```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                             3        COPY  LOG7821                ** MAP EC HISTORY **
                             4 ************************************************************************
                             5 *                                                                      *
                             6 *                     ***       PREREQUISITES        ***               *
                             7 *                                                                      *
                             8 *                                  NONE                                *
                             9 *                                                                      *
                            10 ************************************************************************
                            11 *                                                                      *
                            12 *                     ***       MODIFICATIONS        ***               *
                            13 *                                                                      *
                            14 *                CHANGES MADE TO MEET PROGRAM REQUIREMENTS             *
                            15 *                                                                      *
                            16 ************************************************************************
                            17 *                                                                      *
                            18 *                     ***     REA'S INCORPORATED     ***               *
                            19 *                                                                      *
                            20 *                                  NONE                                *
                            21 *                                                                      *
                            22 ************************************************************************
                            23 *                                                                      *
                            24 *                     ***    SPECIAL INSTRUCTIONS    ***               *
                            25 *                                                                      *
                            26 *                                  NONE                                *
                            27 *                                                                      *
                            28 ************************************************************************
                            29 *                                                                      *
                            30 *                     ***       E. C. HISTORY        ***               *
                            31 *                                                                      *
                            32 *        DATE 17DEC76  DATE 04MAR77  DATE 10JUN77  DATE 01MAR78        *
                            33 *        E.C. 578486   E.C. 578638   E.C. 578625   E.C. 755285          *
                            34 *                                                                      *
                            35 ************************************************************************
002500                      37 I7821    START X'2500'            START ADDRESS OF ALL 'I' TYPE PROG
000100                      38 @QUES    EQU   X'0100'            EQUATED VALUE FOR MDI STATEMENT
000101                      39 @FIXT    EQU   X'0101'            EQUATED VALUE FOR MDI STATEMENT
000102                      40 @STOP    EQU   X'0102'            EQUATED VALUE FOR MDI STATEMENT
000200                      41 @GOTO    EQU   X'0200'            EQUATED VALUE FOR MDI STATEMENT
000201                      42 @CALL    EQU   X'0201'            EQUATED VALUE FOR MDI STATEMENT
000300                      43 @INPT    EQU   X'0300'            EQUATED VALUE FOR MDI STATEMENT
000400                      44 @QUXX    EQU   X'0400'            EQUATED VALUE FOR MDI STATEMENT
000500                      45 @TUXX    EQU   X'0500'            EQUATED VALUE FOR MDI STATEMENT
000600                      46 @NVLD    EQU   X'0600'            EQUATED VALUE FOR MDI STATEMENT
000000                      47 EQ       EQU   X'0000'            EQUATE FOR EQUAL
000004                      48 NE       EQU   X'0004'            EQUATE FOR NOT EQUAL
000008                      49 HI       EQU   X'0008'            EQUATE FOR HIGH
00000C                      50 NH       EQU   X'000C'            EQUATE FOR NOT HIGH
000010                      51 LO       EQU   X'0010'            EQUATE FOR LOW
000014                      52 NL       EQU   X'0014'            EQUATE FOR NOT LOW
000010                      53 LT       EQU   X'0010'            EQUATE FOR LESS THAN
00000C                      54 LE       EQU   X'000C'            EQUATE FOR LESS THAN OR EQUAL TO
000008                      55 GT       EQU   X'0008'            EQUATE FOR GREATER THAN
000014                      56 GE       EQU   X'0014'            EQUATE FOR GREATER THAN OR EQUAL TO
000200                      57 ON       EQU   X'0200'            EQUATE FOR ON
000202                      58 OF       EQU   X'0202'            EQUATE FOR OFF
000204                      59 MX       EQU   X'0204'            EQUATE FOR MIXED
000000                      60 EBC      EQU   X'0000'            EQUATE FOR EBCDIC DATA TRANSFER
000001                      61 HEX      EQU   X'0001'            EQUATE FOR HEX DATA TRANSFER
000001                      62 XTRNL    EQU   X'0001'            EQUATE FOR EXTERNAL REFERENCE
000000                      63 INTRNL   EQU   X'0000'            EQUATE FOR INTERNAL REFERENCE
000000                      64 PARM     EQU   X'0000'            EQUATE INDICATING PARAMETER
000001                      65 DA       EQU   X'0001'            EQUATE FOR DEVICE ADDRESS
000002                      66 UA       EQU   X'0002'            EQUATE FOR UNIT ADDRESS
000000                      67 DUMMY    EQU   X'0000'            DUMMY EQUATE
001800                      69 PID      EQU   *-X'0D00'          ADDRESS OF MDI HEADER
000232                      70 PTYPE    EQU   *-X'22CE'          ADDRESS OF PROCESSOR TYPE FIELD
00180C                      71 STEPNUM  EQU   PID+X'000C'        ADDRESS OF DECIMAL STEP NUMBER
00180E                      72 OPWD1    EQU   PID+X'000E'        ADDRESS OF OPTION WORD ONE
001810                      73 OPWD2    EQU   PID+X'0010'        ADDRESS OF OPTION WORD TWO
001818                      74 TUSTATUS EQU   PID+X'0018'        ADDRESS OF TU STATUS WORD
00181A                      75 TUWORK   EQU   PID+X'001A'        ADDRESS OF TU WORK AREA
00189A                      76 TUPARM1  EQU   PID+X'009A'        ADDRESS OF PARM 1 POINTER
00189C                      77 TUPARM2  EQU   PID+X'009C'        ADDRESS OF PARM 2 POINTER
00189E                      78 TUPARM3  EQU   PID+X'009E'        ADDRESS OF PARM 3 POINTER
0018A0                      79 TUPARM4  EQU   PID+X'00A0'        ADDRESS OF PARM 4 POINTER
0018A2                      80 TUPARM5  EQU   PID+X'00A2'        ADDRESS OF PARM 5 POINTER
0018A4                      81 TUPARM6  EQU   PID+X'00A4'        ADDRESS OF PARM 6 POINTER
0018A6                      82 TUPARM7  EQU   PID+X'00A6'        ADDRESS OF PARM 7 POINTER
0018A8                      83 TUPARM8  EQU   PID+X'00A8'        ADDRESS OF PARM 8 POINTER
0018AA                      84 TUPAPM9  EQU   PID+X'00AA'        ADDRESS OF PARM 9 POINTER
0018AC                      85 TUPARM10 EQU   PID+X'00AC'        ADDRESS OF PARM 10 POINTER
0018AE                      86 TUPARM11 EQU   PID+X'00AE'        ADDRESS OF PARM 11 POINTER
0018B0                      87 TUPARM12 EQU   PID+X'00B0'        ADDRESS OF PARM 12 POINTER
0018B2                      88 TUPARM13 EQU   PID+X'00B2'        ADDRESS OF PARM 13 POINTER
0018B4                      89 TUPARM14 EQU   PID+X'00B4'        ADDRESS OF PARM 14 POINTER
0018B6                      90 TUPARM15 EQU   PID+X'00B6'        ADDRESS OF PARM 15 POINTER
0018B8                      91 TUPARM16 EQU   PID+X'00B8'        ADDRESS OF PARM 16 POINTER
0018BA                      92 TUMSGWTR EQU   PID+X'00BA'        ADDRESS OF -> TO COMMON MSG WRITER
0018BE                      93 TUUA     EQU   PID+X'00BE'        ADDRESS OF UNIT ADDRESS IN EBC
0018C0                      94 TUDA     EQU   PID+X'00C0'        ADDRESS OF DEVICE ADDRESS IN EBC
0018C2                      95 TUBUFF   EQU   PID+X'00C2'        ADDRESS OF LAST USED WORD IN MAP
0018C4                      96 TULAST   EQU   PID+X'00C4'        ADDRESS OF LAST ADDRESSABLE WORD
0018C6                      97 TURESULN EQU   PID+X'00C6'        ADDRESS OF LENGTH OF TU RESULTS
0018C8                      98 TURESUL  EQU   PID+X'00C8'        ADDRESS OF TU RESULTS FIELD
0018FC                      99 MAPNAME  EQU   PID+X'00FC'        ADDRESS OF MAP NAME FIELD IN HEX
0019A8                     100 TUINPT   EQU   PID+X'0148'        ADDRESS OF $INPT DATA
00196E                     101 PARMARA  EQU   PID+X'016E'        ADDRESS OF $INPT INPUT AREA
0019B8                     102 @DCADD1  EQU   PID+X'01B8'        MDI POINTER
0019BA                     103 @DCADD2  EQU   PID+X'01BA'        MDI POINTER
0019C4                     104 SUPSTAT  EQU   PID+X'01C4'        ADDRESS OF MDI STATUS
0019D0                     105 DEVADD   EQU   PID+X'01D0'        ADDRESS OF DEVICE ADDRESS TABLE 0
0019DA                     106 DEVADD1  EQU   PID+X'01DA'        ADDRESS OF DEVICE ADDRESS TABLE 1
0019E4                     107 DEVADD2  EQU   PID+X'01E4'        ADDRESS OF DEVICE ADDRESS TABLE 2
0019EE                     108 DEVADD3  EQU   PID+X'01EE'        ADDRESS OF DEVICE ADDRESS TABLE 3
0019F8                     109 DEVADD4  EQU   PID+X'01F8'        ADDRESS OF DEVICE ADDRESS TABLE 4
001A02                     110 DEVADD5  EQU   PID+X'0202'        ADDRESS OF DEVICE ADDRESS TABLE 5
001A0C                     111 DEVADD6  EQU   PID+X'020C'        ADDRESS IF DEVICE ADDRESS TABLE 6
001A16                     112 DEVADD7  EQU   PID+X'0216'        ADDRESS OF DEVICE ADDRESS TABLE 7
                           113          PRINT OFF
```



```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
002500  2606               198          DC    A(ENTPT)            POINT TO MAP ENTRY POINT TABLE
                           199 ************************************************************************
                           200 ************************************************************************
                           201 **                                                                    **
                           202 **   THE FOLLOWING TABLES ARE USED BY THE MDI SUPERVISOR (D3C00)       **
                           203 **   TO LOCATE THE CORRECT RULE TO INVOKE, TO OBTAIN THE PROPER        **
                           204 **   PARAMETERS TO PASS TO THE TU'S AND TO PASS TO THE OPERATOR        **
                           205 **   THE INDICATED MESSAGE(S). THEFE ARE FOUR TABLES USED FOR THIS     **
                           206 **   PUFPOSE THEY ARE:                                                **
                           207 **                                                                    **
                           208 **   STEP AND RULE ADDRESS TABLE                                      **
                           209 **        THIS TABLE GIVES THE ADDRESS OF THE RULE TO INVOKE AND      **
                           210 **        THE ASSOCIATED STEP DECIMAL STEP NUMBER OF THAT RULE.       **
                           211 **        ENTRIES ARE AS FOLLOWES                                     **
                           212 **                  A)  AN ADDRESS OF THE RULE DC START AREA          **
                           213 **                  B)  THE STEP NUMBER IN DECIMAL                    **
                           214 **                  C)  AN EQUATE FOR THE STEP NUMBER                 **
                           215 **                                                                    **
                           216 **   RULE INFORMATION TABLE                                           **
                           217 **        THIS TABLE CONTAINES THE REQUIRED INFORMATION TO EXECUTE    **
                           218 **        THE APPROPRIATE RULE UNDER MDI. EACH RULE HAS ITS OWN       **
                           219 **        UNIQUELY DEFINED AREA INDICATED BELOW. END OF TABLE IS      **
                           220 **        INDICATED WITH A X'0000' FOR THE RULE EQUATE.               **
                           221 **                                                                    **
                           222 **        $QUES                                                       **
                           223 **              A) RULE EQUATE X'0100'                                **
                           224 **              B) ADDRESS OF THE YES LEG RULE                        **
                           225 **                                                                    **
                           226 **        $FIXT                                                       **
                           227 **              A) RULE EQUATE X'0101'                                **
                           228 **              B) ADDRESS OF MESSAGE TO PRINT                        **
                           229 **                                                                    **
                           230 **        $STOP                                                       **
                           231 **              A) RULE EQUATE X'0102'                                **
                           232 **              B) ADDRESS OF MESSAGE                                 **
                           233 **                                                                    **
                           234 **        $GOTO                                                       **
                           235 **              A) RULE EQUATE X'0200'                                **
                           236 **              B) ADDRESS OF MESSAGE                                 **
                           237 **              C) NAME OF MAP TO GO TO                               **
                           238 **              D) ENTRY POINT WITHIN GO TO MAP TO USE                **
                           239 **              E) INDICATOR FOR EXTERNAL OR INTERNAL REFERENCE       **
                           241 **                                                                    **
                           242 **        $CALL                                                       **
                           243 **              A) RULE EQUATE X'0201'                                **
                           244 **              B) ADDRESS OF MESSAGE                                 **
                           245 **              C) NAME OF MAP TO CALL                                **
                           246 **              D) ENTRY POINT WITHIN CALLED MAP TO USE               **
                           247 **              E) INDICATOP FOR EXTERNAL OR INTERNAL REFERENCE       **
                           248 **                                                                    **
                           249 **        $INPT                                                       **
                           250 **              A) RULE EQUATE X'0300'                                **
                           251 **              B) INPUT TYPE (EBCDIC OR HEX)                         **
                           252 **              C) ADDRESS OF YES LEG RULE                            **
                           253 **              D) DESTINATION LOCATION OF INPUT DATA                 **
                           254 **              E) LENGTH OF INPUT DATA                               **
                           255 **              F) LOWER LIMIT OF GOOD DATA                           **
                           256 **              G) HIGHER LIMIT OF GOOD DATA                          **
                           257 **                                                                    **
                           258 **        $QUXX                                                       **
                           259 **              A) RULE EQUATE X'0400'                                **
                           260 **              B) ADDRESS OF YES LEG RULE                            **
                           261 **              C) TU BRANCH TO ADDRESS (INITIAL)                     **
                           262 **              D) TU BRANCH TO ADDRESS (SECONDARY)                   **
                           263 **              E) LENGTH OF PARAMETER IN BYTES                       **
                           264 **              F) PARAMETER TO PASS TO TU                            **
                           265 **              G) STORE ADDRESS FOR FIRST 8 WORDS OF PARAMETER       **
                           266 **                                                                    **
                           267 **        $TUXX                                                       **
                           268 **              A) RULE EQUATE X'0500'                                **
                           269 **              B) ADDRESS OF YES LEG RULE                            **
                           270 **              C) TU BRANCH TO ADDRESS                               **
                           271 **              D) TYPE OF COMPARE TO MAKE ON RESULTS                 **
                           272 **              E) LENGTH OF COMPARED RESULTS                         **
                           273 **              F) MASK FIELD FOR COMPARE                             **
                           274 **              G) LENGTH OF PARAMETER IN BYTES                       **
                           275 **              H) PARAMETER TO PASS TO THE TU                        **
                           276 **              I) STORE ADDRESS FOR FIRST 8 WORDS OF PARAMETER       **
                           277 **                                                                    **
                           278 **        $NVLD                                                       **
                           279 **              A) RULE EQUATE X'0600'                                **
                           281 **                                                                    **
                           282 **   ENTRY POINT TABLE                                                **
                           283 **        THIS TABLE CONTAINS THE ENTRY POINTS WITHIN THE MAP THAT     **
                           284 **        THE MAP CAN BE ENTERED FROM THESE ENTRY POINTS ARE           **
                           285 **        REFERENCED BY NAME AND ADDRESS. ENTRIES ARE AS FOLLOWES:     **
                           286 **                                                                    **
                           287 **              A) NAME OF ENTRY POINT                                **
                           288 **              B) ADDRESS OF ENTRY POINT RULE TABLE                  **
                           289 **                                                                    **
                           290 **        THE ENTRY POINT TABLE END IS INDICATED BY A X'0000'         **
                           291 **                                                                    **
                           292 **   MESSAGE TABLE                                                    **
                           293 **        THIS TABLE CONTAINES THE MESSAGE PASSED TO THE OPERATOR      **
                           294 **        VIA THE MDI SUPERVISOR. THE TABLE IS AS FOLLOWES:           **
                           295 **                                                                    **
                           296 **              A) EQUATE FOR START OF MESSAGE BLOCK                  **
                           297 **              B) NUMBER OF LINES OF MESSAGE                         **
                           298 **              C) LENGTH OF FOLLOWING LINE                           **
                           299 **              D) FIRST LINE OF MESSAGE                              **
                           300 **              E) LENGTH OF FOLLOWING LINE                           **
                           301 **              F) SECOND LINE OF MESSAGE                             **
                           302 **              G) ETC.                                               **
                           303 **                                                                    **
                           304 ************************************************************************
                           305 ************************************************************************
```

```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                           308 ********************************************************************************
                           309 ********************************************************************************
                           310 **                                                                            **
                           311 **                        STEP AND RULE ADDRESS TABLE                         **
                           312 **                                                                            **
                           313 ********************************************************************************
                           314 ********************************************************************************
002502  2548               315          DC    AL2(N00001)
002504  0001               316          DC    XL2'0001'
000001                     317 EQN00001 EQU       0001
002506  255A               318          DC    AL2(N00002)
002508  0002               319          DC    XL2'0002'
000002                     320 EQN00002 EQU       0002
00250A  256C               321          DC    AL2(N00003)
00250C  0003               322          DC    XL2'0003'
000003                     323 EQN00003 EQU       0003
00250E  2570               324          DC    AL2(N00004)
002510  0004               325          DC    XL2'0004'
000004                     326 EQN00004 EQU       0004
002512  2574               327          DC    AL2(N00005)
002514  0005               328          DC    XL2'0005'
000005                     329 EQN00005 EQU       0005
002516  2586               330          DC    AL2(N00006)
002518  0006               331          DC    XL2'0006'
000006                     332 EQN00006 EQU       0006
00251A  2598               333          DC    AL2(N00007)
00251C  0007               334          DC    XL2'0007'
000007                     335 EQN00007 EQU       0007
00251E  259C               336          DC    AL2(N00008)
002520  0008               337          DC    XL2'0008'
000008                     338 EQN00008 EQU       0008
002522  25A0               339          DC    AL2(N00009)
002524  0009               340          DC    XL2'0009'
000009                     341 EQN00009 EQU       0009
002526  25B2               342          DC    AL2(N00010)
002528  0010               343          DC    XL2'0010'
00000A                     344 EQN00010 EQU       0010
00252A  25C4               345          DC    AL2(N00011)
00252C  0011               346          DC    XL2'0011'
00000B                     347 EQN00011 EQU       0011
00252E  25C8               348          DC    AL2(N00012)
002530  0012               349          DC    XL2'0012'
00000C                     350 EQN00012 EQU       0012
002532  25CC               351          DC    AL2(N00013)
002534  0013               352          DC    XL2'0013'
00000D                     353 EQN00013 EQU       0013
002536  25DE               354          DC    AL2(N00014)
002538  0014               355          DC    XL2'0014'
00000E                     356 EQN00014 EQU       0014
00253A  25F0               357          DC    AL2(N00015)
00253C  0015               358          DC    XL2'0015'
00000F                     359 EQN00015 EQU       0015
00253E  25F4               360          DC    AL2(N00016)
002540  0016               361          DC    XL2'0016'
000010                     362 EQN00016 EQU       0016
002542  25F8               363          DC    AL2(N00017)
002544  0017               364          DC    XL2'0017'
000011                     365 EQN00017 EQU       0017
002546  0000               366          DC    AL2(DUMMY)
                           367 ********************************************************************************
                           368 ********************************************************************************
                           369 **                                                                            **
                           370 **                        RULE INFORMATION TABLE                              **
                           371 **                                                                            **
                           372 ********************************************************************************
                           373 ********************************************************************************
                           374 N00001   $TUXX T7868,02,0000,EQ,QT=(Q00073),YES=N00005,CT=(C00072),     X
002548  0500               375+N00001   DC    A(@TUXX)
00254A  2574               376+         DC    AL2(N00005)
00254C  34C4               377+         DC    A(T7868)
00254E  0000               378+         DC    AL2(EQ)
002550  0002               379+         DC    AL2(02)
002552  0000               380+         DC    X'0000'
                           381+         ALIGN WORD
002554  0000               382+         DC    AL2(0)
002556  C1C1               383+         DC    C'AA'
                           384+         ALIGN WORD
002558  196E               385+         DC     AL2(PARMARA)
                           386 N00002   $TUXX T3C02,02,0002,ON,QT=(Q00077),YES=N00004,CT=(C00076)
00255A  0500               387+N00002   DC    A(@TUXX)
00255C  2570               388+         DC    AL2(N00004)
00255E  2740               389+         DC    A(T3C02)
002560  0200               390+         DC    AL2(ON)
002562  0002               391+         DC    AL2(02)
002564  0002               392+         DC    X'0002'
                           393+         ALIGN WORD
002566  0000               394+         DC    AL2(0)
002568  C1C1               395+         DC    C'AA'
                           396+         ALIGN WORD
00256A  196E               397+         DC     AL2(PARMARA)
                           398 N00003   $FIXT FT=(F00004),CT=(C00045)
00256C  0101               399+N00003   DC    A(@FIXT)
00256E  260C               400+         DC    A(F00004)
                           401 N00004   $FIXT FT=(F00008),CT=(C00045)
002570  0101               402+N00004   DC    A(@FIXT)
002572  268C               403+         DC    A(F00008)
                           404 N00005   $TUXX T7865,02,0000,EQ,QT=(Q00086),YES=N00009,CT=(C00085)
002574  0500               405+N00005   DC    A(@TUXX)
002576  25A0               406+         DC    AL2(N00009)
002578  2C20               407+         DC    A(T7865)
00257A  0000               408+         DC    AL2(EQ)
00257C  0002               409+         DC    AL2(02)
00257E  0000               410+         DC    X'0000'
                           411+         ALIGN WORD
002580  0000               412+         DC    AL2(0)
002582  C1C1               413+         DC    C'AA'
                           414+         ALIGN WORD
002584  196E               415+         DC     AL2(PARMARA)
                           416 N00006   $TUXX T3C02,02,0002,ON,QT=(Q00089),YES=N00008,CT=(C00088)
002586  0500               417+N00006   DC    A(@TUXX)
002588  259C               418+         DC    AL2(N00008)
00258A  2740               419+         DC    A(T3C02)
00258C  0200               420+         DC    AL2(ON)
00258E  0002               421+         DC    AL2(02)
```



```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
002590  0002               422+         DC    X'0002'
                           423+         ALIGN WORD
002592  0000               424+         DC    AL2(0)
002594  C1C1               425+         DC    C'AA'
                           426+         ALIGN WORD
002596  196E               427+         DC     AL2(PARMARA)
                           428 N00007   $FIXT FT=(F00004),CT=(C00045)
002598  0101               429+N00007   DC    A(@FIXT)
00259A  260C               430+         DC    A(F00004)
                           431 N00008   $FIXT FT=(F00008),CT=(C00045)
00259C  0101               432+N00008   DC    A(@FIXT)
00259E  268C               433+         DC    A(F00008)
                           434 N00009   $TUXX T7866,02,0000,EQ,QT=(Q00098),YES=N00013,CT=(C00097)
0025A0  0500               435+N00009   DC    A(@TUXX)
0025A2  25CC               436+         DC    AL2(N00013)
0025A4  2F08               437+         DC    A(T7866)
0025A6  0000               438+         DC    AL2(EQ)
0025A8  0002               439+         DC    AL2(02)
0025AA  0000               440+         DC    X'0000'
                           441+         ALIGN WORD
0025AC  0000               442+         DC    AL2(0)
0025AE  C1C1               443+         DC    C'AA'
                           444+         ALIGN WORD
0025B0  196E               445+         DC     AL2(PARMARA)
                           446 N00010   $TUXX T3C02,02,0002,ON,QT=(Q00101),YES=N00012,CT=(C00100)
0025B2  0500               447+N00010   DC    A(@TUXX)
0025B4  25C8               448+         DC    AL2(N00012)
0025B6  2740               449+         DC    A(T3C02)
0025B8  0200               450+         DC    AL2(ON)
0025BA  0002               451+         DC    AL2(02)
0025BC  0002               452+         DC    X'0002'
                           453+         ALIGN WORD
0025BE  0000               454+         DC    AL2(0)
0025C0  C1C1               455+         DC    C'AA'
                           456+         ALIGN WORD
0025C2  196E               457+         DC     AL2(PARMARA)
                           458 N00011   $FIXT FT=(F00004),CT=(C00045)
0025C4  0101               459+N00011   DC    A(@FIXT)
0025C6  260C               460+         DC    A(F00004)
                           461 N00012   $FIXT FT=(F00008),CT=(C00045)
0025C8  0101               462+N00012   DC    A(@FIXT)
0025CA  268C               463+         DC    A(F00008)
                           464 N00013   $TUXX T7867,02,0000,EQ,QT=(Q00110),YES=N00017,CT=(C00109)
0025CC  0500               465+N00013   DC    A(@TUXX)
0025CE  25F8               466+         DC    AL2(N00017)
0025D0  31DC               467+         DC    A(T7867)
0025D2  0000               468+         DC    AL2(EQ)
0025D4  0002               469+         DC    AL2(02)
0025D6  0000               470+         DC    X'0000'
                           471+         ALIGN WORD
0025D8  0000               472+         DC    AL2(0)
0025DA  C1C1               473+         DC    C'AA'
                           474+         ALIGN WORD
0025DC  196E               475+         DC     AL2(PARMARA)
                           476 N00014   $TUXX T3C02,02,0002,ON,QT=(Q00113),YES=N00016,CT=(C00112)
0025DE  0500               477+N00014   DC    A(@TUXX)
0025E0  25F4               478+         DC    AL2(N00016)
0025E2  2740               479+         DC    A(T3C02)
0025E4  0200               480+         DC    AL2(ON)
0025E6  0002               481+         DC    AL2(02)
0025E8  0002               482+         DC    X'0002'
                           483+         ALIGN WORD
0025EA  0000               484+         DC    AL2(0)
0025EC  C1C1               485+         DC    C'AA'
                           486+         ALIGN WORD
0025EE  196E               487+         DC     AL2(PARMARA)
                           488 N00015   $FIXT FT=(F00004),CT=(C00045)
0025F0  0101               489+N00015   DC    A(@FIXT)
0025F2  260C               490+         DC    A(F00004)
                           491 N00016   $FIXT FT=(F00008),CT=(C00045)
0025F4  0101               492+N00016   DC    A(@FIXT)
0025F6  268C               493+         DC    A(F00008)
                           494 N00017   $GOTO TYPE=XTRNL,EP=A,MAP=7822,FT=(F00121),GTO=((7822,A))
0025F8  0200               495+N00017   DC    A(@GOTO)
0025FA  2626               496+         DC    A(F00121)
0025FC  F7F8F2F2           497+         DC    CL4'7822'
002600  C140               498+         DC    CL2'A'
002602  0001               499+         DC    AL2(XTRNL)
002604  0000               500          DC    AL2(DUMMY)
002606                     501 ENTPT    EQU   *
                           502 ********************************************************************************
                           503 ********************************************************************************
                           504 **                                                                            **
                           505 **                        ENTRY POINT TABLE                                   **
                           506 **                                                                            **
                           507 ********************************************************************************
                           508 ********************************************************************************
                           509          ENTPT EP=A,STEP=00001
002606  C140               510+         DC    CL2'A'
002608  2548               511+         DC    A(N00001)
00260A  0000               512          DC    AL2(DUMMY)
                           513 ********************************************************************************
                           514 ********************************************************************************
                           515 **                                                                            **
                           516 **                        MESSAGE TABLE                                       **
                           517 **                                                                            **
                           518 ********************************************************************************
                           519 ********************************************************************************
00260C                     520 F00004   EQU   *
00260C  0003               521          DC    AL2(0003)
00260E  002C               522          DC    A(0044)
