             F5G44200
                                THIS ROUTINE READS ANOTHER BLOCK OF COMPILED INST INTO CS            F5G44210
                                AND SHIFTS THE EXTRA INST TO THE BEGINNING OF BLOCK                  F5G44220
03472 -0 63400 4 00445 RDINS   SXD OUTBX,4         SAVE RETURN INDEX                                  F5G44230
03473  0 50000 0 00320         CLA L4  SET ERRBX FOR 5 TRIES                                          F5G44240
03474  0 60100 0 00446         STO ERRBX                                                              F5G44250
03475 -0 63400 1 00447         SXD BBOX,1          SAVE INDEX 1                                       F5G44260
03476 -0 53400 4 00331         LXD LD12,4          SHIFT EXTRA INST FROM END                          F5G44270
03477  0 50000 4 00735 D1CLA   CLA NDINS,4         OF BLOCK TO BEGINNING                              F5G44280
03500  0 60100 4 01101         STO INST,4                                                             F5G44290
03501  2 00001 4 03477         TIX D1CLA,4,1       IS BLOCK SHIFTED                                   F5G44300
03502  0 76200 0 00224 D1RDS   RTB INSTTP          SELECT INST TAPE                                   F5G44310
03503  0 53400 1 00362         LXA RECSC,1         YES, SET INDEX FOR NO. OF RECORDS                  F5G44320
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03504   0 70000 4 01065 D1CPY   CPY INST-12,4          COPY BLOCK OF INST                                    F5G44330
03505   1 00001 4 03504         TXI D1CPY,4,1          SET FOR NEXT WORD                                     F5G44340
03506   0 02000 0 03516         TRA D2END              END OF FILE                                           F5G44350
03507  -2 00001 1 03512         TNX D1BCK,1,1          END OF RECORD    IS IT END OF LAST RECORD             F5G44360
03510   0 76200 0 00224         RTB INSTTP             NO, READ NEXT RECORD                                  F5G44370
03511   0 02000 0 03504         TRA D1CPY                                                                    F5G44380
03512   0 76600 0 00333 D1BCK   IOD                    TEST FOR TAPE ERROR                                   F5G44390
03513  -0 76000 0 00012         RTT                                                                          F5G44400
03514   0 02000 0 03530         TRA INERR              ERROR                                                 F5G44410
03515   3 00143 4 03525         TXH D1XX,4,ZINST-1      IF 3RD FULL REC. NOT END OF FILE                     F5G44420
03516  -0 75400 4 00000 D2END   PXD 0,4                REACHED END OF INSTR                                  F5G44430
03517   0 40000 0 00327         ADD LD8                PUT TEST FOR LAST INST                                F5G44440
03520   0 62200 0 02525         STD FNDAS INTO MAIN    ROUTINE                                               F5G44450
03521   0 50000 0 00363         CLA LCOUT              PUT ADDR OF FINAL EXIT INTO  MAIN                     F5G44460
03522   0 60100 0 02526         STO FNDAS+1            ROUTINE                                               F5G44470
03523   0 50000 0 00336         CLA ENDMK                                                                    F5G44480
03524   0 60100 4 01065         STO INST-12,4                                                                F5G44490
03525  -0 53400 4 00445 D1XX    LXD OUTBX,4            NO ERROR, RESTORE INDEX REGISTERS                     F5G44500
03526  -0 53400 1 00447         LXD BBOX,1                                                                   F5G44510
03527   0 02000 4 00001         TRA 1,4                RETURN TO MAIN ROUTINE                                F5G44520
03530   0 50000 0 00446 INERR    CLA ERRBX              ERROR IN READING  IS THIS 1ST TRY                     F5G44530
03531   0 10000 0 03540         TZE HTRD2              TO READ IN                                            F5G44540
03532   0 40200 0 00315         SUB ONEA               YES, STORE INDICATION AND TRY AGAIN                   F5G44550
03533   0 60100 0 00446         STO ERRBX                                                                    F5G44560
03534   0 76400 0 00204 D2BST   BST INSTTP              BACKSPACE OVER RECORDS JUST READ                      F5G44570
03535   1 00001 1 03536         TXI D2TIX,1,1                                                                F5G44580
03536  -2 00001 1 03534 D2TIX   TNX D2BST,1,RECNO                                                            F5G44590
03537   0 02000 0 03502         TRA D1RDS              TAPE BACKSPACED   TRY AGAIN                           F5G44600
03540   0 07400 4 00004 HTRD2   TSX 4,4                 ERROR ON 5TH TRY  DIAGNOSTIC                         F5G44610
03541  -0 53400 2 00331 PASS2   LXD LD12,2                                                                   F5G44620
03542   0 77200 0 00203         REW OTAPE                                                                    F5G44630
03543   1 00145 2 03544 1TXI    TXI 1TXI+1,2,ZINST+1                                                         F5G44640
                                  INITIALIZE FOR START OF BB                                                F5G44650
03544  -0 63400 2 00450 BEGBB   SXD BBOX1,2            STORE INDEX OF POSITION ON ONST TABOE                 F5G44660
03545   0 50000 0 00316         CLA ONED                                                                     F5G44670
03546   0 40000 0 00443         ADD BBNO                                                                     F5G44680
03547   0 60100 0 00443         STO BBNO                                                                     F5G44690
03550   0 77100 0 00022         ARS 18                 WAS THIS THE LAST BB                                  F5G44700
03551   0 40200 0 17774         SUB KEYS                                                                     F5G44710
03552   0 40000 0 00315         ADD ONEA                                                                     F5G44720
03553   0 10000 0 04413         TZE LSTBB              YES, GL  GO WRITE PARTIAL BLOLK                       F5G44730
03554   0 50000 0 01101         CLA SXST                 NO                                                  F5G44740
03555  -0 12000 0 03560         TMI BEGBBY                                                                   F5G44750
03556   0 50000 0 00337         CLA ADDMK                                                                    F5G44760
03557   0 60100 0 01101         STO SXST                                                                     F5G44770
03560   0 50000 0 00443 BEGBBY  CLA BBNO                                                                     F5G44780
03561   0 07400 4 00070         TSX SE,4                                                                     F5G44790
03562  -0 50000 1 12535         CAL BBB+2,1            GET ENTRANCE REQUIREMENT                              F5G44800
03563   0 77100 0 00022         ARS 18                 FOR IR4                                               F5G44810
03564   0 40200 0 00340         SUB STMSK              STORE + OR - IF IR4                                   F5G44820
03565   0 60100 0 00460         STO CIND               ISNT OR IS NECESSARY                                  F5G44830
03566   0 50000 0 00315         CLA ONEA               RECORD THERE ISNT HANGING TRA 0                       F5G44840
03567   0 60100 0 00660         STO SLV3                                                                     F5G44850
03570  -0 50000 0 00443         CAL BBNO               FIND THE 1ST INST IN NEXT                             F5G44860
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03571   0 40000 0 00316         ADD ONED                                                F5G44870
03572   0 07400 4 00070         TSX SE,4            BB                                  F5G44880
03573   0 50000 1 12540         CLA BBB+5,1                                             F5G44890
03574   0 60100 0 00444         STO NXTLOC                                              F5G44900
                                     DETERMINE WHICH LXD CASES EXIST , RESULT IN Z1V5    F5G44910
03575   0 56000 0 00314 Z1      LDQ ZERO            INITIALIZE THE EXISTENCE            F5G44920
03576  -0 60000 0 00667         STQ Z1V5            INDICATOR WORD                      F5G44930
03577   0 50000 1 12533         CLA BBB,1           GET AND STORE NO. OF 1ST PRED IN    F5G44940
03600   0 62100 0 00665         STA Z1V2            NEXT BB                             F5G44950
03601  -0 50000 0 00443         CAL BBNO                                                F5G44960
03602   0 07400 4 00070         TSX SE,4                                                F5G44970
03603  -0 50000 1 12533         CAL BBB,1           STORE THE NO OF                     F5G44980
03604   0 62100 0 00666         STA Z1V3            1ST PRED IN                         F5G44990
03605   0 62100 0 00670         STA Z1V8            THIS BB                             F5G45000
03606   0 50000 0 00666         CLA Z1V3                                                F5G45010
03607   0 34000 0 00665 Z15     CAS Z1V2            IS THIS PRED IN SAME BB             F5G45020
03610   0 02000 0 03612         TRA Z12             YES                                 F5G45030
03611   0 02000 0 03626         TRA Z2              NO                                  F5G45040
03612   0 07400 4 00055 Z12     TSX SE5,4                                               F5G45050
03613   0 50000 1 15674         CLA PRED,1          DETERMINE THE                       F5G45060
03614  -0 32000 0 00332         ANA LT7             LXD CASE                            F5G45070
03615   0 76700 0 00003         ALS 3                                                   F5G45080
03616  -0 73400 4 00000         PDX 0,4                                                 F5G45090
03617  -0 50000 0 00416         CAL Z1K3            STORE BIT AS INDICATOR              F5G45100
03620   0 77100 4 00007         ARS 7,4             FOR THIS                            F5G45110
03621  -0 60200 0 00667         ORS Z1V5            LXD CASE                            F5G45120
03622   0 50000 0 00666         CLA Z1V3                                                F5G45130
03623   0 40000 0 00315         ADD ONEA            ARRANGE TO DEAL WITH NEXT           F5G45140
03624   0 62100 0 00666         STA Z1V3            PRED                                F5G45150
03625   0 02000 0 03607         TRA Z15                                                 F5G45160
                                     THIS OPEN S. R. FORMS THE LXD LISTS FROM THE INFO LEFT IN  F5G45170
                                     Z1V5 BY Z1                                          F5G45180
                                                                                         F5G45190
03626   0 56000 0 00314 Z2      LDQ ZERO                                                F5G45200
03627   0 53400 1 00422         LXA Z2K2,1                                              F5G45210
03630  -0 60000 1 00715 Z21     STQ LLIND,1         SET THE 3 INDEXDS TO THE SUB        F5G45220
03631   0 50000 1 00422         CLA Z2K1+3,1        BOTTOM POSITIONS                    F5G45230
03632   0 40200 0 00316         SUB ONED            IN THE 3 LISTS AND ALL              F5G45240
03633   0 60100 1 00674         STO Z2V1+3,1        INDICATORS TO SAY COMPILED          F5G45250
03634   2 00001 1 03630         TIX Z21,1,1                                             F5G45260
03635  -0 53400 1 00331         LXD LD12,1                                              F5G45270
03636   0 50000 0 00416         CLA MZE             PLACE -0 S IN THE                   F5G45280
03637   0 60100 1 00712 Z28     STO LIST1+12,1      LXD LISTS                           F5G45290
03640   2 00001 1 03637         TIX Z28,1,1                                             F5G45300
03641  -0 53400 1 00422         LXD Z2K2,1          SET TO BEGINNING OF CASE LIST       F5G45310
03642   0 56000 0 00667 Z25     LDQ Z1V5            DID                                 F5G45320
03643   0 50000 1 00432         CLA CASE+7,1        THIS                                F5G45330
03644   0 73400 2 00000         PAX 0,2             CASE                                F5G45340
03645  -0 77300 2 00007         RQL 7,2             OCCURR                              F5G45350
03646   0 16200 0 03711         TQP Z26                                                 F5G45360
03647   0 50000 0 00434         CLA Z2K5            YES, SET NO OF ONES IN              F5G45370
03650   0 60100 0 00674         STO Z2V2            DIFFERENCE TO HIGH NUMBER           F5G45380
03651   0 53400 2 00422         LXA Z2K2,2          INITIALIZE TO 1ST LIST              F5G45390
03652   0 56000 0 00314    Z23  LDQ ZERO       IS P004                                 F5G45400
03653   0 50000 2 00674         CLA Z2V1+3,2
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03654 -0 73400 4 00000    R004 PDX 0,4     QUANTITY IN THE LIST                    F5G45410
03655  0 50000 4 00676         CLA LIST1,4          IS THE TOP                     F5G45420
03656 -0 32000 1 00432         ANA CASE+7,1         YES, DETERMINE                 F5G45430
03657 -0 40000 4 00676         SBM LIST1,4          CONTAINED IN THIS              F5G45440
03660 -0 10000 0 03676         TNZ Z27              CASE                           F5G45450