002610  D9C5D7D3C1C3C540F  523          DC    CL0044'REPLACE 4962 CARDS A-A1C2,A-A1D2,ATTACHMENT.'
00263C  002C               524          DC    A(0044)
00263E  C4D5E2D7C5C3E340C  525          DC    CL0044'INSPECT AND RESEAT CABLES BETWEEN ATTACHMENT'
00266A  0020               526          DC    A(0032)
00266C  C1D5C440F4F9F6F24  527          DC    CL0032'AND 4962. REPLACE A-A1G2,A-A1H2.'
00268C                     528 F00008   EQU   *
00268C  0002               529          DC    AL2(0002)
00268E  002A               530          DC    A(0042)
002690  D9C5D7D3C1C3C540F  531          DC    CL0042'REPLACE 4962 ATTACHMENT CARD, INSPECT AND '
0026BA  002A               532          DC    A(0042)
0026BC  D9C5E2C5C1E340C3C  533          DC    CL0042'RESEAT CABLES BETWEEN ATTACHMENT AND 4962 '
0026E6                     534 F00121   EQU   *
0025E6  0001               535          DC    AL2(0001)
```

```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

0026E8  0010                536          DC    A(0016)
0026EA  D4C1D7F7F8F2F140C   537          DC    CL0016'MAP7821 CORRECT '
                            538          HDIT  00B2
0026FA  0000                540+OPTN1 DC       X'0000'                 PROGRAM OPTION CONTROL WORD 1
                            541+*
0026FC  0000                542+OPTN2 DC       X'0000'                 PROGRAM OPTION CONTROL WORD 2
                            543+*                      BIT     HEX
000010                      544+B48   EQU   16      0       8          PROBLEM PROGRAM CONTROL BITS
000011                      545+B49   EQU   17      1       4          *
000012                      546+B50   EQU   18      2       2          * THESE BITS ARE USED WITH THE
000013                      547+B51   EQU   19      3       1          * SECOND OPTION WD   AND ARE TO
000014                      548+B52   EQU   20      4       8          * BE ASSIGNED BY EACH PROGRAMMER
000015                      549+B53   EQU   21      5       4          *
000016                      550+B54   EQU   22      6       2          *
000017                      551+B55   EQU   23      7       1          *
000018                      552+B56   EQU   24      8       8          *
000019                      553+B57   EQU   25      9       4          *
00001A                      554+B58   EQU   26     10       2          *
00001B                      555+B59   EQU   27     11       1          *
00001C                      556+B60   EQU   28     12       8          *
00001D                      557+B61   EQU   29     13       4          *
00001E                      558+B62   EQU   30     14       2          *
00001F                      559+B63   EQU   31     15       1          *
00001E                      560+CH    EQU   30     14       2          CHARACTER SUPPLIED
00001F                      561+CMP   EQU   31     15       1          COMPARE OPERATION
0026FE  0000                563+OPTN3 DC       X'0000'                 PROGRAM OPTION CONTROL WORD 3
                            564+*
                            565+*  0  MYSTERY INTERRUPT     MI        8  CS STATUS IN PROGRESS    CS
                            566+*  1  ERROR INTERRUPT       ER        9  CS AVAILABLE             CSA
                            567+*  2  EXPECTED INTERRUPT    XI       10  CS STATUS INTERRUPT ERR  CE
                            568+*  3  INTERRUPT RECEIVED    IN       11  ISB BITS ON (1-7)        ISBON
                            569+*
                            570+*  4  EXPECTED ERR/ATTENT   XE       12  TEST UNIT RESULTS VOID   NG
                            571+*  5  HARD ERROR FOUND      HE       13  OIO CC ERROR             IOCC
                            572+*  6  WRONG INTR LEVEL      $LE      14  NO INTERRUPT             NOIN
                            573+*  7  NO INTR EXPECTED      NI       15  INTERRUPT CC ERROR       INCC
                            574+*                     BIT     HEX
000020                      575+MI    EQU   32      0       8          MYSTERY INTERRUPT HAPPENED
000021                      576+ER    EQU   33      1       4          ERROR RECEIVED ON INTERRUPT
000022                      577+XI    EQU   34      2       2          EXPECTED INTERRUPT CONTROL BIT
000023                      578+IN    EQU   35      3       1          INTERRUPT RECEIVED CONTROL BIT
000024                      579+XE    EQU   36      4       8          EXPECTED ERROR RESPONSE
000025                      580+HE    EQU   37      5       4          HARD ERROR, 8 RETRIES
000026                      581+$LE   EQU   38      6       2          INTERRUPT ON WRONG LEVEL ERROR
000027                      582+NI    EQU   39      7       1          NO INTERRUPT EXPECTED E
000028                      583+CS    EQU   40      8       8          CYCLE STATUS IN PROGRESS
000029                      584+CSA   EQU   41      9       4          CYCLE STEAL AVAILABLE
00002A                      585+CE    EQU   42     10       2          CYCLE STEAL STATUS INERRRUPT ERROR
00002B                      586+ISBON EQU   43     11       1          ISB BITS ON (1-7)
00002C                      587+NG    EQU   44     12       8          TEST UNIT RESULTS NO GOOD
00002D                      588+IOCC  EQU   45     13       4          OIO CC ERROR
00002E                      589+NOIN  EQU   46     14       2          NO INTERRUPT
00002F                      590+INCC  EQU   47     15       1          INTERRUPT CC ERROR
                            591+*
                            592+*     COMMON BUFFER FOR PRINTING DATA
                            593+*
002700  0000                595+$TUID DC       A(*-*)                  TEST UNIT IDENTIFICATION
002702  0000                596+$IOIN DC       A(*-*)                  I/O AND INTR CONDITION CODES
002704  0000                597+$ISB  DC       A(*-*)                  P7, INTR STATUS BYTE & DEV ADRS
002706  0000                598+LSTIO DC       A(*-*)                  ADRS OF LAST I/O + 4 BYTES
002708  0000                599+DEV1  DC       A(*-*)                  DEVICE DEPENDENT DATA
00270A  0000                600+DEV2  DC       A(*-*)                  *
00270C  0000                601+DEV3  DC       A(*-*)                  *
00270E  0000                602+DEV4  DC       A(*-*)                  *
002708                      603+SCTID EQU      DEV1                    READ ID BUFFER FOR IBIS & TERN
002710                      604+DCBUF EQU      *                       DCB BUFFER FOP LAST DCB USED
002710  0000                605+DCB1  DC       A(*-*)                  LAST DCB TABLE, CONTROL WORD
002712  0000                606+DCB2  DC       A(*-*)                  LAST DCB TABLE, DEV DEP WORD
002714  0000                607+DCB3  DC       A(*-*)                  LAST DCB TABLE, DEV DEP WORD
002716  0000                608+DCB4  DC       A(*-*)                  LAST DCB TABLE, DEV DEP WORD
002718  0000                609+DCB5  DC       A(*-*)                  LAST DCB TABLE, DEV DEP WORD
00271A  0000                610+DCB6  DC       A(*-*)                  LAST DCB TABLE, CHAIN ADRS
00271C  0000                611+DCB7  DC       A(*-*)                  LAST DCB TABLE, BYTE COUNT
00271E  0000                612+DCB8  DC       A(*-*)                  LAST DCB TABLE, BUFFER ADDRESS
                            613+*
002720                      614+CSBUF EQU      *                       CYCLE STEAL DATA BUFFER
002720  0000                615+CSTL1 DC       A(*-*)                  CYCLE STEAL BUFFER, RESIDUAL ADRS
002722  0000                616+CSTL2 DC       A(*-*)                  CYCLE STEAL WD 2, DEVICE DEPEND
002724  0000                617+CSTL3 DC       A(*-*)                  CYCLE STEAL WD 3, DEVICE DEPEND
002726  0000                618+CSTL4 DC       A(*-*)                  CYCLE STEAL WD 4, DEVICE DEPEND
002728  0000                619+CSTL5 DC       A(*-*)                  CYCLE STEAL WD 5, DEVICE DEPEND
00272A  0000                620+CSTL6 DC       A(*-*)                  CYCLE STEAL WD 6, DEVICE DEPEND
00272C  0000                621+CSTL7 DC       A(*-*)                  CYCLE STEAL WD 7, DEVICE DEPEND
00272E  0000                622+CSTL8 DC       A(*-*)                  CYCLE STEAL WD 8, DEVICE DEPEND
                            623+*
002730  0000                624+$SUBN DC       A(*-*)                  LAST SUBPOUTINE ADDRESS USED
002732  00000000            625+$DATA DC      2A(*-*)                  OPTIONAL DATA
002736  0021                626+$INTL DC       X'0021'                 INTERRUPT LEVEL REQUESTED
002738  0000                627+TURTN DC       A(*-*)                  TEST UNIT RETURN ADRS TO MDI
00273A  00B2                628+$DVID DC       X'00B2'                 DEVICE ID
00273C  1900                629+SVCAL DC       A(DEVADD)               ADPS OF DEVICE ADDPESS
00273E  0000                630+      DC       A(*-*)                  IBIS CYLINDER ADDPESS
                            631+*
                            632+*     THIS TEST UNIT WILL RETURN TO MDI WITHOUT DOING ANY PPOGRAM
                            633+*     FUNCTION. THE RESULTS THAT WERE SET UP IN THE RESULTS AREA ARE
                            634+*     STILL VALID BUT A DIFFERENT TEST IS TO BE PERFORMED.
                            635+*
002740  4020 2700 3C02      636+T3C02 MVWI   X'3C02',$TUID            SET UP TEST UNIT ID
002746  5700                637+      BXS    (R7)                     RETURN TO MDI SUPVR
                            639       COPY  COMEQU
                            640 ************************************************************
                            641 *                                                          *
                            642 *            EQUATED NAMES FOR SUPPOPTED SVC'S             *
                            643 *                                                          *
                            644 ************************************************************
000000                      645 OUT   EQU   0                         OUT SVC
000001                      646 OUTIN EQU   1                         OUTIN SVC
000002                      647 IDLE  EQU   2                         IDLE SVC
000003                      648 ASCII EQU   3                         HEX TO ASCII SVC
000004                      649 CHNGE EQU   4                         CHANGE LEVEL SVC
000005                      650 PGMCK EQU   5                         ALLOW RETURN ON PPOGRAM CHECK SVC
000006                      651 EXIT  EQU   6                         EXIT SVC
000007                      652 TERM  EQU   7                         TERMINATE SVC
000008                      653 RESET EQU   8                         RESET DEVICE SVC
```



```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

000009                      654 RID   EQU   9                         READ ID SVC
00000A                      655 START EQU   10                        START CYCLE STEAL SVC
00000B                      656 STCSS EQU   11                        START CYCLE STEAL STATUS SVC
00000C                      657 PREP  EQU   12                        PREPARE DEVICE SVC
00000D                      658 READO EQU   13                        READ WITH FUNCTION BIT 3 OFF SVC
00000E                      659 READ1 EQU   14                        READ WITH FUNCTION BIT 3 ON SVC
00000F                      660 RSTAT EQU   15                        READ STATUS SVC
000010                      661 WRITO EQU   16                        WRITE WITH FUNCTION BIT 3 OFF SVC
000011                      662 WRIT1 EQU   17                        WRITE WITH FUNCTION BIT 3 ON SVC
000012                      663 CTRL  EQU   18                        CONTROL SVC
000013                      664 RICB  EQU   19                        RELEASE INTERUPT CONTROL BLOCK SVC
000014                      665 CICB  EQU   20                        CONNECT INTERUPT CONTROL BLOCK SVC
000015                      666 HIO   EQU   21                        HALT ALL I/O
000016                      667 REQSD EQU   22                        REQUEST USE OF DCP DISK SVC
000017                      668 RELSD EQU   23                        RELEASE USE OF DCP DISK SVC
000018                      669 HALT  EQU   24                        HALT SVC
000019                      670 ETOH  EQU   25                        EBCDIC TO HEX SVC (STRING)
00001A                      671 HTOE  EQU   26                        HEX TO EBCDIC SVC (STRING)
00001B                      672 ATOH  EQU   27                        ASCII TO HEX SVC (STRING)
00001C                      673 HTOA  EQU   28                        HEX TO ASCII SVC (STRING)
00001D                      674 ETOA  EQU   29                        EBCDIC TO ASCII SVC (STRING)
00001E                      675 ATOE  EQU   30                        ASCII TO EBCDIC SVC (STRING)
00001F                      676 READI EQU   31                        READ DATA SETS FOR MDI/UTIL
000020                      677 WRITI EQU   32                        WRITE DATA SETS FOR UTIL
                            679 ************************************************************
                            680 *                                                          *
                            681 *              EQUATES USED BY TU'S AS CONSTANTS           *
                            682 *                                                          *
                            683 ************************************************************
00004E                      684 PLUS  EQU   C'+'                      PLUS CHAR
000060                      685 MINUS EQU   C'-'                      MINUS CHAR
000000                      687 ZERO  EQU   0
000001                      688 ONE   EQU   1
000002                      689 TWO   EQU   2
000003                      690 THREE EQU   3
000004                      691 FOUR  EQU   4
000005                      692 FIVE  EQU   5
000006                      693 SIX   EQU   6
000007                      694 SEVEN EQU   7
000008                      695 EIGHT EQU   8
000009                      696 NINE  EQU   9
00000A                      697 TEN   EQU   10
00000B                      698 ELEVN EQU   11                                    11
00000C                      699 TWELV EQU   12                                    12
00000D                      700 THRTN EQU   13                                    13
00000F                      701 FIVTN EQU   15                                    15
000010                      702 SIXTN EQU   16                                    16
000020                      703 THRY2 EQU   32                                    32
000040                      704 SIXT4 EQU   64                                    64
000080                      705 ONE28 EQU   128                                   128
000100                      706 TWO56 EQU   256                                   256
000400                      707 ONEK  EQU   1024                                  1024
000800                      708 TWOK  EQU   2048                                  2048
000C00                      709 THREK EQU   3072                                  3072
001000                      710 FOURK EQU   4096                                  4096
FFFFFF                      712 M1    EQU   -1                                    -1
FFFFFE                      713 M2    EQU   -2                                    -2
FFFFFD                      714 M3    EQU   -3                                    -3
FFFFFC                      715 M4    EQU   -4                                    -4
                            717 ************************************************************
                            718 *                                                          *
                            719 *     THE FOLLOWING ARE EQUATES FOR BIT DISPLACEMENTS FROM THE     *
                            720 *     BEGINNING OF THE BYTE TO EACH BIT IN THE WORD OF SWITCHES.   *
                            721 *                                                          *
                            722 ************************************************************
000000                      723 BS0   EQU   0
000001                      724 BS1   EQU   1
000002                      725 BS2   EQU   2
000003                      726 BS3   EQU   3
000004                      727 BS4   EQU   4
000005                      728 BS5   EQU   5
000006                      729 BS6   EQU   6
000007                      730 BS7   EQU   7
000008                      731 BS8   EQU   8
000009                      732 BS9   EQU   9
00000A                      733 BS10  EQU   10
00000B                      734 BS11  EQU   11
00000C                      735 BS12  EQU   12
00000D                      736 BS13  EQU   13
00000E                      737 BS14  EQU   14
00000F                      738 BS15  EQU   15
                            740       COPY  CK78DCB                 01DEC76
                            741 ** (T7)DCB)                         13AUG76
                            742 ************************************************************
                            743 *
                            744 *     DCB TABLES AND DC'S
                            745 *
                            746 ************************************************************
                            747 *
                            748 ***** DIAGNOSTIC DCB   ********
                            749 *
002748  2008                750 DGDCB DC      X'2008'                     DIAGNOSTIC DCB
00274A  0000                751       DC      X'0000'                     NOT USED
00274C  0000                752       DC      X'0000'                     NOT USED
00274E  0000                753       DC      X'0000'                     NOT USED
002750  0000                754       DC      X'0000'                     NOT USED
002752  0000                755       DC      A(*-*)                      CHAINING ADDRESS
002754  0100                756       DC      X'0100'                     BYTE COUNT
002756  0000                757       DC      A(*-*)                      DATA ADDRESS
                            758 *
                            759 *
                            760 ***** RECALIBRATE DCB  ********
                            761 *
002758  0007                762 CLDCB DC      X'0007'                     RECALIBRATE DCB
00275A  00000000000000000   763       DC      7A(*-*)
                            764 *
                            765 ***** WRITE SECTOR ID  **
                            766 *
002768  0002                767 WSDCB   DC     X'0002'                     WRITE SECTOR ID CONTROL WORD
00276A  0000                768       DC      X'0000'                     NOT USED
00276C  0000                769       DC      A(*-*)                      0-7 = PHYSICAL SECTOR # MINUS ONE
00276E  0000                770       DC      A(*-*)                      NOT USED
002770  0000                771       DC      A(*-*)                      NOT USED
002772  0000                772       DC      A(*-*)                      CHAIN ADDRESS
```

```
 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
002774  0006              773        DC    X'0006'                BYTE COUNT
002776  2814              774        DC    A(WRSID)               ADDR OF SECTOR ID DATA
                          775 ***** READ SECTOR ID DCB  *******
                          776 *
002778  200A              777 RSDCB  DC    X'200A'                READ SECTOR ID
00277A  0000              778        DC    X'0000'                NOT USED
00277C  0000              779        DC    X'0000'                0-7 = PHYSICAL SECTOR # MINUS ONE
00277E  0000              780        DC    X'0000'                NOT USED
002780  0000              781        DC    X'0000'                NOT USED
002782  0000              782        DC    X'0000'                CHAIN ADDRESS
002784  0006              783        DC    X'0006'                BYTE COUNT FOR READ SECTOR ID
002786  2708              784        DC    A(SCTID)               SECTOR ID DATA ADDRESS
                          785 *
                          786 *
                          787 ***** READ SECTOR ID IMMEDIATE DCB  *******
                          788 *
002788  200E              789 RIDCB  DC    X'200E'                READ SECTOR ID
00278A  0000              790        DC    X'0000'                NOT USED
00278C  0000              791        DC    X'0000'                NOT USED
00278E  0000              792        DC    X'0000'                NOT USED
002790  0000              793        DC    X'0000'                NOT USED
002792  0000              794        DC    A(*-*)                 CHAIN ADDRESS
002794  0006              795        DC    X'0006'                BYTE COUNT FOR READ SECTOR ID