03661  0 50000 1 00432         CLA CASE+7,1         YES, DETERMINE                 F5G45460
03662  0 40200 4 00676         SUB LIST1,4          THE NO.                        F5G45470
03663  0 76500 0 00025         LRS 21               OF ONES                        F5G45480
03664  0 20000 0 00433         MPY Z2K4             IN THE                         F5G45490
03665  0 62100 0 03667         STA Z22 LOGICAL                                     F5G45500
03666  0 50000 0 00432         CLA Z2K3             DIFFERENCE                     F5G45510
03667  0 77100 0 00000 Z22     ARS SET                                             F5G45520
03670 -0 32000 0 00434         ANA Z2K5                                            F5G45530
03671  0 34000 0 00674         CAS Z2V2               IS THE NUMBER OF ONES IN THE F5G45540
03672  0 02000 0 03676         TRA Z27                DIFFERENCE LESS THAN OR EQUAL TO F5G45550
03673  0 02000 0 03676         TRA Z27                THE PREVIOUS MINIMUM.  NO    F5G45560
03674  0 60100 0 00674         STO Z2V2             YES, STORE NEW MIN             F5G45570
03675 -0 63400 2 00675         SXD Z2V3,2           STORE INDEX OF LIST OF GIVING NEW MIN F5G45580
03676  2 00001 2 03652 Z27     TIX Z23,2,1          COUNT TO 3 LISTS   ARE WE THRU F5G45590
03677 -0 53400 2 00675         LXD Z2V3,2           UES, GET INDEX OF LIST WITH MIN DIFF F5G45600
03700  0 50000 2 00674         CLA Z2V1+3,2         STIRE                          F5G45610
03701 -0 73400 4 00000         PDX 0,4              THIS                           F5G45620
03702  0 50000 1 00432         CLA CASE+7,1         CASE AT TOP OF                 F5G45630
03703  1 00001 4 03704 Z24     TXI Z24+1,4,1        THAT LIST                      F5G45640
03704  0 60100 4 00676         STO LIST1,4                                         F5G45650
03705 -0 75400 4 00000         PXD 0,4              STORE INDEX OF TOP             F5G45660
03706  0 60100 2 00674         STO Z2V1+3,2         POSITION IN THAT LIST          F5G45670
03707  0 50000 0 00416         CLA MZE              STORE INDICATION THAT THE      F5G45680
03710  0 60100 2 00715         STO LLIND,2          LIST IS TO BE COMPILED         F5G45690
03711  2 00001 1 03642 Z26     TIX Z25,1,1          COUNT THE 7 CASES              F5G45700
                                EXPAND TNE LXD      LISTS                          F5G45710
03712  0 50000 0 00434 Z3      CLA Z2K5             IS THE                         F5G45720
03713 -0 40000 0 00700         SBM LIST1+2          BOTTOM ENTRY OF                F5G45730
03714  0 10000 0 04003         TZE Z307             LIST1 A CASE 7                 F5G45740
03715  0 50000 0 00700         CLA LIST1+2          NO, DO THE BOTTOMS             F5G45750
03716 -0 32000 0 00704         ANA LIST2+2          OF LISTS 1 AND 2 HAVE          F5G45760
03717  0 10000 0 03766         TZE Z35              A NON ZERO INTERSECTION        F5G45770
03720  0 34000 0 00700         CAS LIST1+2          YES, DOES INTERSECTION EQUAL 1 F5G45780
03721  0 02000 0 03723         TRA Z31                                             F5G45790
03722  0 02000 0 03760         TRA Z33              YES                            F5G45800
03723  0 34000 0 00704 Z31     CAS LIST2+2          IS IT EQUAL TO BOTTOM OF 2     F5G45810
03724  0 02000 0 03726         TRA Z32                                             F5G45820
03725  0 02000 0 03763         TRA Z34              YES                            F5G45830
03726  0 60100 0 00701 Z32     STO LIST1+3          STORE INTERSECTION IN SUB1     F5G45840
03727 -0 76000 0 00003         SSM                  POSITITON AND -(INTER.) IN     F5G45850
03730  0 60100 0 00705         STO LIST2+3          SUB2 POS.                      F5G45860
03731  0 02000 0 04015         TRA Z306                                            F5G45870
03732 -0 76000 0 00003 Z38     SSM                  ENTER -INTER1 AND 3            F5G45880
03733  0 60100 0 00711         STO LIST3+3          IN SUB3 POS.                   F5G45890
03734  0 02000 0 04015         TRA Z306                                            F5G45900
03735 -0 76000 0 00003 Z39     SSM                  ENTER - INTER 1 AND 3          F5G45910
03736  0 60100 0 00701         STO LIST1+3          INSUV1 POS.                    F5G45920
03737  0 02000 0 04015         TRA Z306                                            F5G45930
03740  0 50000 0 00704 Z300    CLA LIST2+2          DO BOTTOM ENTRIES              F5G45940
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03741 -0 32000 0 00710        ANA LIST3+2     OF 2 AND 3 HAVE                                  F5G45950
03742  0 10000 0 04015        TZE Z306        NONZERO INTERSECTION                             F5G45960
03743  0 34000 0 00704        CAS LIST2+2     YES, IS INTRE 2 AND 3                            F5G45970
03744  0 02000 0 03746        TRA Z301                                                         F5G45980
03745  0 02000 0 03755        TRA Z303        YES                                              F5G45990
03746  0 34000 0 00710 Z301   CAS LIST3+2     IS INTERSECTION EQUAL TO BOTTOM OF LIST 3        F5G46000
03747  0 02000 0 03751        TRA Z302                                                         F5G46010
03750  0 02000 0 04013        TRA Z304        YES                                              F5G46020
03751  0 60100 0 00711 Z302   STO LIST3+3     STORE INTER 2 AND 3 IN SUB 3 POS.                F5G46030
03752 -0 76000 0 00003        SSM             AND -INTER IN                                    F5G46040
03753  0 60100 0 00705        STO LIST2+3     SUB 2 POS.                                       F5G46050
03754  0 02000 0 04015        TRA Z306                                                         F5G46060
03755 -0 76000 0 00003 Z303   SSM             ENTER -(INTER 2 AND 3 )                          F5G46070
03756  0 60100 0 00711        STO LIST3+3     IN SUB 3 POS.                                    F5G46080
03757  0 02000 0 04015        TRA Z306                                                         F5G46090
03760 -0 76000 0 00003 Z33    SSM             ENTER -(INTER 1 AND 2 )                          F5G46100
03761  0 60100 0 00705        STO LIST2+3     IN SUB 2 POS.                                    F5G46110
03762  0 02000 0 04015        TRA Z306                                                         F5G46120
03763 -0 76000 0 00003 Z34    SSM             STORE -(INTER 1 AND 2 )                          F5G46130
03764  0 60100 0 00701        STO LIST1+3     IN SUB 1 POS.                                    F5G46140
03765  0 02000 0 04015        TRA Z306                                                         F5G46150
03766  0 50000 0 00700 Z35    CLA LIST1+2     DO BOTTOM ENTRIES IN                             F5G46160
03767 -0 32000 0 00710        ANA LIST3+2     1 AND 3 HAVE NONZERO                             F5G46170
03770  0 10000 0 03740        TZE Z300        INTERSECTION                                     F5G46180
03771  0 34000 0 00700        CAS LIST1+2     YES, IS IT EQUAL TO BOT. 1                       F5G46190
03772  0 02000 0 03774        TRA Z36                                                          F5G46200
03773  0 02000 0 03732        TRA Z38         YES                                              F5G46210
03774  0 34000 0 00710 Z36    CAS LIST3+2     TO THE BOTTOM ENTRY IN 3                         F5G46220
03775  0 02000 0 03777        TRA Z37                                                          F5G46230
03776  0 02000 0 03735        TRA Z39         YES                                              F5G46240
03777  0 60100 0 00711 Z37    STO LIST3+3     ENTER INTER 1 AND 3 IN SUB                       F5G46250
04000 -0 76000 0 00003        SSM             3 POS. AND -( INTER ) IN                         F5G46260
04001  0 60100 0 00701        STO LIST1+3     SUB1 POS.                                        F5G46270
04002  0 02000 0 04015        TRA Z306                                                         F5G46280
04003 -0 63400 0 00671 Z307   SXD Z2V1,0      CREATE THE LIST                                  F5G46290
04004  0 50000 0 00321        CLA L7                                                           F5G46300
04005  0 60100 0 00676        STO LIST1                                                        F5G46310
04006  0 50000 0 00317        CLA L3                                                           F5G46320
04007  0 60100 0 00677        STO LIST1+1                                                      F5G46330
04010  0 50000 0 00315        CLA ONEA                                                         F5G46340
04011  0 60100 0 00700        STO LIST1+2                                                      F5G46350
04012  0 02000 0 04053        TRA Z4                                                           F5G46360
04013 -0 76000 0 00003 Z304   SSM             ENTER  - INTER 2 AND 3                           F5G46370
04014  0 60100 0 00705 Z305   STO LIST2+3     INSUB2 POS.                                      F5G46380
04015 -0 53400 2 00324 Z306   LXD LD3,2       SET COUNT TO 3                                   F5G46390
04016  0 53400 1 00314        LXA ZERO,1      SET TO INSPECT 1ST LIST                          F5G46400
04017  0 50000 1 00700 Z309   CLA LIST1+2,1                                                    F5G46410
04020  0 10000 0 04031        TZE Z308        IS THE BOTTOM ENTRY ZERO                         F5G46420
04021  0 40200 0 00315        SUB ONEA        NO                                               F5G46430
04022 -0 32000 1 00700        ANA LIST1+2,1   DOES IT HAVE TWO ONES                           F5G46440
04023  0 10000 0 04031        TZE Z308                                                         F5G46450
04024  0 60100 0 00457        STO TMP10       YES                                              F5G46460
04025  0 50000 1 00701        CLA LIST1+3,1   IS THE SUB BOTTOM                                F5G46470
04026 -0 10000 0 04031        TNZ Z308        ENTRY ZERO                                       F5G46480
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04027   0 50000 0 00457         CLA TMP10           YES                                F5G46490
04030   0 60100 1 00701         STO LIST1+3,1                                          F5G46500
04031   1 77774 1 04032 Z308    TXI Z308+1,1,-4     PREPARE FOR NEXT LIST              F5G46510
04032   2 00001 2 04017         TIX Z309,2,1        COUNT TO 3                         F5G46520
04033   0 50000 0 00434         CLA Z2K5                                               F5G46530
04034  -0 40000 0 00677         SBM LIST1+1                                            F5G46540
04035  -0 10000 0 04053         TNZ Z4                                                 F5G46550
04036   0 50000 0 00700         CLA LIST1+2                                            F5G46560
04037   0 40200 0 00315         SUB ONEA                                               F5G46570
04040  -0 32000 0 00700         ANA LIST1+2                                            F5G46580
04041  -0 10000 0 04053         TNZ Z4                                                 F5G46590
04042   0 50000 0 00700         CLA LIST1+2                                            F5G46600
04043   0 60100 0 00701         STO LIST1+3                                            F5G46610
04044   0 50000 0 00434         CLA Z2K5                                               F5G46620
04045   0 40200 0 00700         SUB LIST1+2                                            F5G46630
04046   0 60100 0 00700         STO LIST1+2                                            F5G46640
04047   0 40200 0 00315         SUB ONEA                                               F5G46650
04050   0 32000 0 00700         ANS LIST1+2                                            F5G46660
04051  -0 50000 0 00701         CAL LIST1+3                                            F5G46670
04052  -0 60200 0 00700         ORS LIST1+2                                            F5G46680
                                 DETECT AND COMPILE ANY SEQUENTIAL TRANSFER           F5G46690
04053   0 56000 0 00416 Z4      LDQ MZE             PUT MINUS ZEROS IN                 F5G46700
04054  -0 60000 0 01125         STQ SXAS            THE ASSOXIATED                     F5G46710
04055   0 53400 4 00322         LXA L19,4           SXDPOSITIONS                       F5G46720
04056  -0 60000 4 01125 Z411    STQ SXST+20,4                                          F5G46730
04057   2 00001 4 04056         TIX Z411,4,1                                           F5G46740
04060   0 50000 0 01101         CLA SXST                                               F5G46750
04061  -0 12000 0 04140         TMI Z5              IS THERE A SEQUENTIAL TRANSFER     F5G46760
04062  -0 50000 0 00443         CAL BBNO            YES                                F5G46770
04063   0 77100 0 00022         ARS 18                                                 F5G46780
04064   0 40200 0 00315         SUB ONEA                                               F5G46790
04065   0 60100 0 00457         STO TMP10           PUT NO OF PREV. BB IN TMP10        F5G46800
04066   0 50000 0 00670         CLA Z1V8            INITIALIZE 1ST PRED NO THIS BB     F5G46810
04067   0 60100 0 00666 Z49     STO Z1V3                                               F5G46820
04070   0 07400 4 00055         TSX SE5,4                                              F5G46830
04071  -0 50000 1 15674         CAL PRED,1                                             F5G46840