002796  2708              796        DC    A(SCTID)               SECTOR ID DATA ADDRESS
                          797 *
                          798 *
                          799 ***** SEEK DCB  ********
                          800 *
002798  0005              801 SKDCB  DC    X'0005'                SEEK DCB
00279A  0000              802        DC    X'0000'                BIT 0-3=0;BIT4=DIRECTION;5-15=DIFFER
00279C  0000              803        DC    F'0'
00279E  0000              804        DC    F'0'
0027A0  0000              805        DC    X'0000'                0-7 = HEAD;8-15 NOT USED
0027A2  0000              806        DC    A(*-*)                 CHAIN ADDRESS
0027A4  0000              807        DC    F'0'                   NOT USED
0027A6  0000              808        DC    F'0'                   NOT USED
                          809 *
                          810 ***** CYCLE STEAL STATUS DCB  ********
                          811 *
0027A8  2000              812 CSDCB  DC    X'2000'                CONTROL WORD
0027AA  0000              813        DC    F'0'                   NOT USED
0027AC  0000              814        DC    F'0'                   NOT USED
0027AE  0000              815        DC    F'0'                   NOT USED
0027B0  0000              816        DC    F'0'                   NOT USED
0027B2  0000              817        DC    F'0'                   NOT USED
0027B4  0008              818        DC    X'0008'                4 WORDS OF STATS
0027B6  2720              819        DC    A(CSBUF)               ADDRESS OF CYCLE STEAL STATUS DATA
                          820 *
                          821 ***** WRITE DCB  **********
                          822 *
0027B8  0001              823 WRDCB  DC    X'0001'                WRITE CONTROL WORD
0027BA  0000              824        DC    F'0'                   NOT USED
0027BC  0000              825        DC    X'0000'                0-7=0;8-15 = FLAG BYTE
0027BE  0000              826        DC    X'0000'                SERCH ARGUMENT CYLINDER
0027C0  0000              827        DC    X'0000'                SEARCH ARGUMENT HEAD-SECTOR
0027C2  0000              828        DC    A(*-*)                 CHAIN ADDRESS
0027C4  0000              829        DC    F'0'                   BYTE COUNT
0027C6  0000              830        DC    A(*-*)                 WRITE DATA ADDRESS
                          831 *
                          832 ***** VERIFY DCB   *******
                          833 *
0027C8  200C              834 VRDCB  DC    X'200C'                CONTROL WORD
0027CA  0000              835        DC    F'0'                   NOT USED
0027CC  0000              836        DC    X'0000'                0-7=0;8-15 = FLAG BYTE
0027CE  0000              837        DC    X'0000'                CYLINDER
0027D0  0000              838        DC    X'0000'                HEAD - SECTOR
0027D2  0000              839        DC    A(*-*)                 CHAIN ADDRESS
0027D4  0000              840        DC    F'0'                   BYTE COUNT
0027D6  0000              841        DC    A(*-*)                 VERIFY DATA ADDRESS
                          842 *
                          843 ***** READ DCB   *******
                          844 *
0027D8  2009              845 FDDCB  DC    X'2009'                READ DCB CONTROL WORD
0027DA  0000              846        DC    F'0'                   NOT USED
0027DC  0000              847        DC    X'0000'                0-7=0,8-15 = FLAG BYTE
0027DE  0000              848        DC    X'0000'                SEARCH ARGUMENT CYLINDER
0027E0  0101              849        DC    X'0101'                SEARCH ARGUMENT H-R
0027E2  0000              850        DC    A(*-*)                 CHAIN ADDRESS
0027E4  0000              851        DC    F'01'                  BYTE COUNT
0027E6  0000              852        DC    A(*-*)                 READ DATA ADDPESS
                          853 *
                          854 ****  WRITE SECTOR ID SKEWED   ****
                          855 *
0027E8  0003              856 WKDCB  DC    X'0003'                CONTROL WORD
0027EA  0000              857        DC    X'0000'                NOT USED
0027EC  0000              858        DC    A(*-*)                 0-7 = PHYSICAL SECTOR # MINUS ONE
0027EE  0000              859        DC    A(*-*)                 NOT USED
0027F0  0000              860        DC    A(*-*)                 NOT USED
0027F2  0000              861        DC    A(*-*)                 CHAIN ADDRESS
0027F4  0006              862        DC    X'0006'                BYTE COUNT
0027F6  2814              863        DC    A(WRSID)               ADDR OF SECTOR ID DATA
                          864 *
                          865 ****  READ SECTOR ID SKEWED    ****
                          866 *
0027F8  200B              867 RKDCB  DC    X'200B'                CONTROL WORD
0027FA  0000              868        DC    X'0000'                NOT USED
0027FC  0000              869        DC    X'0000'                0-7 = PHYSICAL SECTOR # MINUS ONE
0027FE  0000              870        DC    X'0000'                NOT USED
002800  0000              871        DC    X'0000'                NOT USED
002802  0000              872        DC    A(*-*)                 CHAIN ADDRESS
002804  0006              873        DC    X'0006'                BYTE COUNT FOR READ SECTOR ID
002806  2708              874        DC    A(SCTID)               SECTOR ID DATA ADDRESS
                          875 *
                          876 *      CONSTANTS AND DEFINED STORAGE  LOCATIONS
002808  0000              877 ZERO0  DC    X'0000'                CONSTANT ZERO
00280A  0001              878 ONE1   DC    X'0001'                CONSTANT ONE
00280C  0000              879 LGSEC  DC    X'0000'                LOGICAL SECTOR #
00280E  0000              880 PHYSC  DC    X'0000'                CONVERTED PHYSICAL SEC #
002810  1D00              881 CB29   DC    X'1D00'                CONSTANT BYTE 29
002812  3B00              882 FIVE9  DC    X'3B00'                CONSTANT BYTE 59
002814  0000              883 WRSID  DC    X'0000'                FLAG,CYLINDER (WRT SECTOR ID DATA)
002816  0000              884        DC    X'0000'                CYLINDER,HEAD
002818  0000              885        DC    X'0000'                LOG SECTOR,NOT USED
00281A  FF34              886 WSIDT  DC    X'FF34'                WRITE SECTOR ID TEST DATA
```



```
 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
00281C  5678              887        DC    X'5678'                *
00281E  9A00              888        DC    X'9A00'                *
002820  0000              889 SCTST  DC    X'0000'                READ SECTOR ID TEST DATA BUFFER
002822  0000              890        DC    X'0000'
002824  0000              891        DC    X'0000'                *
002826  0000              892 CTR01  DC    X'0000'                COUNTER
002828  0000              893 DIFF   DC    X'0000'                DIFFERENCE LOC
00282A  0000              894 XXX    DC    X'0000'                DIRECTION
                          895 *
                          897        COPY  T78DPCIO                 01DEC76
                          898 ** (T78DPCIO)
                          899 *                                                                        2/07/77
                          900 *      EXECUTE DPC INPUT/OUTPUT COMMANDS
                          901 *      THIS ROUTINE HAS THE FOLLOWING ENTRIES:
                          902 *
                          903 *  1   BAL   CEOP1,R6                 CE DIAGNOSTIC OP1(TURN ON DIAG MODE)
                          904 *
                          905 *  2   BAL   CEOP2,R6                 WRITE DIAG CLOCK STEP DATA
                          906 *
                          907 *  3   BAL   SENS0,R6                 CE READ SENSE WORD ZERO
                          908 *
                          909 *  4   BAL   SENS1,R6                 CE READ SENSE WORD ONE
                          910 *
                          911 *  5   BAL   WRAP,R6                  READ DIAGNOSTIC WRAP
                          912 *
                          913 *      BXS   (R6,2)                   RETURN
                          914 *
                          915 ************************************************************************
                          916 *
                          917 *      CE DIAGNOSTIC OP2 DATA WORD  (CLOCK STEP)
                          918 *
                          919 *      BIT 00  - SET READY
                          920 *      BIT 01  - RESET READY
                          921 *      BIT 02  - SET WRITE CLOCK
                          922 *      BIT 03  - SET READ CLOCK
                          923 *      BIT 04  - INDEX PULSE
                          924 *      BIT 05  - SECTOR PULSE
                          925 *      BIT 06  - STANDARD READ DATA
                          926 *      BIT 07  - SPEED PULSE
                          927 *      BIT 08  - BEHIND HOME
                          928 *      BIT 09  - SET SEEK COMPLETE
                          929 *      BIT 10  - RESET SEEK COMPLETE
                          930 *      BIT 11  - PLO OUT OF SYNC
                          931 *      BIT 12  - FST RD/WRT CLOCK
                          932 *      BIT 13  -
                          933 *      BIT 14  -
                          934 *      BIT 15  - FESET DIAGNOSTIC MODE
                          935 *
                          936 ************************************************************************
                          937 *
                          938 *
002828  6E0D 2706         939 WRAP   MVW   R6,LSTIO                  SAVE ADDRESS OF LAST IO
00282E  8028 19D0 28AF    940        MVB   DEVADD,IDCBPAP+1         LOAD DEVICE ADDRESS IN IDCB
002836  680C 28AE         941        IO    IDCBPAP                  READ SENSE WORD 1
00283A  6F05 2890         942        BNCC  7,CCERR                  CHECK COND CODE
00283E  5601              943        BXS   (R6,2)                   RETURN TO CALLER
                          944 *
002840  6E0D 2706         945 CEOP1  MVW   R6,LSTIO                  SAVE ADDRESS OF LAST IO
002844  8028 19D0 28A7    946        MVB   DEVADD,IDCBCE1+1         LOAD DEVICE ADDRESS IN IDCB
00284A  680C 28A6         947        IO    IDCBCE1                  SET DIAGNOSTIC MODE
00284E  6F05 2890         948        BNCC  7,CCERR                  CHECK COND CODE
002852  5601              949        BXS   (R6,2)                   RETURN TO CALLER
                          950 *
002854  6E0D 2706         951 CEOP2  MVW   R6,LSTIO                  SAVE ADDRESS OF LAST IO
002858  8028 19D0 28AB    952        MVB   DEVADD,IDCBCE2+1         LOAD DEVICE ADDRESS IN IDCB
00285E  680C 28AA         953        IO    IDCBCE2                  WRITE DIAG CLOCK STEP
002862  6F05 2890         954        BNCC  7,CCERR                  CHECK COND CODE
002866  5601              955        BXS   (R6,2)                   RETURN TO CALLER
                          956 *
                          957 *
002868  6E0D 2706         958 SENS1  MVW   R6,LSTIO                  SAVE ADDRESS OF LAST IO
00286C  8028 19D0 28A3    959        MVB   DEVADD,IDCB1+1           LOAD DEVICE ADDRESS IN IDCB
002872  680C 28A2         960        IO    IDCB1                    READ SENSE WORD 2
002876  6F05 2890         961        BNCC  7,CCERR                  CHECK COND CODE
00287A  5601              962        BXS   (R6,2)                   RETURN TO CALLER
                          963 *
00287C  6E0D 2706         964 SENS0  MVW   R6,LSTIO                  SAVE ADDRESS OF LAST IO
002880  8028 19D0 289F    965        MVB   DEVADD,IDCB0+1           LOAD DEVICE ADDRESS IN IDCB
002886  680C 289E         966        IO    IDCB0                    READ SENSE WORD 1
00288A  6F05 2890         967        BNCC  7,CCEPR                  CHECK COND CODE
00288E  5601              968        BXS   (R6,2)                   RETURN TO CALLER
                          969 *
002890  706E              970 CCERP  DC    X'706E'                COPY STATUS ANY LEVEL INTO R3
002892  336A              971        SRL   13,R3                    POSITION CC CODE TO BITS 13-15
002894  C328 2702         972        MVB   R3,SIOIN                 * PUT IN LOG AREA
002898  68D2 0000         973        B     (R6)*                    RETURN TO USER
                          974 *
00289C  6F05              975 IORST  DC    X'6F05'                RESET IO
00289E  2205              976 IDCB0  DC    X'2205'                SENSE WORD ZERO
0028A0  0000              977 RDATA0 DC    A(*-*)                 DATA WORD
0028A2  2105              978 IDCB1  DC    X'2105'                SENSE WORD ONE
0028A4  0000              979 RDATA  DC    A(*-*)
0028A6  4005              980 IDCBCE1 DC   X'4005'                CE DIAG OP1
0028A8  0000              981 CEDAT  DC    A(*-*)                 SENSE DATA
0028AA  4105              982 IDCBCE2 DC   X'4105'                CE DIAG OP2
0028AC  0000              983 CEDAT2 DC    A(*-*)                 SENSE DATA
0028AE  2F05              984 IDCBRAP DC   X'2F05'                READ DIAG WRAP
0028B0  0000              985 RAPDAT DC    A(*-*)                 SENSE DATA
000232                    986 CPUID  EQU   X'0232'                CPU ID
                          987 *
                          989        COPY  CK78IO                   01DEC76
                          990 ** (T78IO)                           01DEC76
                          991 *
                          992 *      EXECUTE INPUT & OUTPUT COMMANDS
                          993 *      TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.
                          994 *      EACH OF THESE ENTRIES SET R7 WITH THE ADRS OF ITS PARAMETER
                          995 *      LIST AND ANY SPECIAL SWITCHES BEFORE BRANCHING TO THE
                          996 *      SUPVR CALL.
                          997 *
                          998 *      THIS SUBROUTINE WILL CHECK FOR THE FOLLOWING:
                          999 *
                         1000 *      1. LOST INTERRUPTS BY TIMING OUT A COUNTING LOOP
                         1001 *      2. ERROR INTERRUPTS RECEIVED FROM SUPVR
                         1002 *      3. LOOP ON ERROR, THE CALL MUST HAVE A 'DC' STATEMENT AFTER
```

```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                           1003 *     .  THE CALL WITH THE ADDRESS OF THE RETPY STATEMENT
                           1004 *     4. CYCLE STEAL IN PROGRESS WITH AN ERROR
                           1005 *     5. SOMETHING ELSE
                           1006 *
                           1007 *     THIS ROUTINE HAS THE FOLLOWING ENTRIES:
                           1008 *
                           1009 * 1   BAL   $RKEW,R6              READ SECTOR ID SKEWED
                           1010 *
                           1011 * 2   BAL   $WKST,R6              WPITE SECTOP ID SKEWED (TEST)
                           1012 *
                           1013 * 3   BAL   $PWST,R6              READ SECTOR ID SKEWED (TEST)
                           1014 *
                           1015 * 4   BAL   $RIDS,R6              READ SECTOR ID (TEST)
                           1016 *
                           1017 * 5   BAL   $WKEW,R6              WRITE SECTOP ID SKEWED
                           1018 *
                           1019 * 6   BAL   $WSEC,R6              WPITF SECTOR ID
                           1020 *
                           1021 * 7   BAL   $WSTS,R6              WPITE SECTOR ID (TEST
                           1022 *
                           1023 * 8   BAL   $DIAG,R6              DIAGNOSTIC
                           1024 *
                           1025 * 9   BAL   XIOCS,R6              CYCLE STEAL STATUS
                           1026 *
                           1027 * 10  BAL   $SEEK,R6              SEEK
                           1028 *
                           1029 * 11  BAL   $PECL,P6              RECALIBRATE
                           1030 *
                           1031 * 12  BAL   $PDID,R6              READ SECTOR ID
                           1032 *
                           1033 * 13  BAL   $RD,R6                PEAD
                           1034 *
                           1035 * 14  BAL   $RDVY,R6              PEAD VEPIFY
                           1036 *
                           1037 * 15  BAL   $WRT,R6               WRITE
                           1038 *
                           1039 *
0028B2  4020 2A6C 2798     1040 $SEEK MVA   SKDCB,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
0028B8  5058               1041       J     XIO
                           1042 *
0028BA  4020 2A6C 2758     1043 $RECL MVA   CIDCB,IODCB           SET UP BLOCK FOR SVC CALL
0028C0  5054               1044       J     XIO
                           1045 *
0028C2  4020 2A6C 2778     1046 $RDID MVA   RSDCB,IODCB           SET UP BLOCK FOR SVC CALL
0028C8  0BFF               1047       MVBI  X'FF',R3             SET BUFFER TO F'S
0028CA  4524 2708          1048       MVA   SCTID,R5             SETUP READ SECTOR ID BUFFER ADPS
0028CE  4724 0006          1049       MVWI  6,R7                 SETUP BUFFER LENGTH
0028D2  2BAC               1050       FFN   R3,(R5)              INIT READ SECTOR ID BUFFER
0028D4  4020 2786 2708     1051       MVA   SCTID,RSDCB+14       DATA ADDP
0028DA  5047               1052       J     XIO
                           1053 *
0028DC  4020 2A6C 27D8     1054 $RD   MVA   RDDCB,IODCB           SET UP BLOCK FOR SVC CALL
0028E2  5043               1055       J     XIO
                           1056 *
0028E4  4020 2A6C 27C8     1057 $RDVY MVA   VRDCB,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
0028EA  503F               1058       J     XIO
                           1059 *
0028EC  4020 2A6C 27B8     1060 $WRT  MVA   WRDCB,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
0028F2  503B               1061       J     XIO
                           1062 *
0028F4  4020 2A6C 27F8     1063 $RKEW MVA   RKDCB,IODCB            SET UP CONTPOL BLOCK FOR SVC CALL
0028FA  4020 2806 2708     1064       MVA   SCTID,PKDCB+14         DATA ADDR
002900  5034               1065       J     XIO
                           1066 *
002902  4020 2A6C 27E8     1067 $WKST MVA   WKDCB,IODCB           SET UP CONTPOL BLOCK FOR SVC CALL
002908  4020 27F6 281A     1068       MVA   WSIDT,WKDCB+14       DATA ADDR
00290E  502D               1069       J     XIO
                           1070 *
002910  4020 2A6C 27F8     1071 $RWST MVA   RKDCB,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
002916  4020 2806 2820     1072       MVA   SCTST,PKDCB+14       DATA ADDR
00291C  5026               1073       J     XIO
                           1074 *
00291E  4020 2A6C 2778     1075 $RIDS MVA   RSDCB,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
002924  0BFF               1076       MVBI  X'FF',R3             SET BUFFER TO F'S
002926  4524 2820          1077       MVA   SCTST,R5             SETUP READ SECTOR ID BUFFER ADRS
00292A  4724 0006          1078       MVWI  6,R7                 SETUP BUFFER LENGTH
00292E  2BAC               1079       FFN   R3,(R5)              INIT READ SECTOR ID BUFFER
002930  4020 2786 2820     1080       MVA   SCTST,RSDCB+14       DATA ADDR
002936  5019               1081       J     XIO
                           1082 *
002938  4020 2A6C 27E8     1083 $WKEW MVA   WKDCB,IODCB            SET UP CONTROL BLOCK FOR SVC CALL
00293E  4020 27F6 2814     1084       MVA   WRSID,WKDCB+14       DATA ADDR
002944  5012               1085       J     XIO
                           1086 *
002946  4020 2A6C 2768     1087 $WSEC MVA   WSDCB,IODCB            SET UP CONTROL BLOCK FOR SVC CALL
00294C  4020 2776 2814     1088       MVA   WRSID,WSDCB+14       DATA ADDR
002952  500B               1089       J     XIO
002954  4020 2A6C 2768     1090 $WSTS MVA   WSDCB,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
00295A  4020 2776 281A     1091       MVA   WSIDT,WSDCB+14       DATA ADDR
002960  5004               1092       J     XIO
                           1093 *
002962  4020 2A6C 2748     1094 $DIAG MVA   DGDCB,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
002968  5000               1095       J     XIO
                           1096       XEQIT
                           1097+*************************************************************29JUL76**
                           1098+*
                           1099+* SUB-ROUTINE
                           1100+*
                           1101+*     EXECUTE INPUT AND OUTPUT COMMANDS
                           1102+*
                           1103+* PURPOSE
                           1104+*
                           1105+*     TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.