04072  -0 32000 0 00337         ANA ADDMK           IS THIS THE SEQUENTIAL             F5G46850
04073   0 40200 0 00457         SUB TMP10           TRANSFERS PRED ENTRY               F5G46860
04074   0 10000 0 04100         TZE Z410                                               F5G46870
04075  -0 50000 0 00666         CAL Z1V3            NO, TRY NEXT ONE                   F5G46880
04076   0 40000 0 00315         ADD ONEA                                               F5G46890
04077   0 02000 0 04067         TRA Z49                                                F5G46900
04100   0 50000 0 00666 Z410    CLA Z1V3            GET THE PRED NO                    F5G46910
04101   0 07400 4 02211         TSX SH,4            FORM THE SXD CASE                  F5G46920
04102   0 50000 0 00466         CLA SXD1                                               F5G46930
04103   0 40000 0 00467         ADD SXD2                                               F5G46940
04104   0 40000 0 00470         ADD SXD3                                               F5G46950
04105   0 10000 0 04117         TZE Z44             IS THIS A 0 SXD CASE               F5G46960
04106   0 53400 4 00320         LXA L4,4            ISNT 0 SXD CASE                    F5G46970
04107   0 50000 4 00471 Z41     CLA SXD1+3,4        RECORD SXD CASE                    F5G46980
04110   0 60100 4 01105         STO SXST+4,4        IN POSITION ASSOCIATED             F5G46990
04111   2 00001 4 04107         TIX Z41,4,1         WITH SEQUENTIAL TRANSFER           F5G47000
04112   0 53400 1 00314         LXA ZERO,1          COMPILE THE SXD                    F5G47010
04113   0 07400 4 02242         TSX SI,4            INST. WITH                         F5G47020
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04114   0 02000 0 04140          TRA  Z47          (1) ASSOCIATED SXD WITH 0 LXD CASE          F5G47030
04115   0 07400 4 02440 Z42      TSX  SM,4         (2)ASSOCIATED       WITH AN LXD LIST        F5G47040
04116   0 02000 0 04140          TRA  Z47          (3) NOT ASSOCIATED  ( TRA COMPILED )        F5G47050
04117  -0 53400 4 00465 Z44      LXD  SXD0,4                                                   F5G47060
04120  -3 00000 4 04136          TXL  Z46,4,0      DOES IT HAVE A 0 LXD CASE                   F5G47070
04121  -0 75400 4 00000          PXD  0,4          NO                                          F5G47080
04122   0 77100 0 00022          ARS  18           LXD CASE TO AC  (ADDR)                      F5G47090
04123   0 60100 0 00715          STO  Z4V1                                                     F5G47100
04124  -0 53400 2 00324          LXD  LD3,2        SET COUNT TO 3 , N=1                        F5G47110
04125   0 50000 2 00674 Z45      CLA  Z2V1+3,2     GET INDEX                                   F5G47120
04126  -0 73400 1 00000          PDX  0,1          OF TOP QUANTITY IN LIST N                   F5G47130
04127   0 50000 1 00676          CLA  LIST1,1      IS THE LXD CASE OF THIS SXD                 F5G47140
04130   0 40200 0 00715          SUB  Z4V1         CASE THE SAME AS                            F5G47150
04131   0 10000 0 04115          TZE  Z42          THE TOP  QUANTITY IN LIST N                 F5G47160
04132   2 00001 2 04125          TIX  Z45,2,1      NO, COUNT TO 3                              F5G47170
04133   0 50000 0 00715          CLA  Z4V1         COMPILE A                                   F5G47180
04134   0 07400 4 02403          TSX  SL,4         TRA  (LXD )                                 F5G47190
04135   0 02000 0 04140          TRA  Z47                                                      F5G47200
04136   0 50200 0 00315 Z46      CLS  ONEA         RECORD THAT THERE                           F5G47210
04137   0 60100 0 00660 Z48      STO  SLV3         IS A HANGING TRA 0CASE                      F5G47220
                 04140 Z47       SYN  Z48+1                                                    F5G47230
                                    FORM THE SXD LIST AND THE SYN CARD LIST                   F5G47240
04140   0 50000 0 00316 Z5       CLA  ONED         SET INDEX IN SYN TABLE                      F5G47250
04141   0 60100 0 00716          STO  Z5V1                                                     F5G47260
04142   0 50000 0 00670          CLA  Z1V8         RESET 1 ST PRED IN BB                       F5G47270
04143   0 60100 0 00666 Z53      STO  Z1V3                                                     F5G47280
04144   0 40200 0 00665          SUB  Z1V2         IS THIS PRED IN SAME BB                     F5G47290
04145   0 10000 0 04263          TZE  Z6           NO, ADD FINISHED                            F5G47300
04146   0 50000 0 01101          CLA  SXST         YES                                         F5G47310
04147  -0 12000 0 04153          TMI  Z51          WAS THERE A SEQUENTIAL TRANSFER             F5G47320
04150  -0 32000 0 00337          ANA  ADDMK        YES, EXTRACT ADDRESS                        F5G47330
04151   0 40200 0 00666          SUB  Z1V3         HAS PRED ALREDY BEEN CONSIDERED             F5G47340
04152   0 10000 0 04213          TZE  Z55          AS A SEQUENTIAL TRANSFER                    F5G47350
04153   0 50000 0 00666 Z51      CLA  Z1V3         NO                                          F5G47360
04154   0 07400 4 02211          TSX  SH,4         GENERATE SXD CASE                           F5G47370
04155   0 50000 0 00466          CLA  SXD1         IS THE                                      F5G47380
04156   0 40000 0 00467          ADD  SXD2         SXD CASE                                    F5G47390
04157   0 40000 0 00470          ADD  SXD3         ZERO                                        F5G47400
04160   0 10000 0 04213          TZE  Z55                                                      F5G47410
04161   0 53400 1 00314          LXA  ZERO,1       NO, PREPARE TO SCAN SXD LIST                F5G47420
04162   0 50000 1 01101 Z503     CLA  SXST,1       IS                SUBSXD0                   F5G47430
04163  -0 32000 0 00335          ANA  DECMK                                                    F5G47440
04164   0 60100 0 00457          STO  TMP10                                                    F5G47450
04165   0 50000 0 00455          CLA  SXD0                                                     F5G47460
04166  -0 32000 0 00335          ANA  DECMK                                                    F5G47470
04167   0 40200 0 00457          SUB  TMP10                                                    F5G47480
04170  -0 10000 0 04216          TNZ  Z54                                                      F5G47490
04171   0 50000 1 01102          CLA  SXST+1,1     THIS SXD CASE                               F5G47500
04172   0 40200 0 00466          SUB  SXD1                                                     F5G47510
04173  -0 10000 0 04216          TNZ  Z54                                                      F5G47520
04174   0 50000 1 01103          CLA  SXST+2,1     SAME AS                                     F5G47530
04175   0 40200 0 00467          SUB  SXD2                                                     F5G47540
04176  -0 10000 0 04216          TNZ  Z54                                                      F5G47550
04177   0 50000 1 01104          CLA  SXST+3,1     THE ONE ALREADY                             F5G47560
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04200  0 40200 0 00470        SUB SXD3          STORED                                F5G47570
04201 -0 10000 0 04216        TNZ Z54                                                 F5G47580
04202  0 50000 1 01101        CLA SXST,1        YES, STORE INDICATION                 F5G47590
04203 -0 53400 2 00716        LXD Z5V1,2                                              F5G47600
04204 -0 32000 0 00337        ANA ADDMK         SYN,2  CARD                           F5G47610
04205  0 60100 2 02125        STO SYN,2         IN THE                                F5G47620
04206  0 50000 0 00465        CLA SXD0          SYN                                   F5G47630
04207  0 76700 0 00022        ALS 18            LIST                                  F5G47640
04210  0 62200 2 02125        STD SYN,2                                               F5G47650
04211  1 00001 2 04212 Z52    TXI Z52+1,2,1                                           F5G47660
04212 -0 63400 2 00716        SXD Z5V1,2                                              F5G47670
04213  0 50000 0 00666 Z55    CLA Z1V3          PREPARE TO DEAL WITH NEXT PRED        F5G47680
04214  0 40000 0 00315        ADD ONEA                                                F5G47690
04215  0 02000 0 04143        TRA Z53                                                 F5G47700
04216  0 50000 1 01101 Z54    CLA SXST,1                                              F5G47710
04217  0 12000 0 04232        TPL Z502          IS THIS SXD POS. EMPTY                F5G47720
04220 -0 53400 2 00324        LXD LD3,2         YES                                   F5G47730
04221 -3 00000 1 04232        TXL Z502,1,0      IS THIS ST CASE                       F5G47740
04222  3 77773 1 04233        TXH Z504,1,-4-1   NO, IS THIS 0 LIST CASE              F5G47750
04223  3 77767 1 04242        TXH Z507,1,-8-1   NO              1ST                   F5G47760
04224  3 77763 1 04241        TXH Z506,1,-12-1                2ED                   F5G47770
04225  3 77757 1 04240        TXH Z505,1,-16-1                3RD                   F5G47780
04226  0 07400 4 04252        TSX Z500,4        ENTER THE SXD CASE IN THE LIST        F5G47790
04227  0 50000 0 00416        CLA MZE                                                 F5G47800
04230  0 60100 1 01105        STO SXST+4,1      STORE END MARK FOR SYN CAEDS          F5G47810
04231  0 02000 0 04213        TRA Z55                                                 F5G47820
04232  1 77774 1 04162 Z502   TXI Z503,1,-4     EXAMINE NEXT SXD CASE                 F5G47830
04233 -0 50000 0 00465 Z504   CAL SXD0          ZERO LIST CASE                        F5G47840
04234 -0 32000 0 00335        ANA DECMK         IS THE LXD CASE 0                     F5G47850
04235 -0 10000 0 04232        TNZ Z502                                                F5G47860
04236  0 07400 4 04252        TSX Z500,4        YES, ENTER SXD CASE IN                F5G47870
04237  0 02000 0 04213        TRA Z55           ASSOCIATED       POSITION             F5G47880
04240  2 00001 2 04241 Z505   TIX Z505+1,2,1    GENERATE INDEX OF LIST                F5G47890
04241  2 00001 2 04242 Z506   TIX Z506+1,2,1                                          F5G47900
04242 -0 50000 2 00674 Z507   CAL Z2V1+3,2      IS                                    F5G47910
04243 -0 73400 4 00000        PDX 0,4           THE                                   F5G47920
04244  0 50000 0 00465        CLA SXD0          LXD                                   F5G47930
04245  0 77100 0 00022        ARS 18            CASE THE                              F5G47940
04246  0 40200 4 00676        SUB LIST1,4       SAME                                  F5G47950
04247 -0 10000 0 04232        TNZ Z502                                                F5G47960
04250  0 07400 4 04252        TSX Z500,4        YES                                   F5G47970
04251  0 02000 0 04213        TRA Z55                                                 F5G47980
                        SUBROUTINE FOR ENTERING SXD CASE IN SXD LIST                  F5G47990
                                                                                      F5G48000
04252  0 50000 0 00465 Z500   CLA SXD0                                                F5G48010
04253  0 60100 1 01101        STO SXST,1                                              F5G48020
04254  0 50000 0 00466        CLA SXD1                                                F5G48030
04255  0 60100 1 01102        STO SXST+1,1                                            F5G48040
04256  0 50000 0 00467        CLA SXD2                                                F5G48050
04257  0 60100 1 01103        STO SXST+2,1                                            F5G48060
04260  0 50000 0 00470        CLA SXD3                                                F5G48070
04261  0 60100 1 01104        STO SXST+3,1                                            F5G48080
04262  0 02000 4 00001        TRA 1,4                                                 F5G48090
                        COMPILE THE SXD LIST                                          F5G48100
04263  0 53400 1 00333 Z6     LXA LM20,1        SET TO START OF SXD LIST
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04264  0 50000 1 01101 Z61    CLA SXST,1                                    F5G48110
04265 -0 12000 0 04274         TMI Z7          IS THIS SXD POSITION EMPTY    F5G48120
04266 -0 63400 1 04271         SXD Z6V1,1      NO                            F5G48130
04267  0 07400 4 02242         TSX SI,4        COMPILE THE SXD CASE WITH     F5G48140
04270  0 76100 0 00000         NOP             (1)   0 LXD CASE,  OR        F5G48150
04271  3 00000 0 00000 Z6V1    TXH 0,0,SET     (2) THIS RETURN CANT OCCURR   F5G48160
04272 -0 53400 1 04271         LXD Z6V1,1      (3) TRA ALREADY COMPILED,     F5G48170
04273  1 77774 1 04264         TXI Z61,1,-4                                  F5G48180
                                 COMPILE TNE LXD LISTS AND ASSOCIATED SXD S  F5G48190
04274 -0 53400 2 00324 Z7      LXD LD3,2       SET TO BEGIN SCAN OF LISTS    F5G48200
04275  0 50000 2 00422 Z72     CLA Z2K1+3,2                                  F5G48210