                           1106+*     THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:
                           1107+*
                           1108+*        1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED
                           1109+*           THE I/O COMMAND.
                           1110+*        2. SAVES THE DCB BLOCK USED UNLESS IT IS A START CYCLE STATUS
                           1111+*           ISSUED BY THIS SUBROUTINE.
                           1112+*        3. CLEAR OUT THE CYCLE STEAL STATUS STORAGE UNLESS THE
                           1113+*           START CYCLE STATUS WAS ISSUED BY THIS SUBROUTINE.
                           1114+*        4. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT
                           1115+*           SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND,
                           1116+*           MYSTERY INTEPRUPT (MI) CONTROL BIT IS SET.
```



```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                           1117+*     5. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE
                           1118+*        EXPECTED INTEPRUPT CONTPOL BIT AND ISSUE THE 'SVC  START'.
                           1119+*     6. WHEN THE SUPVR RETURNS AFTER ISSUING THE I/O COMMAND, TIMING
                           1120+*        STARTS TO DETERMINE A LOST INTERRUPT.
                           1121+*     7. EXCEPT THE INTEFFUPT AND GATHER INFORMATION TO DETERMINE IF IT
                           1122+*        WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL.
                           1123+*     8. CHECK IF THERE WAS A WPONG INTERPUPT LEVEL.
                           1124+*     9. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN.
                           1125+*    10. CHECK IF THEPE WAS AN ERROR CONDITION, IF NOT RETURN.
                           1126+*    11. CHECK TO SEE IF THE EXERCISER IS TO BE TERMINATED.
                           1127+*    12. CHECK IF A CYCLE STEAL OPEPATION WAS IN PPOGPESS THAT WAS
                           1128+*        ISSUED BY THIS SUBROUTINE.
                           1129+*    13. CHECK THE ISB BITS THAT APE ON. IF BIT 0 IS ON, ISSUE A
                           1130+*        CYCLE STEAL STATUS COMMAND. CHECK FOR ANY OTHER BIT BEING ON,
                           1131+*        COUNT IT AND SET UP THE PROPEP ERROR MESSAGE TO BE PRINTED.
                           1132+*
                           1133+* CALLING SEQUENCE
                           1134+*
                           1135+*     THIS ROUTINE HAS THE FOLLOWING ENTRIES:
                           1136+*
                           1137+* --> BAL   XIO        OP          XEQ ANY CYCLE STEAL COMMAND, MOD=0
                           1138+* --> BAL   XIO1                   MOD PARM PRELOADED IN 'IOMOD'
                           1139+* --> BAL   XIOCS,R6   OR         XEQ START CYCLE STEAL STATUS, MOD=F
                           1140+* --> BAL   XIOCS-4,R6            AUTO CS STATUS (FOLLOWING OTHER XIO
                           1141+*     .                           AND DOES NOT POST INTEFRUPT STATUS)
                           1142+*
                           1143+* RETURN CONTROL
                           1144+*
                           1145+*     BXS   (R6,2)                RETURN TO USER NO EPROR
                           1146+* OR  B     (R6)*                 RETURN AND RETRY ON ERROR
                           1147+*************************************************************************
002964  CB25 2A6E          1149+XIO   MVWZ  IOMOD,P3              SPT MOF OF 0 FOR CYCLE STEAL OP
002968  500A               1150+      J     XIO1                  CS I/O'S ARE NOT RETRIED
                           1151+*
00296A  4CAA               1152+      TBTR  (R4,CE)               RESET CS STATUS INTER EPROR INDICAT.
00296C  4C68               1153+      TBTS  (R4,CS)               SET 'CYCLE STEAL STATUS' IN PROGRESS
00296E  4020 2A6C 27A8     1154+XIOCS MVA   CSDCB,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
002974  4020 2A6E 000F     1155+      MVWI  X'000F',IOMOD         SET CYCLE STEAL MODIFIER
00297A  4C28               1156+      TBT   (R4,CS)               IS CS IN PROGRESS, EPROP CONDITION
00297C  1213               1157+      JON   XIO2                  * YES, BYPASS SAVING I/O ADRS
00297E  6E0D 2706          1158+XIO1  MVW   R6,ISTIO              SAVE IAF FOP RETRY IF REQUESTED
002982  4324 2710          1159+      MVA   DCBUF,R3              SPT UP TO ADRS TO MOVE DCB TABLE
002986  6D08 2A6C          1160+      MVW   IODCB,R5              * AND THE FROM ADRS, ALONG WITH
00298A  0F10               1161+      MVBI  16,R7                 * THE NUMBER OF MOVES
00298C  2D64               1162+      MVFN  (R5),(R3)             MOVE 1 STATUS WORD AND ADJUST
00298E  0BFF               1163+      MVBI  255,R3                CLEAR CYCLE STATUS BUFFER
002990  4524 2720          1164+      MVA   CSID,R5               *   TO ALL ONES  *
002994  0F10               1165+      MVBI  16,R7                 *
002996  2BAC               1166+      FFN   R3,(R5)               *
002998  4020 2702 0708     1167+      MVWI  X'0708',$IOIN         OVERLAY OLD CONDITION CODES
00299E  CB25 2704          1168+      MVWZ  $ISB,R3               ZEPO OUT OLD ISB VALUE
                           1169+*
0029A2  4CA1               1170+      TBTR  (R4,ER)               RESET ANY EPROR BEFORE I/O COMMAND
0029A4  4CA3               1171+XIO2  TBTR  (R4,IN)               CLEAR INTERRUPT PECEIVED CNTL BIT
0029A6  4724 2A68          1172+      MVA   IOBLK,R7              SET UP CONTROL BLOCK FOR SUPVP
0029AA  4CA6               1173+      TBTR  (R4,SLE)              RESET LEVEL ERPOR INDICATOR
0029AC  4C62               1174+      TBTS  (R4,XI)               SET EXPECTED INTR CONTROL BIT
0029AE  600A               1175+      SVC   START                 CALL SUPVR FOR I/O COMMAND
                           1176+*
0029B0  4CA7               1177+      TBTR  (R4,NI)               IS AN INTR EXPECTED
0029B2  6AC0 0002          1178+      BN    (R6,2)                * NO, RETURN TO USEP
                           1179+*
                           1180+*           THE INTR SHOULD OCCUR WHILE SPINNING IN THE NEXT SECTION
                           1181+*
0029B4  0D00               1182+      MVBI  X'00',R5              SET UP WORK REG FOR 'LOST INTP'
0029B6  4CA3               1183+XIO8  TBTR  (R4,IN)               HAS INTERRUPT BEEN RECEIVED
0029B8  1238               1184+      JON   XIOCK                 * YES, CHECK IF ALL WAS SATISFACTORY
0029BA  6002               1185+      SVC   IDLE                  ALLOW ANOTHER PROGRAM A CHANCE TO RUN
                           1186+*                                 SUPVR WILL RETURN HERE
0029BC  7DA1 0001          1187+      AWI   1,R5                  ADVANCE TIME OUT COUNT
0029C0  18FA               1188+      JNZ   XIO8                  BCH IF TIME OUT NOT REACHED
0029C2  4C61               1189+      TBTS  (P4,ER)               SET ON ERROR CONTROL BIT
0029C4  68D2 0000          1190+      B     (R6)*                 ERR 'NO INTERRUPT'
                           1192+*************************************************************03FEB76**
                           1193+*
                           1194+* SUBROUTINE
                           1195+*
                           1196+*     I/O EXECUTE ERROR HANDLING ROUTINE
                           1197+*
                           1198+* PURPOSE
                           1199+*
                           1200+*     THIS ROUTINE WILL COLLFCT INFORMATION TO HELP DETERMINE THE
                           1201+*     PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE
                           1202+*     SUPERVISOR AND IT WAS NOT ACCEPTED.
                           1203+*
                           1204+* CALLING SEQUENCE
                           1205+*
                           1206+*     SUPVR WILL ENTER WHEN AN ERROR OCCUPS ON AN I/O COMMAND
                           1207+*
                           1208+* RETURN CONTROL
                           1209+*
                           1210+*     B     (R6)*                 RETURN TO USERS ERROR HANDLER
                           1211+*
                           1212+*************************************************************************
                           1213+*
                           1214+* CC          0= DEVICE NOT ATTACHED
                           1215+* FOR         1= DEVICE BUSY
                           1216+* I/O         2= DEVICE BUSY AFTER RESET
                           1217+*           3= COMMAND REJECT
                           1218+*           4= INTERVENTION REQUIRED
                           1219+*           5= INTERFACE DATA CHECK
                           1220+*           6= CONTROLLER BUSY
                           1221+*           7= I/O COMMAND EXCEPTED
                           1222+*
0029C6  706E               1223+XIOER DC    X'706E'               COPY STATUS ANY LEVEL INTO R3
0029C8  336A               1224+      SRL   13,R3                 POSITION CC CODE TO BITS 13-15
0029CA  C328 2702          1225+      MVB   R3,$IOIN              * PUT IN LOG OUT AREA
0029CE  68D2 0000          1226+      B     (R6)*                 RETURN TO USER ERROP HANDLER
                           1228+*************************************************************14APR76**
                           1229+*                                                                    IL
                           1230+* SUB-ROUTINE                                                       IL
                           1231+*                                                                    IL
                           1232+*     ERROR INTERRUPT             RUNS ON INTERRUPT LEVEL '$INTL'    IL
                           1233+*                                                                    IL
```

```
 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                         1234+* PURPOSE                                                  IL
                         1235+*                                                          IL
                         1236+*      THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR   IL
                         1237+*      OR THE INTERRUPTING CONDITION CODE DOES NOT AGREE WITH THE     IL
                         1238+*      EXPECTED CODE.                                      IL
                         1239+*                                                          IL
                         1240+* CALLING SEQUENCE                                        IL
                         1241+*                                                          IL
                         1242+*      SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT      IL
                         1243+*                                                          IL
                         1244+* RETURN CONTROL                                         IL
                         1245+*                                                          IL
                         1246+*      SVC   EXIT                    RETURN TO USER VIA SUPVR          IL
                         1247+*                                                          IL
                         1248+*****************************************************************IL
                         1249+*                                                          IL
                         1250+* CC        0= CONTROLLER END              ISB   0= ADD STATUS   IL
                         1251+* FOR       1= PROGRAM CONTROL INTERRUPT   BITS  1= COMD REJECT  IL
                         1252+* INTR      2= EXCEPTION INTERRUPT         FOR   2= INCOR LENGTH IL
                         1253+*           3= DEVICE END INTERRUPT        INTR  3= DCB SPEC CK  IL
                         1254+*           4= ATTENTION INTERRUPT               4= STG DATA CK  IL
                         1255+*           5= ATTENTION / PROGRAM CNTL INTR     5= INV STG ADRS IL
                         1256+*           6= ATTENTION / EXCEPTION INTR        6= PROTRCT CK   IL
                         1257+*           7= ATTENTION / DEVICE END INTR       7= I-FACE DATA  IL
                         1258+*                                                          IL
0029DC  706E             1259+INTER DC    X'706E'          COPY STATUS ANY LEVEL INTO R3  IL
0029DE  336A             1260+      SRL   13,R3            POSITION INDICATORS IN R3      IL
0029E0  4424 26FA        1261+      MVA   OPTN1,R4         SET UP BASE ADRS               IL
0029E4  4C28             1262+      TBT   (R4,CS)          IS CS IN PROGRESS              IL
0029E6  1006             1263+      JOFF  INTES            * NO                           IL
0029E8  4C6A             1264+      TBTS  (R4,CE)          TURN ON CYCLE STEAL INTER ERROR IL
0029EA  6F0D 272E        1265+      MVW   R7,CSTL8         SAVE CS ERR ISB VALUE, BITS 0-7 IL
0029EE  C328 272F        1266+      MVB   R3,CSTL8+1       * AND THE COND CODE            IL
0029F2  500A             1267+      J     INTR1                                           IL
0029F4  4C24             1268+INTES TBT   (R4,XE)          TEST  EXPECTED ATTEN / ERROR IND IL
0029F6  1002             1269+      JOFF  INTET            BCH IF NOT EXPECTED            IL
0029F8  F304             1270+      CBI   4,R3             IS THIS AN 'ATTENTION' INTR    IL
0029FA  1006             1271+      JE    INTR1            * YES, BCH TO END INTR SEQUENCE IL
0029FC  4C61             1272+INTET TBTS  (R4,ER)          SET ERROR ON I/O COMMAND CNTL BIT IL
0029FE  5004             1273+      J     INTR1                                           IL
                         1274+*                           THE ERROR INTERRUPT USES THE SAME IL
                         1275+*                           ENDING SEQUENCE AS THE NORMAL INTR IL
                         1277+*****************************************************14APR76IL
                         1278+*                                                          IL
                         1279+* SOUBROUTINE                                            IL
                         1280+*                                                          IL
                         1281+*      OKAY  INTERRUPT           RUNS ON INTERRUPT LEVEL '$INTL'  IL
                         1282+*                                                          IL
                         1283+* PURPOSE                                                 IL
                         1284+*                                                          IL
                         1285+*      TO CHECK THE INTERRUPT AND CONTINUE THE TEST                IL
                         1286+*                                                          IL
                         1287+* CALLING SEQUENCE                                       IL
                         1288+*                                                          IL
                         1289+*      SUPERVISOR WILL ENTER HERE  IF INTR CC IS AS REQUESTED      IL
                         1290+*      THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS ROUTINE     IL
                         1291+*      AFTER THE SPECIAL PART HAS BEEN COMPLETED  AND THE          IL
                         1292+*      COMMON SECTION IS HANDLED HERE.                             IL
                         1293+*                                                          IL
                         1294+* RETURN CONTROL                                         IL
                         1295+*                                                          IL
                         1296+*      SVC   EXIT                    RETURN TO USER VIA SUPVR          IL
                         1297+*                                                          IL
                         1298+*****************************************************************IL
002A00  706F             1299+INTOK DC    X'706E'          COPY STATUS ANY LEVEL INTO R3  IL
002A02  336A             1300+      SRL   13,R3            POSITION INDICATORS IN R3      IL
002A04  4424 26FA        1301+      MVA   OPTN1,R4         SET UP BASE ADRS               IL
002A08  4C63             1302+INTR1 TBTS  (R4,IN)          SET  INTERRUPT RECEIVED        IL
002A0A  4C28             1303+      TBT   (R4,CS)          IS 'CS IN PROGRESS' ON         IL
002A0C  1204             1304+      JON   INTR2            * YES, BCH AROUND UPDATE       IL
002A0E  C328 2703        1305+      MVB   R3,$IOIN+1       SAVE INTERRUPTING CC CODE      IL
002A12  6F0D 2704        1306+      MVW   R7,$ISB          SAVE INTR STATUS AND DEV ADRS  IL
002A16                   1307+INTR2 EQU   *                                             IL
                         1308+*     CPCL  R5               CURRENT LEVEL COPIED BY DCP    IL
002A16  3521             1309+      SLL   4,R5             POSITION INTR LEVEL AND PUT    IL
002A18  0501             1310+      ABI   1,R5             * IN 'I' BIT                   IL
002A1A  CD24 2736        1311+      CW    $INTL,R5         IS THIS THE CORRECT INTR LEVEL IL
002A1E  1002             1312+      JE    INTR3            * YES, GO EXIT THIS LEVEL      IL
002A20  4C66             1313+      TBTS  (R4,LE)          SET INTR LEVEL ERROR CONTROL BIT IL
002A22  4C61             1314+      TBTS  (R4,EE)          SET ERROR ON I/O COMMAND CNTL BIT IL
002A24  4CA2             1315+INTR3 TBTR  (R4,XI)          WAS INTERRUPT EXPECTED         IL
002A26  1204             1316+      JON   INTRX            * YES, EXIT OFF THIS INTR LEVEL IL
002A28  4C60             1317+      TBTS  (R4,MI)          * NO, SET MYSTERY INTR CONTROL BIT IL
002A2A  F304             1318+      CBI   4,R3             ATTENTION INTERRUPT?           IL
002A2C  1001             1319+      JE    INTRX            YES                            IL
002A2E  4C6C             1320+      TBTS  (R4,NG)          ERROR,UNEXPECTED INTERRUPT     IL
002A30  6006             1321+INTRX SVC   EXIT             EXIT THIS LEVEL VIA SUPVR TO PGM IL
                         1323+*****************************************************03FEB76**
                         1324+*
                         1325+*      THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT
                         1326+*      HAS BEEN SERVICED. THE EXERCISER FINDS AN INTERRUPT HAS BEEN
                         1327+*      RECEIVED AND BRANCHES HERE TO CHECK FOR ANY ERROR CONDITIONS.
                         1328+*
                         1329+*
002A32  4CA4             1330+XIOCK TBTR  (R4,XE)          WAS AN ERROR EXPECTED
002A34  6AC0 0002        1331+      BN    (R6,2)           * YES, EXIT THIS ROUTINE
002A38  4CA8             1332+      TBTR  (R4,CS)          WAS AUTO CS IN PROGRESS
002A3A  1006             1333+      JOFF  XIOCV            * NO, CONTINUE CHECKING
002A3C  4C2A             1334+      TBT   (R4,CE)          IS CS IN AN ERR CONDITION
002A3E  1002             1335+      JOFF  XIOCO            * NO, BCH
002A40  68D2 0000        1336+      B     (R6)*            CS ERROR
002A44  4C69             1337+XIOCO TBTS  (R4,CSA)         TURN ON CS STATS AVAIL FLAG
002A46  5601             1338+      BXS   (R6,2)           GO TO USER
002A48  4C21             1339+XIOCV TBT   (R4,ER)          WAS ERROR INTR CONTROL BIT ON
002A4A  100B             1340+      JOFF  XIOCX            * NO, EXIT THIS ROUTINE
                         1341+*
002A4C  C520 2703        1342+      MVB   $IOIN+1,R5       GET LAST INTR CC CODE
002A50  F502             1343+      CBI   2,R5             IS THIS CC=2
002A52  68D1 0000        1344+      BNE   (R6)*            * NO, BCH TO ERROR HANDLER
002A56  C520 2704        1345+XIOCQ MVB   $ISB,R5          GET LAST ISB DATA BYTE AND IF CS
002A5A  6A00 2970        1346+      BN    XIOCS-4          * AVAILABLE, GO AND GET IT
002A5E  68D2 0000        1347+      B     (R6)*            ERROR
002A62  CB25 26FE        1348+XIOCX MVWZ  OPTN3,R3         CLEAR OUT OPTION 3 CNTL BITS
002A66  5601             1349+      BXS   (R6,2)           RETURN TO USER VIA REG 6
```



```
 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                         1350+*
                         1351+*           I/O   PARAMETER LIST
                         1352+*
002A68  19D0             1353+IOBLK DC    A(DEVADD)              ADRS OF DEVICE ADRS
002A6A  29D0             1354+      DC    A(XIOER)               ERROR ROUTINE ADRS
002A6C  0000             1355+IODCB DC    A(*-*)                 DCB ADRS OR LEVEL & INTR
002A6E  0000             1356+IOMOD DC    A(*-*)                 MODIFIER
002A70  0000             1357+      DC    A(*-*)                 ADRS OF LAST SVC CALL
002A72  0000             1358+IORSP DC    A(*-*)                 SECOND WORD OF LAST IDCB
                         1359+*
                         1360+*           INTERRUPT CONTROL BLOCK FOR I/O COMMANDS
                         1361+*
002A74  19D0             1362+INTBL DC    A(DEVADD)              ADRS OF DEVICE ADRS
002A76  2A00             1363+      DC    A(INTOK)               INTERRUPT OK RETURN ADRS
002A78  29DC             1364+      DC    A(INTER)               INTERRUPT ERROR ADRS
002A7A  0003             1365+INTCC DC    X'0003'                INTERRUPT CODE EXPECTED
                         1367+*****************************************************11MAY76**
                         1368+*
                         1369+* SUBROUTINE
                         1370+*
                         1371+*      CONNECT INTERRUPT CONTROL BLOCK & PREPARE DEVICE
                         1372+*
                         1373+* PURPOSE
                         1374+*
                         1375+*      TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND
                         1376+*      PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE
                         1377+*      TO INTERRUPT.
                         1378+*
                         1379+* CALLING SEQUENCE
                         1380+*
                         1381+*      THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:
                         1382+*
                         1383+* --> BAL   $CONC,R6              CLEAR DEV DEP STG AND CONNECT I/O BLK
                         1384+* --> BAL   $CONP,R6              PREPARE DEVICE ONLY, ALREADY CONNECT
                         1385+*
                         1386+* RETURN CONTROL
                         1387+*
                         1388+*      BXS   (R6,2)               RETURN TO USER VIA REG 6 IF OKAY
                         1389+* OR  B     (R6)*                IF THE DEVICE COULD NOT BE CONNECTED
                         1390+*
                         1391+*****************************************************************
002A7C  0F06             1392+$CONC MVBI  6,R7               NUMBER OF BYTE TO CLEAR
002A7E  0B00             1393+      MVBI  0,R3              * AND THE DATA TO USE
002A80  4524 2708        1394+      MVA   DEV1,R5           * ALONG WITH THE ADRS TO USE
002A84  28AC             1395+      FFN   R3,(B5)           *
002A86  CB25 26FE        1396+      MVWZ  OPTN3,R3          CLEAR OLD CONTROLS FOR NEW ROUTINE
002A8A  4724 2A74        1397+      MVA   INTBL,R7          SET R7 TO CONTROL BLOCK AND
002A8E  6014             1398+      SVC   CICB              * CONNECT IT TO THIS DEVICE
002A90  6AD0 0000        1399+      BN    (R6)*             ERROR RETURN TO USER
                         1400+*
002A94  8828 2736 2A6C   1401+$CONP MVW   $INTL,IODCB        PUT IN LEVEL & INTR PARAMETER
002A9A  4724 2A68        1402+      MVA   IOBLK,R7          SET R7 TO CONTROL BLOCK TO PREPARE
002A9E  4020 2702 0708   1403+      MVWI  X'0708',$IOIN     INITIALIZE CONDITION CODE STORAGE
002AA4  CB25 2704        1404+      MVWZ  $ISB,R3           * AND CLEAR OLD ISB VALUE
002AA8  6E0D 2706        1405+      MVW   R6,LSTIO          SET UP ADDRESS THAT STARTED LAST I/O
002AAC  600C             1406+      SVC   PREP              * AND CALL ON SUPVR
002AAE  5601             1407+      BXS   (R6,2)            RETURN TO USER
                         1409+*****************************************************06APR76**
                         1410+*
                         1411+* SUBROUTINE
                         1412+*
                         1413+*      DISCONNECT THE INTERRUPT CONTROL BLOCK AND LOG ERRORS
                         1414+*
                         1415+* PURPOSE
                         1416+*
                         1417+*      DISCONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND
                         1418+*      SET THE 'NO GOOD' CONTROL BIT, THEN LOG THE DATA THAT HAS
                         1419+*      BEEN FOUND TO HELP THE OPERATOR DEFINE THE ERROR CONDITION.