04276 -0 73400 1 00000         PDX 0,1         PUT INDEX OF BOTTOM POSITION IN 1 F5G48220
04277  0 50000 1 00676         CLA LIST1,1                                   F5G48230
04300 -0 12000 0 04350         TMI Z75         YES, IS IT A TRA(0) CASE      F5G48240
04301  0 10000 0 04320         TZE Z73         IS THE LIST FILLED            F5G48250
04302  0 50000 1 00677         CLA LIST1+1,1   PERHAPS, IS IT A FOR SURE     F5G48260
04303  0 10000 0 04350         TZE Z75          IT IS IF EITHER THE SUB BOTTOM F5G48270
04304  0 12000 0 04350         TPL Z75         ENTRY IS -0 OR POSITIVE       F5G48280
04305  0 50000 0 00720         CLA Z7V2                                      F5G48290
04306 -0 12000 0 04320         TMI Z73         IS THIS 1ST TIME THRU         F5G48300
04307  0 50000 2 00443 Z76     CLA Z7K1+3,2    YES                           F5G48310
04310 -0 73400 1 00000         PDX 0,1         IS THERE ASSOCIATED           F5G48320
04311  0 50000 1 01101         CLA SXST,1      SXDLIST                       F5G48330
04312 -0 63400 2 00717         SXD Z7V1,2                                    F5G48340
04313 -0 12000 0 04344         TMI Z74                                       F5G48350
04314  0 07400 4 02242         TSX SI,4        YES, COMPILE SXD CASE         F5G48360
04315  0 02000 0 04317         TRA Z71                                       F5G48370
04316  0 02000 0 04333         TRA Z77         COMPILE                       F5G48380
04317 -0 53400 2 00717 Z71     LXD Z7V1,2                                    F5G48390
04320  2 00001 2 04275 Z73     TIX Z72,2,1     COUNT TO 3                    F5G48400
04321  0 50200 0 00720         CLS Z7V2        IS THIS 1ST TIME THRU         F5G48410
04322  0 60100 0 00720         STO Z7V2                                      F5G48420
04323 -0 12000 0 04274         TMI Z7          YES, GO BACK      CLASXST     F5G48430
04324  0 50000 0 01105         CLA SXAS0       IS THERE A 0 ASSOCIATED SXD CASE F5G48440
04325 -0 12000 0 04353         TMI Z8                                        F5G48450
04326  0 53400 1 00334         LXA LM4,1       YES                           F5G48460
04327  0 07400 4 02242         TSX SI,4        COMPILE SXD CASE              F5G48470
04330  0 02000 0 04353         TRA Z8                                        F5G48480
04331  0 02000 0 04353         TRA Z8                                        F5G48490
04332  0 02000 0 04353         TRA Z8                                        F5G48500
04333 -0 53400 2 00717 Z77     LXD Z7V1,2                                    F5G48510
04334  0 50000 2 00715         CLA Z4V1,2                                    F5G48520
04335 -0 12000 0 04344         TMI Z74                                       F5G48530
04336  0 50000 2 00443         CLA Z7K1+3,2                                  F5G48540
04337 -0 73400 1 00000         PDX 0,1                                       F5G48550
04340  0 50000 1 01101         CLA SXST,1                                    F5G48560
04341  0 77100 0 00022         ARS 18                                        F5G48570
04342  0 07400 4 02403         TSX SL,4                                      F5G48580
04343  0 02000 0 04317         TRA Z71                                       F5G48590
04344  0 50000 2 00674 Z74     CLA Z2V1+3,2    COMPILE THE LXD LIST          F5G48600
04345 -0 73400 1 00000         PDX 0,1                                       F5G48610
04346  0 07400 4 02440         TSX SM,4                                      F5G48620
04347  0 02000 0 04317         TRA Z71                                       F5G48630
04350  0 50000 0 00720 Z75     CLA Z7V2        IS THIS 1ST TIME THRU         F5G48640
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04351 -0 12000 0 04307         TMI Z76              NO, 2ED TIME                                F5G48650
04352  0 02000 0 04320         TRA Z73              YES                                         F5G48660
                                 COMPILE ANY SYN CARDS                                        F5G48670
04353 -0 50000 0 00443 Z8      CAL BBNO             FORM                                        F5G48680
04354  0 77100 0 00022         ARS 18               AND                                         F5G48690
04355  0 60100 0 00457         STO TMP10            STORE                                       F5G48700
04356  0 07400 4 00067         TSX SE1,4                                                        F5G48710
04357 -0 50000 1 12533         CAL BBB,1            -(IDSXD)-(BBNO)+(1ST PRED)*2**25            F5G48720
04360 -0 32000 0 00337         ANA ADDMK                                                        F5G48730
04361  0 76700 0 00012         ALS 10                                                           F5G48740
04362  0 40200 0 00457         SUB TMP10                                                        F5G48750
04363  0 40200 0 00410         SUB IDSXD                                                        F5G48760
04364  0 60100 0 00457         STO TMP10                                                        F5G48770
04365 -0 53400 2 00716         LXD Z5V1,2           SET TO START OF SYN LIST                    F5G48780
04366 -3 00001 2 04407 Z81     TXL Z83,2,1          ARE WE THRU                                 F5G48790
04367  2 00001 2 04370 Z82     TIX Z82+1,2,1        DECREASE INDEX                              F5G48800
04370 -0 50000 2 02125         CAL SYN,2                                                        F5G48810
04371 -0 32000 0 00335         ANA DECMK            COMPILE THE SYN CARD                        F5G48820
04372  0 77100 0 00010         ARS 8                                                            F5G48830
04373  0 40200 0 00457         SUB TMP10                                                        F5G48840
04374  0 07400 4 02367         TSX SK,4                                                         F5G48850
04375  0 50000 0 00346         CLA LSYN                                                         F5G48860
04376  0 07400 4 02367         TSX SK,4                                                         F5G48870
04377 -0 50000 2 02125         CAL SYN,2                                                        F5G48880
04400 -0 32000 0 00337         ANA ADDMK                                                        F5G48890
04401  0 76700 0 00012         ALS 10                                                           F5G48900
04402  0 40200 0 00457         SUB TMP10                                                        F5G48910
04403  0 07400 4 02367         TSX SK,4                                                         F5G48920
04404  0 50000 0 00314         CLA ZERO                                                         F5G48930
04405  0 07400 4 02367         TSX SK,4                                                         F5G48940