                         1420+*
                         1421+* CALLING SEQUENCE
                         1422+*
                         1423+*      THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:
                         1424+*
                         1425+* --> B     $ERR$                SET 'NG' BIT AND CONVERT DATA TO LOG
                         1426+* --> B     $CONX                RETURN TO MDI SUPERVISOR TO TEST STS
                         1427+*
                         1428+* RETURN CONTROL
                         1429+*
                         1430+*      B     TURTN*               RETURN TO MDI
                         1431+* OR  B     (R6)*                IF THE DEVICE COULD NOT BE CONNECTED
                         1432+*
                         1433+*****************************************************************
002AB0  4020 1818 8000   1434+$ERR$  MVWI  X'8000',TUSTATUS    SET ON 'NO GOOD' STATUS BIT
002AB6  4724 2C1A        1435+      MVA   HEBLK,R7          GET ADRS OF CONTROL BLOCK
002ABA  601A             1436+      SVC   HTOE              CONVERT HEX TO EBC VIS DCP
002ABC  0D03             1437+$ERNT  MVBI  3,R5
002ABE  4324 181A        1438+      MVA   TOWORK,R3         SET UP BUFFER STORAGE
002AC2  6B0D 2C12        1439+      MVW   R3,BUFPT
002AC6  4124 2B42        1440+      MVA   LIM21,R1
002ACA  0F04             1441+      MVBI  4,R7
002ACC  0E08             1442+      MVBI  8,R6
002ACE  2B24             1443+MVBUF  MVFN  (R3),(R1)
002AD0  0F04             1444+      MVBI  4,R7
002AD2  0A40             1445+      MVBI  X'40',R2
002AD4  C258             1446+      MVB   R2,(R1)+
002AD6  BEFD             1447+      JCT   MVBUF,R6
002AD8  0E08             1448+      MVBI  8,R6
002ADA  7921 002C        1449+      AWI   44,R1
002ADE  BDF7             1450+      JCT   MVBUF,R5
002AE0  4020 1802 F1F0   1451+      MVWI  PIDMSG10,PID+2
002AE6  4020 19B8 2C18   1452+      MVA   FAKETU,@DCADD1
002AEC  4020 19BA 2C14   1453+      MVA   DC2PT,@DCADD2
002AF2  402C 19C4 0080   1454+      OWI   BIT0080,SUPSTAT
002AF8  4324 2700        1455+      MVA   STUTD,R3          SET UP BUFFER STORAGE
002AFC  6F13 18BA        1456+      BAL   TUMSG#TR*,R7      GO TO MESSAGE WRITER
                         1457+*
002B00                   1458+$CONX  EQU   *
002B00  C720 19D0        1459+      MVB   DEVADD,R7         GET DEVICE ADDRESS FROM MDI
002B04  6013             1460+      SVC   RICB              RELEASE INTEPRUPT CONTROL BLOCK
002B06  6812 2738        1461+      B     TURTN*            RETURN TO MDI SUPERVISOR
                         1462+*
002B0A  0007             1463+BEGIN  DC    A(0007)           NUMBER OF LINES TO PRINT
002B0C  0008             1464+      DC    A(0008)           LINE LENGTH = 8 CHAR
002B0E  5C5C40C1C2D6D9E3 1465+      DC    C'** ABORT'
```

```
 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

002B16  0028            1466+        DC    A(0040)                  LINE LENGTH = 40 CHAR
002B18  E3E4C9C440C9D6C9D 1467+       DC    C'TUID IOIN ISB  INST DEV1 DEV2 DEV3 DEV4 '
002B40  0028            1468+        DC    A(0040)                  LINE LENGTH = 40 CHAR
002B42  40404040404040404 1469+LINE1  DC    C'                               '
002B6A  0028            1470+        DC    A(0040)                  LINE LENGTH = 40 CHAR
002B6C  C3D5E3D340C4C3C2F 1471+       DC    C'CNTL DCB2 DCB3 DCB4 DCB5 CHAD BYCT ADRS '
002B94  0028            1472+        DC    A(0040)                  LINE LENGTH = 40 CHAR
002B96  40404040404040404 1473+LINE2  DC    C'                               '
002BBE  0028            1474+        DC    A(0040)                  LINE LENGTH = 40 CHAR
002BC0  D9E2C9C440C3E260F 1475+       DC    C'RSID CS-2 CS-3 CS-4 CS-5 CS-6 CS-7 CS-8 '
002BE8  0028            1476+        DC    A(0040)                  LINE LENGTH = 40 CHAR
002BEA  40404040404040404 1477+LINE3  DC    C'                               '
                        1478+*
002C12  0000            1479+BUFPT   DC    A(*-*)
002C14  2B0A            1480+DC2PT   DC    A(BEGIN)
002C16  0101            1481+FIXTU   DC    X'0101'
002C18  0101            1482+FAKETU  DC    X'0101'
00F1F0                  1483+PIDMSG10 EQU   X'F1F0'
000080                  1484+BIT0080  EQU   X'0080'
                        1485+*
                        1486+*      DATA CONTROL BLOCK FOR CONVERTING HEX TO EBCDIC
                        1487+*
002C1A  0030            1488+HEBLK   DC    A(48)                    NUMBER OF BYTES TO CONVERT
002C1C  2700            1489+        DC    A($TUID)                 FROM ADRS
002C1E  181A            1490+        DC    A(TUWORK)                AND THE TO ADRS
                        1491         COPY  T7865                    01DEC76
                        1492 T7865 TUIT T65EP
                        1493+*************************************************************06FEB76**
                        1494+*
                        1495+* TEST UNIT
                        1496+*
                        1497+*      4962 CONTROL CLOCK STEP DIAGNOSTIC (READ SECTOR ID SKEWED)
                        1498+*
                        1499+* PURPOSE
                        1500+*                                                              3/11/77
                        1501+*
                        1502+* CALLING SEQUENCE
                        1503+*
                        1504+*      THIS ROUTINE WILL SIMULATE FILE 'CLOCK  AND DATA' INFORMATION
                        1505+*      VIA THE 'CLOCK STEP DIAGNOSTIC' TO TEST THE 4962 CONTROL CARDS.
                        1506+*      .
                        1507+*      PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
                        1508+*      .     TURESUL BIT 0------------NOT USED
                        1509+*      .     TURESUL BIT 1------------NOT USED
                        1510+*      .     TURESUL BIT 2------------NOT USED
                        1511+*      .     TURESUL BIT 3------------NOT USED
                        1512+*      .
                        1513+*      .     TURESUL BIT 4------------NOT USED
                        1514+*      .     TURESUL BIT 5------------ NOT USED
                        1515+*      .     TURESUL BIT 6------------NOT USED
                        1516+*      .     TUPESUL BIT 7------------ NOT USED
                        1517+*      .
                        1518+*      .     TUPESUL BIT 8------------NOT USED
                        1519+*      .     TURESUL BIT 9------------ NOT USED
                        1520+*      .     TURESUL BIT 10----------- NOT USED
                        1521+*      .     TURESUL BIT 11----------NOT USED
                        1522+*      .
                        1523+*      .     TURESUL BIT 12----------NOT USED
                        1524+*      .     TURESUL BIT 13----------- NOT USED
                        1525+*      .     TURESUL BIT 14----------OIO CC ERROR
                        1526+*      .     TURESUL BIT 15-COMPARE ERROR BETWEEN EXPECT TABLE & SENSE
                        1527+*      .                                  INFORMATION
                        1528+*
                        1529+* RETURN CONTROL
                        1530+*
                        1531+*      B     TURTN*                   RETURN TO MDI SUPERVISOR
                        1532+*
                        1533+*************************************************************************
002C20  6F0D 2738       1534+T7865   MVW   R7,TURTN                 SAVE RETURN ADDRESS
002C24  4020 2700 7865  1535+        MVWI  X'7865',$TUID           SAVE TU ID FOR DISPLAY
002C2A  4424 26FA       1536+        MVA   OPTN1,R4                SET UP POINTER ADRS IN R4
002C2E  6E03 2A7C       1537+        BAL   $CONC,R6                CLEAR DEV DEP STG AND CONNECT I/O BL
002C32  2D28            1538+        DC    A(T65ER)                ERPOP ADRS FOR INVALID PREP
                        1539+*
002C34  8028 19D0 28A3  1540         MVB   DEVADD,IDCB1+1          LOAD DEVICE ADDRESS IN IDCB
002C3A  4224 2EB4       1541         MVA   T65ST,R2                ADDRESS OF CLOCK STEP BUFFER
002C3E  4020 2EA6 0000  1542         MVWI  0,T65U                  CLEAR SUM COUNTERS
002C44  4020 2EA8 0000  1543         MVWI  0,T65U+2                 *
002C4A  CD25 18C8       1544         MVWZ  TURESUL,R5              CLEAR RESULTS WORD
002C4E  4724 2A68       1545         MVA   IOBLK,R7                ISSUE DEVICE RESET
002C52  6008            1546         SVC   RESET                    *
002C54  CD25 18CA       1547         MVWZ  TURESUL+2,R5            CLEAR RESULTS WORD 2
002C58  4020 28A8 0000  1548         MVWI  0,CEDAT                 SET DIAGNOSTIC MODE
002C5E  6E03 2840       1549         BAL   CEOP1,R6                 *
002C62  2D28            1550         DC    A(T65ER)                 *
002C64  4C62            1551         TBTS  (R4,XI)                 TURN ON EXPECTED INTERRUPT (ATTEN)
002C66  4020 28AC 8000  1552         MVWI  X'8000',CEDAT2          TURN ON READY
002C6C  6E03 2854       1553         BAL   CEOP2,R6                 *
002C70  2D28            1554         DC    A(T65EP)                 *
002C72  4CA3            1555         TBTR  (R4,IN)                 TURN OFF ATTENTION INTERRUPT
002C74  6800 2D28       1556         BOFF  T65EP                   NO INTERRUPT RECEIVED
002C78  402F 2702 0704  1557         CWI   X'0704',$IOIN           CHECK FOR INT COND CODE OF 4
002C7E  1002            1558         JE    T65H                    OK
002C80  6802 2D28       1559         B     T65EP                   WRONG INTERRUPT CODE
002C84  4020 2826 0018  1560 T65H    MVWI  24,CTR01                INIT COUNTER
002C8A  4020 28AC 08C0  1561         MVWI  X'08C0',CEDAT2          SEND INDEX PULSE,BEHIND HOME,
002C90  6E03 2854       1562         BAL   CEOP2,R6                * SEEK COMPLETE
002C94  2D28            1563         DC    A(T65EP)                ERROR
002C96  4020 28AC 0400  1564         MVWI  X'0400',CEDAT2          SEND SECTOR PULSE
002C9C  6E03 2854       1565         BAL   CEOP2,R6                 *
002CA0  2D28            1566         DC    A(T65EP)                ERROR
002CA2  4020 28AC 3000  1567 T65S    MVWI  X'3000',CEDAT2          SEND CEOP2 USING '3000' DATA
002CA8  6E03 2854       1568         BAL   CEOP2,R6                 *
002CAC  2D28            1569         DC    A(T65EP)                 *
002CAE  4020 28AC 0200  1570         MVWI  X'0200',CEDAT2          SEND CEOP2 USING '0200' DATA
002CB4  6E03 2854       1571         BAL   CEOP2,R6                 *
002CB8  2D28            1572         DC    A(T65EP)                 *
002CBA  4020 28AC 0008  1573         MVWI  X'0008',CEDAT2          SEND CEOP2 USING '0008' DATA
002CC0  6E03 2854       1574         BAL   CEOP2,R6                 *
002CC4  2D28            1575         DC    A(T65EP)                 *
002CC6  4028 2826 0001  1576         SWI   1,CTR01                 DECREMENT COUNT
002CCC  18EA            1577         JNZ   T65S                    CONTINUE TO SEND CLOCKS
002CCE  4C67            1578         TBTS  (R4,NI)                 TURN ON NO INTER MODE INDICATOR
002CD0  4020 27FC 0000  1579         MVWI  X'0000',RKDCB+4         PHYSICAL SECTOP = ZERO
```



```
 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

002CD6  6E03 28F4       1580         BAL   $RKEW,R6                 READ SECTOR ID SKEWED
002CDA  2D28            1581         DC    A(T65ER)                 ERROR
002CDC  4024 0400       1582         MVWI  1024,R0                  TIME OUT 2 MSEC
002CE0  B8FF            1583         JCT   *,R0                     *
002CE2  4324 FFFF       1584         MVWI  X'FFFF',R3               INIT XOR REGISTER
002CE6  6D03 2D40       1585 T65D    BAL   T65CC,R5                 STIMULATE CLOCK BITS
002CEA  6D03 2E4E       1586         BAL   T65SS,R5                 READ SENSE WORDS
002CEE  50FB            1587         J     T65D                     LOOP
                        1588 *
                        1589 *
002CF0  4CA3            1590 T65F    TBTR  (R4,IN)                  HAS INTERRUPT OCCURRED?
002CF2  101E            1591         JOFF  T65I                     NO-ERROR
002CF4  4020 28AC 0001  1592         MVWI  1,CEDAT2                 RESET CE DIAG MODE
002CFA  6E03 2854       1593         BAL   CEOP2,R6                 *
002CFE  2D28            1594         DC    A(T65EP)                 *
002D00  CB24 2EB2       1595         CW    T65XR,R3                 COMPARE RESULTS
002D04  1818            1596         JNE   T65E                     ERROR
002D06  6E03 2974       1597         BAL   XIOCS,R6                 START CYCLE STEAL STATS
002D0A  2D28            1598         DC    A(T65ER)                 OIO CC ERROR
002D0C  4CA1            1599         TBTR  (R4,EP)                  TEST FOR ERROR
002D0E  120C            1600         JON   T65ER                    ERROR
002D10  A828 2722 2EA6  1601         AW    CSTL2,T65U               ADD CYCLE STEAL DATA TO SUM CHECK
002D16  882B 2EA6 2EAE  1602         CW    T65U,T65RE               COMPARE RESULTS
002D1C  1808            1603         JNE   T65E                     ERROR
002D1E  802B 2EA8 2EB0  1604         CB    T65U+2,T65RE+2           COMPARE RESULTS
002D24  1808            1605         JNE   T65E                     ERROR
002D26  500A            1606         J     T65X
                        1607 *
002D28  402C 18C8 0002  1608 T65ER   OWI   X'0002',TURESUL          SET OIO CC ERROR
002D2E  5006            1609         J     T65X
002D30  4724 2A68       1610 T65I    MVA   IOBLK,R7                 ISSUE DEVICE RESET
002D34  6008            1611         SVC   RESET                    *
002D36  402C 18C8 0001  1612 T65E    OWI   X'0001',TURESUL          SET CLOCK STEP ERROR
                        1613 T65X TXIT
002D3C  6802 2B00       1614+T65X    B     $CONX                    RETURN TO MDI CONTROLLER
                        1615+*************************************************************************
                        1616 *
                        1617 *
002D40  6D0D 2E4C       1618 T65CC   MVW   R5,T65C+2                SET RETURN ADDRESS
002D44  408F FFFF       1619         CWI   -1,(R2)                  CHK FOR END OF STIMULATE TABLE
002D48  6800 2CF0       1620         BE    T65P                     BCH   IF END OF TABLE
002D4C  408F FFFE       1621         CWI   X'FFFE',(R2)             TST FOR DATA
002D50  101F            1622         JE    T65T                     YES
002D52  408F FFFD       1623         CWI   X'FFFD',(R2)             TEST FOR CLOCKS
002D56  1002            1624         JE    T65M                     YES
002D58  6802 2E3C       1625         B     T65EE
002D5C  7A41 0002       1626 T65M    AWI   2,R2                     INC TABLE ADDRESS
002D60  C880            1627         MVW   (R2),R0                  GET CLOCK COUNT
002D62  7806 0000       1628 T65N    CWI   0,R0                     COUNT ZERO?
002D66  6800 2E46       1629         BE    T65FF                    RETURN
002D6A  4020 28AC 3000  1630         MVWI  X'3000',CEDAT2           SEND CEOP2 USING '3000' DATA
002D70  6E03 2854       1631         BAL   CEOP2,R6                 *
002D74  2D28            1632         DC    A(T65EP)                 *
002D76  6D03 2E4E       1633         BAL   T65SS,R5                 SENSE DATA
002D7A  4020 28AC 0008  1634         MVWI  X'0008',CEDAT2           SEND CEOP2 USING '0008' DATA
002D80  6E03 2854       1635         BAL   CEOP2,R6                 *
002D84  2D28            1636         DC    A(T65EP)                 *
002D86  6D03 2E4E       1637         BAL   T65SS,R5                 SENSE DATA
002D8A  0801            1638         SWI   1,R0                     DECREMENT CLOCK COUNT
002D8E  50B9            1639         J     T65N                     LOOP
002D90  7A41 0002       1640 T65T    AWI   2,R2                     INC TABLE ADDRESS
002D94  408F FFFE       1641         CWI   X'FFFE',(R2)             END OF DATA?
002D98  1056            1642         JE    T65FF                    YES
002D9A  408F FFFC       1643         CWI   X'FFFC',(R2)             REPEAT READ DATA?
002D9E  1003            1644         JE    T65R                     YES
002DA0  6D03 2DC6       1645         BAL   T65L,R5                  READ DATA
002DA4  50F5            1646         J     T65T
002DA6  7A41 0002       1647 T65R    AWI   2,R2                     INC TABLE ADDRESS
002DAA  C980            1648         MVW   (R2),R1                  REPEAT COUNT
002DAC  7906 0000       1649         CWI   0,R1                     REPEAT COUNT ZERO?
002DB0  10EF            1650         JE    T65T                     YES
002DB2  7A41 0002       1651         AWI   2,R2                     INC TABLE ADDRESS
002DB6  6D03 2DC6       1652 T65V    BAL   T65L,R5                  READ DATA
002DBA  0901            1653         SWI   1,R1                     DECREMENT REPEAT COUNT
002DBE  7906 0000       1654         CWI   0,R1                     REPEAT COUNT ZERO?
002DC2  10E6            1655         JE    T65T                     YES
002DC4  50F8            1656         J     T65V                     REPEAT DATA LOOP
002DC6  6D0D 2E3A       1657 T65L    MVW   R5,T65JJ+2               SET UP RETURN ADDRESS
002DCA  4020 2826 0000  1658         MVWI  0,CTR01                  INIT SHIFT COUNTER
002DD0  C880            1659         MVW   (R2),R0                  GET DATA
002DD2  3009            1660 T65LL   SLL   1,R0                     TEST IF DATA '1'
002DD4  1F19            1661         JNCY  T65G                     NO
002DD6  4020 28AC 3000  1662         MVWI  X'3000',CEDAT2           SEND CEOP2 USING '3000' DATA
002DDC  6E03 2854       1663         BAL   CEOP2,R6                 *
002DE0  2D28            1664         DC    A(T65EP)                 *
002DE2  6D03 2E4E       1665         BAL   T65SS,R5                 SENSE DATA
002DE6  4020 28AC 0200  1666         MVWI  X'0200',CEDAT2           SEND CEOP2 USING '0200' DATA
002DEC  6E03 2854       1667         BAL   CEOP2,R6                 *
002DF0  2D28            1668         DC    A(T65EP)                 *
002DF2  6D03 2E4E       1669         BAL   T65SS,R5                 SENSE DATA
002DF6  4020 28AC 0008  1670         MVWI  X'0008',CEDAT2           SEND CEOP2 USING '0008' DATA
002DFC  6E03 2854       1671         BAL   CEOP2,R6                 *
002E00  2D28            1672         DC    A(T65EP)                 *
002E02  6D03 2E4E       1673         BAL   T65SS,R5                 SENSE DATA
002E06  5010            1674         J     T65HH
002E08  4020 28AC 3000  1675 T65G    MVWI  X'3000',CEDAT2           SEND '3000' DATA
002E0E  6E03 2854       1676         BAL   CEOP2,R6                 *
002E12  2D28            1677         DC    A(T65EP)                 *
002E14  6D03 2E4E       1678         BAL   T65SS,R5                 SENSE DATA
002E18  4020 28AC 0008  1679         MVWI  X'0008',CEDAT2           SEND '0008' DATA
002E1E  6E03 2854       1680         BAL   CEOP2,R6                 *
002E22  2D28            1681         DC    A(T65EP)                 *
002E24  6D03 2E4E       1682         BAL   T65SS,R5                 SENSE DATA
002E28  4028 2826 0001  1683 T65HH    AWI   1,CTR01                  ADD ONE TO SHIFT COUNTER
002E2E  402F 2826 0010  1684         CWI   16,CTR01                 SHIFT COUNT = 16?
002E34  1001            1685         JE    T65JJ                    YES
002E36  50CD            1686         J     T65LL
002E38  6802 0000       1687 T65JJ   B     *-*                      RETURN TO CALLER
002E3C  8A08 28AC       1688 T65EE   MVW   (R2),CEDAT2               LD   DATA INTO IO BLOCK
002E40  6E03 2854       1689         BAL   CEOP2,R6                 WRITE CLOCK DATA
002E44  2D28            1690         DC    A(T65ER)
002E46  7A41 0002       1691 T65FF   AWI   2,R2                     INC TABLE ADDRESS
002E4A  6802 0000       1692 T65C    B     *-*                      RETURN TO CALLER
                        1693 *
```

```
 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

002E4E  6E03 287C        1694 T65SS  BAL   SENSO,R6               READ SENSE WORD ONE
002E52  2D28             1695        DC    A(T65ER)
002E54  4C23             1696        TBT   (R4,IN)               INTERRUPT?
002E56  1003             1697        JOFF  T65A                   NO
002E58  402C 28A0 4000   1698        OWI   X'4000',RDATA0         SET INTERRUPT BIT IN SENSE WORD
002E5E  8828 28A0 2EAA   1699 T65A   MVB   RDATA0,T65TP          SAVE DATA
002E64  6E03 2868        1700        BAL   SENS1,R6               READ SENSE WORD ONE
002E68  2D28             1701        DC    A(T65ER)
002E6A  402D 28A4 4E7F   1702        RBTWI X'4E7F',RDATA          RESET UNUSED BITS
002E70  402B 28A4 0080   1703        TWI   X'0080',RDATA          MOVE BIT FROM BYTE TO BYTE
002E76  1003             1704        JOFF  T65B                   BIT NOT ON
002E78  402C 28A4 0200   1705        OWI   X'0200',RDATA          SET BIT ON
002E7E  C720 28A4        1706 T65B   MVB   RDATA,R7               SAVE DATA
002E82  C72E 2EA8        1707        AB    R7,T65U+2              DEVELOP SUM CHECK
002E86  1F03             1708        JNCY  T65RE                  JUMP IF NO CARRY
002E88  4029 2EA6 0001   1709        AWI   1,T65U
002E8E  A828 2EAA 2EA6   1710 T65RE  AW    T65TP,T65U
002E94  C323 2EAC        1711        XB    T65TP+2,R3             XOR EXPECT DATA
002E98  6B0B 2EAA        1712        XW    T65TP,R3               *
002E9C  4C23             1713 T65K   TBT   (R4,IN)               TEST FOR INTER IN GEN MODE
002E9E  1002             1714        JOFF  T65J                   NO INTERRUPT
002EA0  4080 FFFF        1715        MVWI  X'FFFF',(R2)           INSERT END OF TABLE CHAR
002EA4  5500             1716 T65J   BXS   (R5)                  RETURN TO CALLER
                         1717 *
                         1718 *
                         1719 *
002EA6  00000000         1720 T65U   DC    2A(*-*)
002EAA  00000000         1721 T65TP  DC    2A(*-*)
002EAE  C8F5             1722 T65RE  DC    X'C8F5'                 EXPECTED RESULTS  (DUTCHESS)
002EB0  D900             1723        DC    X'D900'                 *
002EB2  B1EE             1724 T65XR  DC    X'B1EE'                 *
                         1725 *
002EB4                   1726 T65ST  EQU   *                       WRITE CLOCK STIMULATE TABLE
002EB4  8048             1727        DC    X'8048'                 READ SECTOR ID SKEWED
002EB6  0400             1728        DC    X'0400'
002EB8  0800             1729        DC    X'0800'
002EBA  0400             1730        DC    X'0400'
002EBC  FFFD             1731        DC    X'FFFD'
002EBE  0249             1732        DC    X'0249'
002EC0  3000             1733        DC    X'3000'
002EC2  0200             1734        DC    X'0200'
002EC4  0008             1735        DC    X'0008'
002EC6  3000             1736        DC    X'3000'
002EC8  0200             1737        DC    X'0200'
002ECA  0008             1738        DC    X'0008'
002ECC  FFFE             1739        DC    X'FFFE'
002ECE  0E12             1740        DC    X'0E12'
002ED0  3456             1741        DC    X'3456'
002ED2  789A             1742        DC    X'789A'
002ED4  FFFE             1743        DC    X'FFFE'
002ED6  FFFE             1744        DC    X'FFFE'
002ED8  F8A0             1745        DC    X'F8A0'                 CRC
002EDA  FFFE             1746        DC    X'FFFE'
002EDC  3000             1747        DC    X'3000'
002EDE  0008             1748        DC    X'0008'
002EE0  3000             1749        DC    X'3000'
002EE2  0008             1750        DC    X'0008'
002EE4  3000             1751        DC    X'3000'
002EE6  0008             1752        DC    X'0008'
002EE8  3000             1753        DC    X'3000'
002EEA  0008             1754        DC    X'0008'
002EEC  3000             1755        DC    X'3000'
002EEE  0008             1756        DC    X'0008'
002EF0  3000             1757        DC    X'3000'
002EF2  0008             1758        DC    X'0008'
002EF4  3000             1759        DC    X'3000'
002EF6  0008             1760        DC    X'0008'
002EF8  3000             1761        DC    X'3000'
002EFA  0008             1762        DC    X'0008'
002EFC  3000             1763        DC    X'3000'
002EFE  0008             1764        DC    X'0008'
002F00  3000             1765        DC    X'3000'
002F02  0008             1766        DC    X'0008'
002F04  FFFF             1767        DC    X'FFFF'
002F06  FFFF             1768        DC    X'FFFF'
                         1769 *
                         1770 *
                         1772        COPY  T7866                01DEC76
                         1773 T7866 TUIT T66ER
                         1774+*****************************************************************06FEB76**
                         1775+*
                         1776+* TEST UNIT
                         1777+*
                         1778+*     4962 CONTROL CLOCK STEP DIAGNOSTIC (WRITE SECTOR ID SKEWED)
                         1779+*
                         1780+* PURPOSE
                         1781+*
                         1782+*                                                          3/11/77
                         1783+* CALLING SEQUENCE
                         1784+*
                         1785+*     THIS ROUTINE WILL SIMULATE FILE 'CLOCK  AND DATA' INFORMATION
                         1786+*     VIA THE 'CLOCK STEP DIAGNOSTIC' TO TEST THE 4962 CONTROL CARDS.
                         1787+*
                         1788+*     PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
                         1789+*     .      TURESUL BIT 0------------NOT USED
                         1790+*     .      TURESUL BIT 1------------NOT USED
                         1791+*     .      TURESUL BIT 2------------NOT USED
                         1792+*     .      TURESUL BIT 3------------NOT USED
                         1793+*     .
                         1794+*     .      TURESUL BIT 4------------NOT USED
                         1795+*     .      TURESUL BIT 5------------ NOT USED
                         1796+*     .      TURESUL BIT 6------------NOT USED
                         1797+*     .      TURESUL BIT 7------------ NOT USED
                         1798+*     .
                         1799+*     .      TURESUL BIT 8------------NOT USED
                         1800+*     .      TURESUL BIT 9------------ NOT USED
                         1801+*     .      TURESUL BIT 10----------- NOT USED
                         1802+*     .      TURESUL BIT 11-----------NOT USED
                         1803+*     .
                         1804+*     .      TURESUL BIT 12-----------NOT USED
                         1805+*     .      TURESUL BIT 13---------- NOT USED
                         1806+*     .      TURESUL BIT 14-----------OIO CC ERROR
                         1807+*     .      TURESUL BIT 15-COMPARE ERROR BETWEEN EXPECT TABLE & SENSE
                         1808+*     .                                INFORMATION
```



```
 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

                         1809+*
                         1810+* RETURN CONTROL
                         1811+*
                         1812+*        B      TUPTN*              RETURN TO MDI SUPERVISOR
                         1813+*
                         1814+*****************************************************************
002F08  6F0D 2738        1815+T7866  MVW   R7,TURTN                SAVE RETURN ADDRESS
002F0C  4020 2700 7866   1816+       MVWI  X'7866',$TUID          SAVE TU ID FOR DISPLAY
002F12  4424 26FA        1817+       MVA   OPTN1,R4               SET UP POINTER ADRS IN R4
002F16  6E03 2A7C        1818+       BAL   $CONC,R6               CLEAR DEV DEP STG AND CONNECT I/O BL
002F1A  3022             1819+       DC    A(T66ER)               ERROR ADRS FOR INVALID PREP
                         1820+*
002F1C  8028 19D0 28A3   1821        MVB   DEVADD,IDCB1+1         LOAD DEVICE ADDRESS IN IDCB
002F22  4224 31AE        1822        MVA   T66ST,R2               ADDRESS OF CLOCK STEP BUFFER
002F26  4020 31A0 0000   1823        MVWI  0,T66U                 CLEAR SUM COUNTERS
002F2C  4020 31A2 0000   1824        MVWI  0,T66U+2               *
002F32  CD25 18C8        1825        MVWZ  TURESUL,R5             CLEAR RESULTS WORD
002F36  4724 2A68        1826        MVA   IOBLK,R7               ISSUE DEVICE RESET
002F3A  6008             1827        SVC   RESET                  *
002F3C  CD25 18CA        1828        MVWZ  TURESUL+2,R5           CLEAR RESULTS WORD 2
002F40  4020 28A8 0000   1829        MVWI  0,CEDAT                SET DIAGNOSTIC MODE
002F46  6E03 2840        1830        BAL   CEOP1,R6               *
002F4A  3022             1831        DC    A(T66ER)               *
002F4C  4C62             1832        TBTS  (R4,XI)                TURN ON EXPECTED INTERRUPT (ATTEN)
002F4E  4020 28AC 8000   1833        MVWI  X'8000',CEDAT2         TURN ON READY
002F54  6E03 2854        1834        BAL   CEOP2,R6               *
002F58  3022             1835        DC    A(T66ER)               *
002F5A  4C23             1836        TBTR  (R4,IN)                TURN OFF ATTENTION INTERPUPT
002F5C  6800 3022        1837        BOFF  T66ER                  NO INTERRUPT RECEIVED
002F60  402F 2702 0704   1838        CWI   X'0704',$IOIN          CHECK FOR INT COND CODE OF 4
002F66  1002             1839        JE    T66H                   OK
002F68  6802 3022        1840        B     T66ER                  WRONG INTERRUPT CODE
002F6C  4020 2826 0018   1841 T66H   MVWI  24,CTR01               INIT COUNTER
002F72  4020 28AC 08C0   1842        MVWI  X'08C0',CEDAT2         SEND INDEX PULSE,BEHIND HOME,
002F78  6E03 2854        1843        BAL   CEOP2,R6               * SEEK COMPLETE
002F7C  3022             1844        DC    A(T66ER)               ERROR
002F7E  4020 28AC 0400   1845        MVWI  X'0400',CEDAT2         SEND SECTOR PULSE
002F84  6E03 2854        1846        BAL   CEOP2,R6               *
002F88  3022             1847        DC    A(T66ER)               ERROR
002F8A  4020 28AC 3000   1848 T66S   MVWI  X'3000',CEDAT2         SEND CEOP2 USING '3000' DATA
002F90  6E03 2854        1849        BAL   CEOP2,R6               *
002F94  3022             1850        DC    A(T66ER)               *
002F96  4020 28AC 0200   1851        MVWI  X'0200',CEDAT2         SEND CEOP2 USING '0200' DATA
002F9C  6E03 2854        1852        BAL   CEOP2,R6               *
002FA0  3022             1853        DC    A(T66ER)               *
002FA2  4020 28AC 0008   1854        MVWI  X'0008',CEDAT2         SEND CEOP2 USING '0008' DATA
002FA8  6E03 2854        1855        BAL   CEOP2,R6               *
002FAC  3022             1856        DC    A(T66ER)               *
002FAE  402E 2826 0001   1857        SWI   1,CTR01                DECREMENT COUNT
002FB4  18EA             1858        JNZ   T66S                   CONTINUE TO SEND CLOCKS
002FB6  4C67             1859        TBTS  (R4,NI)                TURN ON NO INTER MODE INDICATOR
002FB8  4020 27EC 0000   1860        MVWI  X'0000',WKDCB+4        PHYSICAL SECTOR = ZERO
002FBE  4020 2814 1234   1861        MVWI  X'1234',WRSID          SECTOR ID DATA
002FC4  4020 2816 5678   1862        MVWI  X'5678',WRSID+2        *
002FCA  4020 2818 9A00   1863        MVWI  X'9A00',WRSID+4        *
002FD0  6E03 2938        1864        BAL   $WKEW,R6               WRITE SECTOR ID SKEWED
002FD4  3022             1865        DC    A(T66ER)               ERROR
002FD6  4024 0400        1866        MVWI  1024,R0                TIME OUT 2 MSEC
002FDA  B8FF             1867        JCT   *,R0                   *
002FDC  4324 FFFF        1868        MVWI  X'FFFF',R3             INIT XOR REGISTER
002FE0  6D03 303A        1869 T66D   BAL   T66CC,R5               STIMULATE CLOCK BITS
002FE4  6D03 3148        1870        BAL   T66SS,R5               READ SENSE WORDS
002FE8  50FB             1871        J     T66D                   LOOP
                         1872 *
                         1873 *
002FEA  4CA3             1874 T66F   TBTR  (R4,IN)                HAS INTERRUPT OCCURRED?
002FEC  101E             1875        JOFF  T66I                   NO-ERROR
002FEE  4020 28AC 0001   1876        MVWI  1,CEDAT2               RESET CE DIAG MODE
002FF4  6E03 2854        1877        BAL   CEOP2,R6               *
002FF8  3022             1878        DC    A(T66ER)               *
002FFA  CB24 31AC        1879        CW    T66XR,R3               COMPARE RESULTS
002FFE  1818             1880        JNE   T66E                   ERROR
003000  6E03 2974        1881        BAL   XIOCS,R6               START CYCLE STEAL STATS
003004  3022             1882        DC    A(T66ER)               OIO CC ERROR
003006  4CA1             1883        TBTR  (R4,ER)                TEST FOR ERROR
003008  120C             1884        JON   T66ER                  ERROR
00300A  A828 2722 31A0   1885        AW    CSTL2,T66U             ADD CYCLE STEAL DATA TO SUM CHECK
003010  882B 31A0 31A8   1886        CW    T66U,T66RE             COMPARE RESULTS
003016  180C             1887        JNE   T66E                   ERROR
003018  802B 31A2 31AA   1888        CB    T66U+2,T66RE+2         COMPARE RESULTS
00301E  1808             1889        JNE   T66E                   ERROR
003020  500A             1890        J     T66X
                         1891 *
003022  402C 18C8 0002   1892 T66ER  OWI   X'0002',TURESUL         SET OIO CC ERROR
003028  5006             1893        J     T66X
00302A  4724 2A68        1894 T66I   MVA   IOBLK,R7               ISSUE DEVICE RESET
00302E  6008             1895        SVC   RESET                  *
003030  402C 18C8 0001   1896 T66E   OWI   X'0001',TURESUL         SET CLOCK STEP ERROR
                         1897 T66X TXIT
003036  6802 2B00        1898+T66X   B     $CONX                  RETURN TO MDI CONTROLLER
                         1899+*****************************************************************
                         1900 *
                         1901 *
003038  6D0D 3146        1902 T66CC  MVW   R5,T66C+2              SET RETURN ADDRESS
00303E  408F FFFF        1903        CWI   -1,(R2)                CHK FOR END OF STIMULATE TABLE
003042  6800 2FEA        1904        BE    T66F                   BCH  IF END OF TABLE
003046  408F FFFE        1905        CWI   X'FFFE',(R2)           TST FOR DATA
00304A  101F             1906        JE    T66T                   YES
00304C  408F FFFD        1907        CWI   X'FFFD',(R2)           TEST FOR CLOCKS
003050  1002             1908        JE    T66M                   YES
003052  6802 3136        1909        B     T66ZE
003056  7A41 0002        1910 T66M   AWI   2,R2                   INC TABLE ADDRESS
00305A  C880             1911        MVW   (R2),R0                GET CLOCK COUNT
00305C  7806 0000        1912 T66N   CWI   0,R0                   COUNT ZERO?
003060  6800 3140        1913        BE    T66FF                  RETURN
003064  4020 28AC 3000   1914        MVWI  X'3000',CEDAT2         SEND CEOP2 USING '3000' DATA
00306A  6E03 2854        1915        BAL   CEOP2,R6               *
00306E  3022             1916        DC    A(T66ER)               *
003070  6D03 3148        1917        BAL   T66SS,R5               SENSE DATA
003074  4020 28AC 0008   1918        MVWI  X'0008',CEDAT2         SEND CEOP2 USING '0008' DATA
00307A  6E03 2854        1919        BAL   CEOP2,R6               *
00307E  3022             1920        DC    A(T66ER)               *
003080  6D03 3148        1921        BAL   T66SS,R5               SENSE DATA
003084  7802 0001        1922        SWI   1,R0                   DECREMENT CLOCK COUNT
```

```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
003088  50E9                1923         J      T66N                LOOP
00308A  7A41 0002           1924 T66T    AWI    2,R2                INC TABLE ADDPESS
00308E  408T FFFE           1925         CWI    X'FFFE',(R2)        END OF DATA?
003092  1056                1926         JE     T66FF               YES
003094  408F FFFC           1927         CWI    X'FFFC',(R2)        REPEAT PEAD DATA?
003098  1003                1928         JE     T66R                YES
00309A  6D03 30C0           1929         BAL    T66L,R5             READ DATA
00309E  50F5                1930         J      T66T
0030A0  7A41 0002           1931 T66R    AWI    2,R2                INC TABLE ADDRESS
0030A4  C980                1932         MVW    (R2),R1             REPEAT COUNT
0030A6  7906 0000           1933         CWI    0,R1                REPEAT COUNT ZERO?
0030AA  10EF                1934         JE     T66T                YES
0030AC  7A41 0002           1935         AWI    2,R2                INC TABLE ADDRESS
0030B0  6D03 30C0           1936 T66V    BAL    T66L,R5             READ DATA
0030B4  7922 0001           1937         SWI    1,R1                DECREMENT REPEAT COUNT
0030B8  7906 0000           1938         CWI    0,R1                REPEAT COUNT ZERO?
0030BC  10E6                1939         JE     T66T                YES
0030BE  50F8                1940         J      T66V                REPEAT DATA LOOP
0030C0  6D0D 3134           1941 T66L    MVW    R5,T66JJ+2          SET UP RETURN ADDRESS
0030C4  4020 2826 0000      1942         MVWI   0,CTR01             INIT SHIFT COUNTER
0030CA  C880                1943         MVW    (R2),R0             GET DATA
0030CC  3009                1944 T66LL   SLL    1,R0                TFST IF DATA '1'
0030CE  1F19                1945         JNCY   T66G                NO
0030D0  4020 28AC 3000      1946         MVWI   X'3000',CEDAT2      SEND CEOP2 USING '3000' DATA
0030D6  6E03 2854           1947         BAL    CEOP2,R6            *
0030DA  3022                1948         DC     A(T66ER)            *
0030DC  6D03 3148           1949         BAL    T66SS,R5            SENSE DATA
0030E0  4020 28AC 0200      1950         MVWI   X'0200',CEDAT2      SEND CEOP2 USING '0200' DATA
0030E6  6E03 2854           1951         BAL    CEOP2,R6            *
0030EA  3022                1952         DC     A(T66ER)            *
0030EC  6D03 3148           1953         BAL    T66SS,R5            SENSE DATA
0030F0  4020 28AC 0008      1954         MVWI   X'0008',CEDAT2      SEND CEOP2 USING '0008' DATA
0030F6  6E03 2854           1955         BAL    CEOP2,R6            *
0030FA  3022                1956         DC     A(T66ER)            *
0030FC  6D03 3148           1957         BAL    T66SS,R5            SENSE DATA
003100  5010                1958         J      T66HH
003102  4020 28AC 3000      1959 T66G    MVWI   X'3000',CEDAT2      SEND '3000' DATA
003108  6E03 2854           1960         BAL    CEOP2,R6            *
00310C  3022                1961         DC     A(T66ER)            *
00310E  6D03 3148           1962         BAL    T66SS,R5            SENSE DATA
003112  4020 28AC 0008      1963         MVWI   X'0008',CEDAT2      SEND '0008' DATA
003118  6E03 2854           1964         BAL    CEOP2,R6            *
00311C  3022                1965         DC     A(T66ER)            *
00311E  6D03 3148           1966         BAL    T66SS,R5            SENSE DATA
003122  4029 2826 0001      1967 T66HH   AWI    1,CTR01             ADD ONE TO SHIFT COUNTER
003128  402F 2826 0010      1968         CWI    16,CTR01            SHIFT COUNT = 16?
00312E  1001                1969         JE     T66JJ               YES
003130  50CD                1970         J      T66LL
003132  6802 0000           1971 T66JJ   B      *-*                 RETURN TO CALLER
003136  8A08 28AC           1972 T66EE   MVW    (R2),CEDAT2         LD  DATA INTO IO BLOCK
00313A  6E03 2854           1973         BAL    CEOP2,R6            WRITE CLOCK DATA
00313E  3022                1974         DC     A(T66ER)
003140  7A41 0002           1975 T66FF   AWI    2,R2                INC TABLE ADDRESS
003144  6802 0000           1976 T66C    B      *-*                 RETURN TO CALLER
                            1977 *
003148  6E03 287C           1978 T66SS   BAL    SENS0,R6            READ SENSE WORD ONE
00314C  3022                1979         DC     A(T66ER)
00314E  4C23                1980         TBT    (R4,IN)             INTERRUPT?