04406  0 02000 0 04366         TRA Z81                                                          F5G48950
04407 -0 53400 2 00450 Z83     LXD BBOX1,2          GET INDEX OF COMPILED INDT                  F5G48960
04410  0 50000 0 00416         CLA MZE              RECORD NO SEQUENTIAL TRANSFER               F5G48970
04411  0 60100 0 01101         STO SXST                                                         F5G48980
04412  0 02000 0 02525         TRA FNDAS                                                        F5G48990
                                 WRITE TH E LAST BLOCK OF C.I. T. ON TAPE                     F5G49000
                                 AFTER PUTTING RELATIVE CONSTANT ROUTINES AT END              F5G49010
04413  0 76200 0 00224 LSTBB   RTB INSTTP           AN END OF                                   F5G49020
04414  0 70000 0 00457         CPY TMP10            FILE SEPARATES RELATIVE CONST. ROUTINES      F5G49030
04415  0 02000 0 04420         TRA EF3              END FILE ALREADY READ                       F5G49040
04416  0 02000 0 04413         TRA LSTBB            READ END FILE                               F5G49050
04417  0 07400 4 00004         TSX 4,4  DIAGNOSTIC, ERROR                                       F5G49060
04420 -0 53400 4 00325 EF3     LXD LD4,4              TRY 4 TIMES                               F5G49070
04421  0 53400 3 00337 EFRTB   LXA ADDMK,3          READ IN NEXT RECORD                         F5G49080
04422  0 76200 0 00224         RTB INSTTP           OF RELATIVE CONSTANT SUBROUTINES            F5G49090
04423  0 70000 1 04516 EFCPY   CPY RELSR,1                                                      F5G49100
04424  1 77777 1 04423         TXI EFCPY,1,-1                                                   F5G49110
04425  0 02000 0 04436         TRA EFREW            END OF FILE , END OF INST.                  F5G49120
04426  0 76600 0 00333         IOD                                                              F5G49130
04427 -0 76000 0 00012         RTT                                                              F5G49140
04430  0 02000 0 04451         TRA EFERR                                                        F5G49150
04431 -0 63400 1 04432         SXD EFTXL,1          STORE END TEST                              F5G49160
04432 -3 00000 2 04421 EFTXL   TXL EFRTB,2,SET      COMPILE THE INSTRUCTIONS                    F5G49170
04433  0 50000 2 04516         CLA RELSR,2                                                      F5G49180
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04434   0 07400 4 02367         TSX SK,4                                                F5G49190
04435   1 77777 2 04432         TXI EFTXL,2,-1                                          F5G49200
04436   0 77200 0 00204 EFREW   REW INSTTP          REWIND THE TAPE                     F5G49210
04437   0 53400 1 00412         LXA SKK1,1          SET 1 TO LENGTH OF CS BLOCK         F5G49220
04440  -0 53400 4 00655         LXD SKV1,4          INDEX OF NEXTCLST POSITION          F5G49230
04441  -0 63400 4 04444         SXD LSTXL,4                                             F5G49240
04442   3 00143 4 04447         TXH LSWEF,4,LCLST-1    IS BLOCK EMPTY                   F5G49250
04443   0 76600 0 00223         WTB OTAPE           NO, WRITE                           F5G49260
04444  -3 00000 1 04447 LSTXL   TXL LSWEF,1,-       IT ON TAPE                          F5G49270
04445   0 70000 1 00655         CPY CLST,1                                              F5G49280
04446   1 77777 1 04444         TXI LSTXL,1,-1                                          F5G49290
04447   0 77000 0 00203 LSWEF   WEF OTAPE           WRITE AN END FILE                   F5G49300
04450   0 02000 0 00030         TRA R                                                   F5G49310
04451   0 76400 0 00204 EFERR   BST INSTTP                                              F5G49320
04452   2 00001 4 04421         TIX EFRTB,4,1                                           F5G49330
04453   0 07400 4 00004         TSX 4,4  4TH ERROR, TO DIAGNOSTIC                       F5G49340
                  04454         BSS PTL4         SPACE FOR PATCHES                    F5G49350
04516   0 00000 0 00000 RELSR                      START OF REL. CONST. ROUTINES       F5G49360
                  00000         ORG 0                                                   F5G49370
00000   0 00004 0 00030         HTR R,0,4                CONTROL CARD PART 1.           F5G49371
00001   0 00000 0 05715         HTR CMTAG-1                                             F5G49372
                  00000         ORG 0                                                   F5G49373
00000   0 15674 0 15674         HTR PRED,0,PRED          CONTROL CARD PART 1B.          F5G49374
00001   0 00000 0 16025         HTR I9A+2                                               F5G49375
                  00000         ORG 0                                                   F5G49376
00000   0 04740 0 04740         HTR QS,0,QS              CONTROL CARD, PART 1C.         F5G49377
00001   0 00000 0 04773         HTR QS8+1                                               F5G49378
                  00000         ORG 0                                                   F5G49379
00000   0 04740 0 04740         HTR QPU,0,QPU            CONTROL CARD, PART 1D.         F5G49380
00001   0 00000 0 04773         HTR QPU8+1                                              F5G49381
                  00000         ORG 0                                                   F5G49382
00000   0 04740 0 04740         HTR QSU,0,QSU            CONTROL CARD, PART 1E.         F5G49383
00001   0 00000 0 04773         HTR QSU8+1                                              F5G49384
                  00000         ORG 0                                                   F5G49385
00000   0 00320 0 00317         HTR BLV09,0,BL12         CONTROL CARD, PART 2.          F5G49386
00001   0 00000 0 00655         HTR BLIST                                               F5G49387
                  00000         ORG 0                                                   F5G49388
00000   0 00320 0 00320         HTR START,0,START        CONTROL CARD, PART 3.          F5G49389
00001   0 00000 0 00647         HTR ASCON                                               F5G49390
                  00000         ORG 0                                                   F5G49391
00000   0 03541 0 00317         HTR L3,0,PASS2           CONTROL CARD, PART 4.          F5G49392
00001   0 00000 0 04516         HTR RELSR                                               F5G49393
                  03541         END PASS2                                               F5G49394
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