003150  1003                1981         JOFF   T66A                NO
003152  402C 28A0 4000      1982         OWI    X'4000',RDATA0      SET INTERRUPT BIT IN SENSE WORD
003158  8828 28A0 31A4      1983 T66A    MVW    RDATA0,T66TP        SAVE DATA
00315E  6E03 2868           1984         BAL    SENS1,R6            READ SENSE WORD ONE
003162  3022                1985         DC     A(T66ER)
003164  402D 28A4 4E7F      1986         RBTWI  X'4E7F',RDATA       RESET UNUSED BITS
00316A  402B 28A4 0080      1987         TWI    X'0080',RDATA       MOVE BIT FROM BYTE TO BYTE
003170  1003                1988         JOFF   T66B                BIT NOT ON
003172  402C 28A4 0200      1989         OWI    X'0200',RDATA       SET BIT ON
003178  C720 28A4           1990 T66B    MVW    RDATA,R7            SAVE DATA
00317C  C72E 31A2           1991         AB     R7,T66U+2           DEVELOP SUM CHECK
003180  1F03                1992         JNCY   T66FF               JUMP IF NO CARRY
003182  4029 31A0 0001      1993         AWI    1,T66U
003188  A828 31A4 31A0      1994 T66RR   AW     T66TP,T66U
00318E  C323 31A6           1995         XB     T66TP+2,R3          XOR EXPECT DATA
003192  6B0B 31A4           1996         XW     T66TP,R3            *
003196  4C23                1997 T66K    TBT    (R4,IN)             TEST FOR INTEP IN GEN MODE
003198  1002                1998         JOFF   T66J                NO INTERRUPT
00319A  4080 FFFF           1999         MVWI   X'FFFF',(R2)        INSERT END OF TABLE CHAR
00319E  5500                2000 T66J    BXS    (R5)                RETURN TO CALLER
                            2001 *
                            2002 *
                            2003 *
0031A0  00000000            2004 T66U    DC     2A(*-*)
0031A4  00000000            2005 T66TP   DC     2A(*-*)
0031A8  B1F3                2006 T66RE   DC     X'B1F3'             EXPECTED RESULTS  (DUTCHESS)
0031AA  CF00                2007         DC     X'CF00'             *
0031AC  3DAD                2008 T66XR   DC     X'3DAD'             *
                            2009 *
0031AE                      2010 T66ST   EQU    *                   WRITE CLOCK STIMULATE TABLE
0031AE  8048                2011         DC     X'8048'             WRITE SECTOR ID SKEWED
0031B0  0400                2012         DC     X'0400'
0031B2  0800                2013         DC     X'0800'
0031B4  0400                2014         DC     X'0400'
0031B6  FFFD                2015         DC     X'FFFD'             SEND WRITE CLOCKS
0031B8  0263                2016         DC     X'0263'             *
0031BA  FFFE                2017         DC     X'FFFE'             START ID
0031BC  0E12                2018         DC     X'0E12'             FLAG
0031BE  3456                2019         DC     X'3456'             CYL
0031C0  789A                2020         DC     X'789A'             HEAD,SECTOR
0031C2  F8A0                2021         DC     X'F8A0'             CRC
0031C4  FFFE                2022         DC     X'FFFE'             END ID
0031C6  3000                2023         DC     X'3000'             SEND 10 WRITE CLOCKS
0031C8  0008                2024         DC     X'0008'             *
0031CA  3000                2025         DC     X'3000'             *
0031CC  0008                2026         DC     X'0008'             *
0031CE  3000                2027         DC     X'3000'             *
0031D0  0008                2028         DC     X'0008'             *
0031D2  3000                2029         DC     X'3000'             *
0031D4  0008                2030         DC     X'0008'             *
0031D6  3000                2031         DC     X'3000'             *
0031D8  0008                2032         DC     X'0008'             *
0031DA  FFFF                2033         DC     X'FFFF'             END OF TABLE
                            2034 *
                            2035 *
                            2037         COPY   T7867                 01DEC76
```



```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                            2038 T7867 TUIT T67ER
                            2039+*****************************************************************06FEB76**
                            2040+*
                            2041+* TEST UNIT
                            2042+*
                            2043+*     4962 CONTROL CLOCK STEP DIAGNOSTIC (CRC ERROR )        3/11/77
                            2044+*
                            2045+* PURPOSE
                            2046+*
                            2047+*
                            2048+* CALLING SEQUENCE
                            2049+*
                            2050+*     THIS ROUTINE WILL SIMULATE FILE 'CLOCK  AND DATA' INFORMATION
                            2051+*     VIA THE 'CLOCK STEP DIAGNOSTIC' TO TEST THE 4962 CONTROL CAPDS.
                            2052+*     .
                            2053+*     PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
                            2054+*     .       TURESUL BIT 0------------NOT USED
                            2055+*     .       TURESUL BIT 1------------NOT USED
                            2056+*     .       TURESUL BIT 2------------NOT USED
                            2057+*     .       TURESUL BIT 3------------NOT USED
                            2058+*     .
                            2059+*     .       TURESUL BIT 4------------NOT USED
                            2060+*     .       TURESUL BIT 5------------ NOT USED
                            2061+*     .       TURESUL BIT 6------------NOT USED
                            2062+*     .       TURESUL BIT 7------------ NOT USED
                            2063+*     .
                            2064+*     .       TURESUL BIT 8------------NOT USED
                            2065+*     .       TURESUL BIT 9------------ NOT USED
                            2066+*     .       TURESUL BIT 10----------- NOT USED
                            2067+*     .       TURESUL BIT 11-----------NOT USED
                            2068+*     .
                            2069+*     .       TURESUL BIT 12-----------NOT USED
                            2070+*     .       TURESUL BIT 13-----------NOT USED
                            2071+*     .       TURESUL BIT 14-----------OIO CC ERROR
                            2072+*     .       TURESUL BIT 15-COMPARE ERROR BETWEEN EXPECT TABLE & SENSE
                            2073+*     .                              INFORMATION
                            2074+*
                            2075+* RETURN CONTPOL
                            2076+*
                            2077+*       B      TUPTN*                 RETURN TO MDI SUPERVISOR
                            2078+*
                            2079+*****************************************************************
                            2080+T7867  MVW    R7,TURTN               SAVE RETURN ADDRESS
                            2081+       MVWI   X'7867',$TUID          SAVE TU ID FOR DISPLAY
                            2082+       MVA    OPTN1,R4               SET UP POINTER ADRS IN R4
                            2083+       BAL    $CONC,R6               CLEAR DEV DEP STG AND CONNECT I/O BL
                            2084+       DC     A(T67ER)               ERROR ADRS FOP INVALID PPEP
                            2085+*
0031DC  6F0D 2738           2086        MVB    DEVADD,IDCB1+1         LOAD DEVICE ADDRESS IN IDCB
0031E0  4020 2700 7867      2087        MVA    T67ST,R2               ADDRESS OF CLOCK STEP BUFFER
0031E6  4424 26FA           2088        MVWI   0,T67U                 CLEAR SUM COUNTERS
0031EA  6E03 2A7C           2089        MVWI   0,T67U+2                *
0031EE  32E4                2090        MVWZ   TURESUL,R5             CLEAR RESULTS WORD
                            2091        MVA    IOBLK,R7               ISSUE DEVICE RESET
                            2092        SVC    RESET                  *
0031F0  8028 19D0 28A3      2093        MVWZ   TURESUL+2,R5           CLEAP RESULTS WORD 2
0031F6  4224 3470           2094        MVWI   0,CEDAT                SET DIAGNOSTIC MODE
0031FA  4020 3462 0000      2095        BAL    CEOP1,R6               *
003200  4020 3464 0000      2096        DC     A(T67ER)               *
003206  CD25 18C8           2097        TBTS   (R4,XI)                TURN ON EXPECTED INTERRUPT (ATTEN)
00320A  4724 2A68           2098        MVWI   X'8000',CEDAT2         TURN ON READY
00320E  6008                2099        BAL    CEOP2,R6               *
003210  CD25 18CA           2100        DC     A(T67ER)               *
003214  4020 28A8 0000      2101        TBTR   (R4,IN)                TURN OFF ATTENTION INTEPRUPT
00321A  6E03 2840           2102        BOFF   T67EP                  NO INTEPRUPT RECEIVED
00321E  32E4                2103        CWI    X'0704',$IOIN          CHECK FOR INT COND CODE OF 4
003220  4C62                2104        JE     T67H                   OK
003222  6808 28AC 8000      2105        B      T7EP                   WRONG INTERRUPT CODE
003228  6E03 2854           2106 T67H   MVWI   24,CTR01               INIT COUNTER
00322C  32E4                2107        MVWI   X'08C0',CEDAT2         SEND INDEX PULSE,BEHIND HOME,
00322E  4CA3                2108        BAL    CEOP2,R6               * SEEK COMPLETE
003230  6800 32E4           2109        DC     A(T67ER)               ERROR
003234  402F 2702 0704      2110        MVWI   X'0400',CEDAT2         SEND SECTOR PULSE
00323A  1002                2111        BAL    CEOP2,R6               *
00323C  32E4                2112        DC     A(T67ER)               EPROR
003240  4020 2826 0018      2113 T67S   MVWI   X'3000',CEDAT2         SEND CEOP2 USING '3000' DATA
003246  4020 28AC 08C0      2114        BAL    CEOP2,R6               *
00324C  6E03 2854           2115        DC     A(T67ER)               *
003250  32E4                2116        MVWI   X'0200',CEDAT2         SEND CEOP2 USING '0200' DATA
003252  4020 28AC 0400      2117        BAL    CEOP2,R6               *
003258  6E03 2854           2118        DC     A(T67ER)               *
00325C  32E4                2119        MVWI   X'0008',CEDAT2         SEND CEOP2 USING '0008' DATA
003260  4020 28AC 3000      2120        BAL    CEOP2,R6               *
003266  6E03 2854           2121        DC     A(T67ER)               *
00326A  4020 28AC 0200      2122        SWI    1,CTR01                DECREMENT COUNT
003270  6E03 2854           2123        JNZ    T67S                   CONTINUE TO SEND CLOCKS
003274  32E4                2124        TBTS   (R4,NI)                TURN ON NO INTER MODE INDICATOR
003276  4020 28AC 0008      2125        MVWI   X'0000',RSDCB+4        PHYSICAL SECTOR = ZERO
00327C  6E03 2854           2126        BAL    $RDID,R6               READ SECTOR ID
003280  32E4                2127        DC     A(T67ER)               ERROR
003282  402E 2826 0001      2128        MVWI   1024,R0                TIME OUT 2 MSEC
003288  18EA                2129        JCT    *,R0                   *
00328A  4C67                2130        MVWI   X'FFFF',R3             INIT XOR REGISTER
00328C  4020 277C 0000      2131 T67D   BAL    T67CC,R5               STIMULATE CLOCK BITS
003292  6E03 28C2           2132        BAL    T67SS,R5               READ SENSE WORDS
003296  4024                2133        J      T67D                   LOOP
003298  4024 0400           2134 *
00329C  B8FF                2135 *
00329E  4324 FFFF           2136 T67F   TBTR   (R4,IN)                HAS INTERRUPT OCCURFED?
0032A2  6D03 32FC           2137        JOFF   T67I                   NO-ERROR
0032A6  6D03 340A           2138        MVWI   1,CEDAT2               RESET CE DIAG MODE
0032AA  50FB                2139        BAL    CEOP2,R6               *
0032AC  4CA3                2140        DC     A(T67ER)               *
0032AE  101E                2141        CW     T67XR,R3               COMPARE RESULTS
0032B0  4020 28AC 0001      2142        JNE    T67E                   ERROR
0032B6  6E03 2854           2143        BAL    XIOCS,R6               START CYCLE STEAL STATS
0032BA  32E4                2144        DC     A(T67ER)               OIO CC ERROR
0032BC  CB24 346E           2145        TBTR   (R4,ER)                TEST FOR ERROR
0032C0  2E03 2974           2146        JON    T67ER                  ERROR
0032C2  6E03 2974           2147        AW     CSTL2,T67U             ADD CYCLE STEAL DATA TO SUM CHECK
0032C6  32E4                2148        CW     T67U,T67RE             COMPARE RESULTS
0032C8  4CA1                2149        JNE    T67E                   ERROR
0032CA  120C                2150        CB     T67U+2,T67RE+2         COMPARE RESULTS
0032CC  A828 2722 3462      2151        JNE    T67E                   ERROR
0032D2  882B 3462 346A
0032D8  180C
0032DA  8025 3464 346C
0032E0  1808
```

```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                           2152       J     T67X
                           2153  *
0032E4  402C 18C8 0002     2154  T67ER  OWI   X'0002',TURESUL      SET OIO CC ERROR
0032EA  5006               2155         J     T67X
0032EC  4724 2A68          2156  T67I   MVA   IOBLK,R7             ISSUE DEVICE RESET
0032F0  6008               2157         SVC   RESET                *
0032F2  402C 18C8 0001     2158  T67E   OWI   X'0001',TURESUL      SET CLOCK STEP ERROR
                           2159  T67X  TXIT
0032F8  6802 2B00          2160+T67X    B     $CONX                RETURN TO MDI CONTROLLER
                           2161+*****************************************************************
                           2162  *
                           2163  *
0032FC  6D0D 3408          2164  T67CC  MVW   R5,T67C+2            SET RETURN ADDRESS
003300  408F FFFF          2165         CWI   -1,(R2)              CHK FOR END OF STIMULATE TABLE
003304  6800 32AC          2166         BE    T67F                 BCH   IF END OF TABLE
003308  408F FFFE          2167         CWI   X'FFFE',(R2)         TST FOR DATA
00330C  101F               2168         JE    T67T                 YES
00330E  408F FFFD          2169         CWI   X'FFFD',(R2)         TEST FOR CLOCKS
003312  1002               2170         JE    T67M                 YES
003314  6802 33F8          2171         B     T67EE
003318  7A41 0002          2172  T67M   AWI   2,R2                 INC TABLE ADDRESS
00331C  C880               2173         MVW   (R2),R0              GET CLOCK COUNT
00331E  7806 0000          2174  T67N   CWI   0,R0                 COUNT ZERO?
003322  6800 3402          2175         BE    T67FF                RETURN
003326  4020 28AC 3000     2176         MVWI  X'3000',CEDAT2       SEND CEOP2 USING '3000' DATA
00332C  6E03 2854          2177         BAL   CEOP2,R6             *
003330  32E4               2178         DC    A(T67ER)             *
003332  6D03 340A          2179         BAL   T67SS,R5             SENSE DATA
003336  4020 28AC 0008     2180         MVWI  X'0008',CEDAT2       SEND CEOP2 USING '0008' DATA
00333C  6E03 2854          2181         BAL   CEOP2,R6             *
003340  32E4               2182         DC    A(T67ER)             *
003342  6D03 340A          2183         BAL   T67SS,R5             SENSE DATA
003346  7802 0001          2184         SWI   1,R0                 DECREMENT CLOCK COUNT
00334A  50E9               2185         J     T67N                 LOOP
00334C  7A41 0002          2186  T67T   AWI   2,R2                 INC TABLE ADDRESS
003350  408F FFFE          2187         CWI   X'FFFE',(R2)         END OF DATA?
003354  1056               2188         JE    T67FF                YES
003356  408F FFFC          2189         CWI   X'FFFC',(R2)         REPEAT READ DATA?
00335A  1003               2190         JE    T67R                 YES
00335C  6D03 3382          2191         BAL   T67L,R5              READ DATA
003360  50F5               2192         J     T67T
003362  7A41 0002          2193  T67R   AWI   2,R2                 INC TABLE ADDRESS
003366  C980               2194         MVW   (R2),R1              REPEAT COUNT
003368  7906 0000          2195         CWI   0,R1                 REPEAT COUNT ZERO?
00336C  10EF               2196         JE    T67T                 YES
00336E  7A41 0002          2197         AWI   2,R2                 INC TABLE ADDRESS
003372  6D03 3382          2198  T67V   BAL   T67L,R5              READ DATA
003376  7922 0001          2199         SWI   1,R1                 DECREMENT REPEAT COUNT
00337A  7906 0000          2200         CWI   0,R1                 REPEAT COUNT ZERO?
00337E  10E6               2201         JE    T67T                 YES
003380  50F8               2202         J     T67V                 REPEAT DATA LOOP
003382  6D0D 33F6          2203  T67L   MVW   R5,T67JJ+2           SET UP RETURN ADDRESS
003386  4020 2826 0000     2204         MVWI  0,CTR01              INIT SHIFT COUNTER
00338C  C880               2205         MVW   (R2),R0              GET DATA
00338E  3009               2206  T67LL  SLL   1,R0                 TEST IF DATA '1'
003390  1F19               2207         JNCY  T67G                 NO
003392  4020 28AC 3000     2208         MVWI  X'3000',CEDAT2       SEND CEOP2 USING '3000' DATA
003398  6E03 2854          2209         BAL   CEOP2,R6             *
00339C  32E4               2210         DC    A(T67ER)             *
00339E  6D03 340A          2211         BAL   T67SS,R5             SENSE DATA
0033A2  4020 28AC 0200     2212         MVWI  X'0200',CEDAT2       SEND CEOP2 USING '0200' DATA
0033A8  6E03 2854          2213         BAL   CEOP2,R6             *
0033AC  32E4               2214         DC    A(T67ER)             *
0033AE  6D03 340A          2215         BAL   T67SS,R5             SENSE DATA
0033B2  4020 28AC 0008     2216         MVWI  X'0008',CEDAT2       SEND CEOP2 USING '0008' DATA
0033B8  6E03 2854          2217         BAL   CEOP2,R6             *
0033BC  32E4               2218         DC    A(T67ER)             *
0033BE  6D03 340A          2219         BAL   T67SS,R5             SENSE DATA
0033C2  5010               2220         J     T67HH
0033C4  4020 28AC 3000     2221  T67G   MVWI  X'3000',CEDAT2       SEND '3000' DATA
0033CA  6E03 2854          2222         BAL   CEOP2,R6             *
0033CE  32E4               2223         DC    A(T67ER)             *
0033D0  6D03 340A          2224         BAL   T67SS,R5             SENSE DATA
0033D4  4020 28AC 0008     2225         MVWI  X'0008',CEDAT2       SEND '0008' DATA
0033DA  6E03 2854          2226         BAL   CEOP2,R6             *
0033DE  32E4               2227         DC    A(T67ER)             *
0033E0  6D03 340A          2228         BAL   T67SS,R5             SENSE DATA
0033E4  4029 2826 0001     2229  T67HH  AWI   1,CTR01              ADD ONE TO SHIFT COUNTER
0033EA  402F 2826 0010     2230         CWI   16,CTR01             SHIFT COUNT = 16?
0033F0  1001               2231         JE    T67JJ                YES
0033F2  50CD               2232         J     T67LL
0033F4  6802 0000          2233  T67JJ  B     *-*                  RETURN TO CALLER
0033F8  8A08 28AC          2234  T67EE  MVW   (R2),CEDAT2          LD  DATA INTO IO BLOCK
0033FC  6E03 2854          2235         BAL   CEOP2,R6             WRITE CLOCK DATA
003400  32E4               2236         DC    A(T67ER)
003402  7A41 0002          2237  T67FF  AWI   2,R2                 INC TABLE ADDRESS
003406  6802 0000          2238  T67C   B     *-*                  RETURN TO CALLER
                           2239  *
00340A  6E03 287C          2240  T67SS  BAL   SENS0,P6             READ SENSE WORD ONE
00340E  32E4               2241         DC    A(T67ER)
003410  4C23               2242         TBT   (R4,IN)              INTERRUPT?
003412  1003               2243         JOFF  T67A                 NO
003414  402C 28A0 4000     2244         OWI   X'4000',RDATA0       SET INTERRUPT BIT IN SENSE WORD
00341A  8828 28A0 3466     2245  T67A   MVW   RDATA0,T67TP         SAVE DATA
003420  6E03 2868          2246         BAL   SENS1,R6             READ SENSE WORD ONE
003424  32E4               2247         DC    A(T67ER)
003426  402D 28A4 4E7F     2248         RBTWI X'4E7F',RDATA        RESET UNUSED BITS
00342C  402B 28A4 0080     2249         TWI   X'0080',RDATA        MOVE BIT FROM BYTE TO BYTE
003432  1003               2250         JOFF  T67B                 BIT NOT ON
003434  402C 28A4 0200     2251         OWI   X'0200',RDATA        SET BIT ON
00343A  C720 28A4          2252  T67B   MVB   RDATA,R7            SAVE DATA
00343E  C72E 3464          2253         AB    P7,T67U+2            DEVELOP SUM CHECK
003442  1F03               2254         JNCY  T67RR                JUMP IF NO CARRY
003444  4029 3462 0001     2255         AWI   1,T67U
00344A  A828 3466 3462     2256  T67RR  AW    T67TP,T67U
003450  C323 3468          2257         XB    T67TP+2,R3           XOR EXPECT DATA
003454  6B0B 3466          2258         XW    T67TP,R3             *
003458  4C23               2259  T67K   TBT   (R4,IN)              TEST FOR INTEP IN GEN MODE
00345A  1002               2260         JOFF  T67J                 NO INTERRUPT
00345C  4080 FFFF          2261         MVWI  X'FFFF',(R2)         INSERT END OF TABLE CHAR
003460  5500               2262  T67J   BXS   (R5)                 RETURN TO CALLER
                           2263  *
                           2264  *
                           2265  *
```



```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
003462  00000000           2266  T67U   DC    2A(*-*)
003466  00000000           2267  T67TP  DC    2A(*-*)
00346A  A405               2268  T67RE  DC    X'A405'              EXPECTED RESULTS  (DUTCHESS)
00346C  DB00               2269         DC    X'DB00'              *
00346E  38F6               2270  T67XR  DC    X'38F6'              *
                           2271  *
003470                     2272  T67ST  EQU   *                     WRITE CLOCK STIMULATE TABLE
003470  8048               2273         DC    X'8048'              READ SECTOR ID
003472  0400               2274         DC    X'0400'
003474  0800               2275         DC    X'0800'
003476  0400               2276         DC    X'0400'
003478  FFFD               2277         DC    X'FFFD'
00347A  0049               2278         DC    X'0049'
00347C  3000               2279         DC    X'3000'
00347E  0200               2280         DC    X'0200'
003480  0008               2281         DC    X'0008'
003482  3000               2282         DC    X'3000'
003484  0200               2283         DC    X'0200'
003486  0008               2284         DC    X'0008'
003488  FFFE               2285         DC    X'FFFE'
00348A  0E12               2286         DC    X'0E12'
00348C  3456               2287         DC    X'3456'
00348E  789A               2288         DC    X'789A'
003490  FFFE               2289         DC    X'FFFE'
003492  FFFE               2290         DC    X'FFFE'
003494  F8A1               2291         DC    X'F8A1'              WRONG CRC-SHOULD BE 'F8A0'
003496  FFFE               2292         DC    X'FFFE'
003498  3000               2293         DC    X'3000'
00349A  0008               2294         DC    X'0008'
00349C  3000               2295         DC    X'3000'
00349E  0008               2296         DC    X'0008'
0034A0  3000               2297         DC    X'3000'
0034A2  0008               2298         DC    X'0008'
0034A4  3000               2299         DC    X'3000'
0034A6  0008               2300         DC    X'0008'
0034A8  3000               2301         DC    X'3000'
0034AA  0008               2302         DC    X'0008'
0034AC  3000               2303         DC    X'3000'
0034AE  0008               2304         DC    X'0008'
0034B0  3000               2305         DC    X'3000'
0034B2  0008               2306         DC    X'0008'
0034B4  3000               2307         DC    X'3000'
0034B6  0008               2308         DC    X'0008'
0034B8  3000               2309         DC    X'3000'
0034BA  0008               2310         DC    X'0008'
0034BC  3000               2311         DC    X'3000'
0034BE  0008               2312         DC    X'0008'
0034C0  FFFF               2313         DC    X'FFFF'
0034C2  FFFF               2314         DC    X'FFFF'
                           2315  *
                           2316  *
                           2318         COPY  T7868                01DEC76
                           2319  T7868  TUIT  T68EE
                           2320+*****************************************************************06FEB76**
                           2321+*
                           2322+*  TEST UNIT
                           2323+*
                           2324+*      4962 CONTROL CLOCK STEP DIAGNOSTIC (READ DATA-CRC ERR)  3/11/77
                           2325+*
                           2326+*  PURPOSE
                           2327+*
                           2328+*
                           2329+*  CALLING SEQUENCE
                           2330+*
                           2331+*      THIS ROUTINE WILL SIMULATE FILE 'CLOCK  AND DATA' INFORMATION
                           2332+*      VIA THE 'CLOCK STEP DIAGNOSTIC' TO TEST THE 4962 CONTROL CARDS.
                           2333+*
                           2334+*      PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
                           2335+*      .       TURESUL BIT 0------------NOT USED
                           2336+*      .       TURESUL BIT 1------------NOT USED
                           2337+*      .       TURESUL BIT 2------------NOT USED
                           2338+*      .       TURESUL BIT 3------------NOT USED
                           2339+*      .
                           2340+*      .       TURESUL BIT 4------------NOT USED
                           2341+*      .       TURESUL BIT 5------------ NOT USED
                           2342+*      .       TURESUL BIT 6------------ NOT USED
                           2343+*      .       TURESUL BIT 7------------ NOT USED
                           2344+*      .
                           2345+*      .       TURESUL BIT 8------------NOT USED
                           2346+*      .       TURESUL BIT 9------------ NOT USED
                           2347+*      .       TURESUL BIT 10-----------NOT USED
                           2348+*      .       TURESUL BIT 11-----------NOT USED
                           2349+*      .
                           2350+*      .       TURESUL BIT 12-----------NOT USED
                           2351+*      .       TURESUL BIT 13----------- NOT USED
                           2352+*      .       TURESUL BIT 14-----------OIO CC ERROR
                           2353+*      .       TURESUL BIT 15-COMPARE ERROR BETWEEN EXPECT TABLE & SENSE
                           2354+*                        INFORMATION
                           2355+*
                           2356+*  RETURN CONTROL
                           2357+*
                           2358+*       B      TUPTN*               RETURN TO MDI SUPERVISOR
                           2359+*
                           2360+*****************************************************************
0034C4  6F0D 2738          2361+T7868   MVW   R7,TUPTN             SAVE RETURN ADDRESS
0034C8  4020 3700 7868     2362+        MVWI  X'7868',$TUID        SAVE TU ID FOR DISPLAY
0034CE  4424 26FA          2363+        MVA   OPTN1,R4             SET UP POINTER ADRS IN R4
0034D2  6E03 2A7C          2364+        BAL   $CONC,R6             CLEAR DEV DEP STG AND CONNECT I/O BL
0034D6  35E4               2365+        DC    A(T68ER)             ERROR ADRS FOP INVALID PREP
                           2366+*
0034D8  8028 19D0 28A3     2367         MVB   DEVADD,IDCB1+1       LOAD DEVICE ADDRESS IN IDCB
0034DE  4224 3870          2368         MVA   T68ST,R2             ADDRESS OF CLOCK STEP BUFFER
0034E2  4020 3762 0000     2369         MVWI  0,T68U               CLEAR SUM COUNTERS
0034E8  4020 3764 0000     2370         MVWI  0,T68U+2             *
0034EE  CD25 18C8          2371         MVWZ  TURESUL,R5           CLEAR RESULTS WORD
0034F2  4724 2A68          2372         MVA   IOBLK,R7             ISSUE DEVICE RESET
0034F6  6008               2373         SVC   RESET                *
0034F8  CD25 18CA          2374         MVWZ  TURESUL+2,R5         CLEAR RESULTS WORD 2
0034FC  4020 28A8 0000     2375         MVWI  0,CEDAT              SET DIAGNOSTIC MODE
003502  6E03 2840          2376         BAL   CEOP1,R6             *
003506  35E4               2377         DC    A(T68ER)             *
003508  4C62               2378         TBTS  (R4,XI)              TURN ON EXPECTED INTERRUPT (ATTEN)
00350A  4020 28AC 8000     2379         MVWI  X'8000',CEDAT2       TURN ON READY
003510  6E03 2854          2380         BAL   CEOP2,R6             *
```

```
 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
003514  35E4            2381         DC    A(T68EP)              *
003516  4CA3            2382         TBTR  (R4,IN)               TURN OFF ATTENTION INTERRUPT
003518  6800 35E4       2383         BOFF  T68ER                 NO INTERRUPT RECEIVED
00351C  402F 2702 0704  2384         CWI   X'0704',$IOIN         CHECK FOR INT COND CODE OF 4
003522  1002            2385         JE    T68H                  OK
003524  6802 35E4       2386         B     T68ER                 WRONG INTERRUPT CODE
003528  4020 2826 0018  2387 T68H     MVWI  24,CTR01              INIT COUNTER
00352E  4020 28AC 08C0  2388         MVWI  X'08C0',CEDAT2        SEND INDEX PULSE,BEHIND HOME,
003534  6E03 2854       2389         BAL   CEOP2,R6              * SEEK COMPLETE
003538  35E4            2390         DC    A(T68EP)              ERROR
00353A  4020 28AC 0400  2391         MVWI  X'0400',CEDAT2        SEND SECTOR PULSE
003540  6E03 2854       2392         BAL   CEOP2,R6              *
003544  35E4            2393         DC    A(T68EP)              ERROR
003546  4020 28AC 3000  2394 T68S     MVWI  X'3000',CEDAT2        SEND CEOP2 USING '3000' DATA
00354C  6E03 2854       2395         BAL   CEOP2,R6              *
003550  35E4            2396         DC    A(T68EP)              *
003552  4020 28AC 0200  2397         MVWI  X'0200',CEDAT2        SEND CEOP2 USING '0200' DATA
003558  6E03 2854       2398         BAL   CEOP2,R6              *
00355C  35E4            2399         DC    A(T68EP)              *
00355E  4020 28AC 0008  2400         MVWI  X'0008',CEDAT2        SEND CEOP2 USING '0008' DATA
003564  6E03 2854       2401         BAL   CEOP2,R6              *
003568  35E4            2402         DC    A(T68EP)              *
00356A  402F 2826 0001  2403         SWI   1,CTR01               DECREMENT COUNT
003570  18EA            2404         JNZ   T68S                  CONTINUE TO SEND CLOCKS
003572  4C67            2405         TBTS  (R4,NI)               TURN ON NO INTER MODE INDICATOR
003574  4020 27DC 0000  2406         MVWI  X'0000',RDDCB+4       8-15 FLAG BYTE
00357A  4020 27DE 00FF  2407         MVWI  X'00FF',RDDCB+6       CYLINDER
003580  4020 27E0 0112  2408         MVWI  X'0112',RDDCB+8       HEAD AND SECTOR
003586  4020 27E4 00FE  2409         MVWI  X'00FE',RDDCB+12      BYTE COUNT
00358C  4020 27E6 3770  2410         MVA   FDBUF,RDDCB+14        DATA ADDRESS
003592  6E03 28DC       2411         BAL   $RD,R6                READ DATA
003596  35E4            2412         DC    A(T68EP)              ERROR
003598  4024 0400       2413         MVWI  1024,R0               TIME OUT 2 MSEC
00359C  88FF            2414         JCT   *,R0                  *
00359E  4324 FFFF       2415         MVWI  X'FFFF',R3            INIT XOR REGISTER
0035A2  6D03 35FC       2416 T68D    BAL   T68CC,R5              STIMULATE CLOCK BITS
0035A6  6D03 370A       2417         BAL   T68SS,P5              READ SENSE WORDS
0035AA  50FB            2418         J     T68D                  LOOP
                        2419 *
                        2420 *
0035AC  4CA3            2421 T68F    TBTR  (R4,IN)               HAS INTERRUPT OCCURRED?
0035AE  101E            2422         JOFF  T68I                  NO-ERROR
0035B0  4020 28AC 0001  2423         MVWI  1,CEDAT2              RESET CE DIAG MODE
0035B6  6E03 2854       2424         BAL   CEOP2,R6              *
0035BA  35E4            2425         DC    A(T68ER)              *
0035BC  CB24 376E       2426         CW    T68XR,R3              COMPARE RESULTS
0035C0  1818            2427         JNE   T68E                  ERROR
0035C2  6E03 2974       2428         BAL   XIOCS,R6              START CYCLE STEAL STATS
0035C6  35E4            2429         DC    A(T68EP)              OIO CC ERROR
0035C8  4CA1            2430         TBTR  (R4,ER)               TEST FOR ERROR
0035CA  120C            2431         JON   T68EP                 ERROR
0035CC  A828 2722 3762  2432         AW    CSTL2,T68U            ADD CYCLE STEAL DATA TO SJM CHECK
0035D2  882B 3762 376A  2433         CW    T68U,T68RE            COMPARE RESULTS
0035D8  180C            2434         JNE   T68E                  ERROR
0035DA  802B 3764 376C  2435         CB    T68U+2,T68RE+2        COMPARE RESULTS
0035E0  1808            2436         JNE   T68E                  ERROR
0035E2  500A            2437         J     T68X
                        2438 *
0035E4  402C 18C8 0002  2439 T68ER   OWI   X'0002',TURESUL       SET OIO CC ERROR
0035EA  5006            2440         J     T68X
0035EC  4724 2A68       2441 T68I    MVA   IOBLK,R7              ISSUE DEVICE RESET
0035F0  6008            2442         SVC   RESET                 *
0035F2  402C 18C8 0001  2443 T68E    OWI   X'0001',TURESUL       SET CLOCK STEP ERROR
                        2444 T68X    TXIT
0035F8  6802 2B00       2445+T68X    B     $CONX                 RETURN TO MDI CONTROLLER
                        2446*************************************************************************
                        2447 *
                        2448 *
0035FC  6D0D 3708       2449 T68CC   MVW   R5,T68C+2             SET RETURN ADDRESS
003600  408F FFFF       2450         CWI   -1,(R2)               CHK FOR END OF STIMULATE TABLE
003604  6800 35AC       2451         BE    T68F                  BCH   IF END OF TABLE
003608  408F FFFE       2452         CWI   X'FFFE',(R2)          TST FOR DATA
00360C  101F            2453         JE    T68M                  YES
00360E  408F FFFD       2454         CWI   X'FFFD',(R2)          TEST FOR CLOCKS
003612  1002            2455         JE    T68M                  YES
003614  6802 36F8       2456         B     T68EE
003618  7A41 0002       2457 T68M    AWI   2,R2                  INC TABLE ADDRESS
00361C  C880            2458         MVW   (R2),R0               GET CLOCK COUNT
00361E  7806 0000       2459 T68N    CWI   0,R0                  COUNT ZERO?
003622  6800 3702       2460         BE    T68FF                 RETURN
003626  4020 28AC 3000  2461         MVWI  X'3000',CEDAT2        SEND CEOP2 USING '3000' DATA
00362C  6E03 2854       2462         BAL   CEOP2,R6              *
003630  35E4            2463         DC    A(T68EP)              *
003632  6D03 370A       2464         BAL   T68SS,P5              SENSE DATA
003636  4020 28AC 0008  2465         MVWI  X'0008',CEDAT2        SEND CEOP2 USING '0008' DATA
00363C  6E03 2854       2466         BAL   CEOP2,R6              *
003640  35E4            2467         DC    A(T68EP)              *
003642  6D03 370A       2468         BAL   T68SS,P5              SENSE DATA
003646  7802 0001       2469         SWI   1,R0                  DECREMENT CLOCK COUNT
00364A  50E9            2470         J     T68N                  LOOP
00364C  7A41 0002       2471 T68T    AWI   2,R2                  INC TABLE ADDRESS
003650  408F FFFE       2472         CWI   X'FFFE',(R2)          END OF DATA?
003654  1056            2473         JE    T68FF                 YES
003656  408F FFFC       2474         CWI   X'FFFC',(P2)          REPEAT READ DATA?
00365A  1003            2475         JE    T68L                  YES
00365C  6D03 3682       2476         BAL   T68L,R5               READ DATA
003660  50F5            2477         J     T68T
003662  7A41 0002       2478 T68R    AWI   2,R2                  INC TABLE ADDRESS
003666  C980            2479         MVW   (R2),R1               REPEAT COUNT
003668  7906 0000       2480         CWI   0,R1                  REPEAT COUNT ZERO?
00366C  10EF            2481         JE    T68T                  YES
00366E  7A41 0002       2482         AWI   2,R2                  INC TABLE ADDRESS
003672  6D03 3682       2483 T68V    BAL   T68L,R5               READ DATA
003676  7922 0001       2484         SWI   1,R1                  DECREMENT REPEAT COUNT
00367A  7906 0000       2485         CWI   0,R1                  REPEAT COUNT ZERO?
00367E  10E6            2486         JE    T68T                  YES
003680  50F8            2487         J     T68V                  REPEAT DATA LOOP
003682  6D0D 36F6       2488 T68L    MVW   R5,T68JJ+2            SET UP RETURN ADDRESS
003686  4020 2826 0000  2489         MVWI  0,CTR01               INIT SHIFT COUNTER
00368C  C880            2490         MVW   (R2),R0               GET DATA
00368E  3009            2491 T68LL   SLL   1,R0                  TEST IF DATA '1'
003690  1F19            2492         JNCY  T68G                  NO
003692  4020 28AC 3000  2493         MVWI  X'3000',CEDAT2        SEND CEOP2 USING '3000' DATA
003698  6E03 2854       2494         BAL   CEOP2,R6              *
```



```
 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
00369C  35E4            2495         DC    A(T68ER)              *
00369E  6D03 370A       2496         BAL   T68SS,R5              SENSE DATA
0036A2  4020 28AC 0200  2497         MVWI  X'0200',CEDAT2        SEND CEOP2 USING '0200' DATA
0036A8  6E03 2854       2498         BAL   CEOP2,R6              *
0036AC  35E4            2499         DC    A(T68ER)              *
0036AE  6D03 370A       2500         BAL   T68SS,R5              SENSE DATA
0036B2  4020 28AC 0008  2501         MVWI  X'0008',CEDAT2        SEND CEOP2 USING '0008' DATA
0036B8  6E03 2854       2502         BAL   CEOP2,R6              *
0036BC  35E4            2503         DC    A(T68ER)              *
0036BE  6D03 370A       2504         BAL   T68SS,P5              SENSE DATA
0036C2  5010            2505         J     T68HH
0036C4  4020 28AC 3000  2506 T68G    MVWI  X'3000',CEDAT2        SEND '3000' DATA
0036CA  6E03 2854       2507         BAL   CEOP2,R6              *
0036CE  35E4            2508         DC    A(T68ER)              *
0036D0  6D03 370A       2509         BAL   T68SS,P5              SENSE DATA
0036D4  4020 28AC 0008  2510         MVWI  X'0008',CEDAT2        SEND '0008' DATA
0036DA  6E03 2854       2511         BAL   CEOP2,R6              *
0036DE  35E4            2512         DC    A(T68ER)              *
0036E0  6D03 370A       2513         BAL   T68SS,R5              SENSE DATA
0036E4  4029 2826 0001  2514 T68HH    AWI   1,CTR01              ADD ONE TO SHIFT COUNTER
0036EA  402F 2826 0010  2515         CWI   16,CTR01              SHIFT COUNT = 16?
0036F0  1001            2516         JE    T68JJ                 YES
0036F2  50CD            2517         J     T68LL
0036F4  88FF            2518 T68JJ   B     *-*                   RETURN TO CALLER
0036F8  8A08 28AC       2519 T68EE   MVW   (R2),CEDAT2           LD  DATA INTO IO BLOCK
0036FC  6E03 2854       2520         BAL   CEOP2,R6              WRITE CLOCK DATA
003700  35E4            2521         DC    A(T68ER)
003702  7A41 0002       2522 T68FF   AWI   2,R2                  INC TABLE ADDRESS
003706  6802 0000       2523 T68C    B     *-*                   RETURN TO CALLER
                        2524 *
00370A  6E03 287C       2525 T68SS   BAL   SENSO,P6              READ SENSE WORD ONE
00370E  35E4            2526         DC    A(T68ER)
003710  4C23            2527         TBT   (R4,IN)               INTERRUPT?
003712  1003            2528         JOFF  T68A                  NO
003714  402C 28A0 4000  2529         OWI   X'4000',RDATA0        SET INTERRUPT BIT IN SENSE WORD
00371A  8828 28A0 3766  2530 T68A    MVW   RDATA0,T68TP          SAVE DATA
003720  6E03 2868       2531         BAL   SENS1,R6              READ SENSE WORD ONE
003724  35E4            2532         DC    A(T68ER)
003726  4B2D 28A4 4E7F  2533         RBTWI X'4E7F',RDATA         RESET UNUSED BITS
00372C  402B 28A4 0080  2534         TWI   X'0080',RDATA         MOVE BIT FROM BYTE TO BYTE
003732  1003            2535         JOFF  T68B                  BIT NOT ON
003734  402C 28A4 0200  2536         OWI   X'0200',RDATA         SET BIT ON
00373A  C720 28A4       2537 T68B    MVB   RDATA,R7              SAVE DATA
00373E  C72E 3764       2538         AB    R7,T680+2             DEVELOP SUM CHECK
003742  1F03            2539         JNCY  T68RR                 JUMP IF NO CARRY
003744  4A28 3766 0001  2540         AWI   1,T68U
00374A  A828 3766 3762  2541 T68RP   AW    T68TP,T68U
003750  C323 3768       2542         XB    T68TP+2,R3            XOR EXPECT DATA
003754  6B0B 3766       2543         XW    T68TP,R3              *
003758  4C23            2544 T68K    TBT   (R4,IN)               TEST FOR INTER IN GEN MODE
00375A  1002            2545         JOFF  T68J                  NO INTERRUPT
00375C  4080 FFFF       2546         MVWI  X'FFFF',(R2)          INSERT END OF TABLE CHAR
003760  5500            2547 T68J    BXS   (P5)                  RETURN TO CALLER
                        2548 *
                        2549 *
                        2550 *
003762  00000000        2551 T68U    DC    2A(*-*)
003766  00000000        2552 T68TP   DC    2A(*-*)
00376A  ACF6            2553 T68RE   DC    X'ACF6'               EXPECTED RESULTS  (DUTCHESS)
00376C  3000            2554         DC    X'3000'               *
00376E  1EA7            2555 T68XR   DC    X'1EA7'               *
003770  00000000000000000 2556 RDBUF   DC    128A(*-*)             READ BUFFER
                        2557 *
003870                  2558 T68ST   EQU   *                     WRITE CLOCK STIMULATE TABLE
003870  8048            2559         DC    X'8048'               READ DATA
003872  0400            2560         DC    X'0400'
003874  0400            2561         DC    X'0400'
003876  FFFD            2562         DC    X'FFFD'
003878  0049            2563         DC    X'0049'               CLOCKS
00387A  3000            2564         DC    X'3000'
00387C  0200            2565         DC    X'0200'
00387E  0008            2566         DC    X'0008'
003880  0300            2567         DC    X'0300'
003882  0200            2568         DC    X'0200'
003884  0008            2569         DC    X'0008'
003886  FFFE            2570         DC    X'FFFE'               START ID FIELD
003888  0E00            2571         DC    X'0E00'               'OE'-F
00388A  00FF            2572         DC    X'00FF'               C-C
00388C  0112            2573         DC    X'0112'               H-S
00388E  DF2D            2574         DC    X'DF2D'               CRC
003890  FFFE            2575         DC    X'FFFE'
003892  3000            2576         DC    X'3000'
003894  0008            2577         DC    X'0008'
003896  3000            2578         DC    X'3000'
003898  0008            2579         DC    X'0008'
00389A  3000            2580         DC    X'3000'
00389C  0008            2581         DC    X'0008'
00389E  3000            2582         DC    X'3000'
0038A0  0008            2583         DC    X'0008'
0038A2  FFFD            2584         DC    X'FFFD'               SEND    WRITE CLOCKS
0038A4  004D            2585         DC    X'004D'
0038A6  3000            2586         DC    X'3000'
0038A8  0200            2587         DC    X'0200'
0038AA  0008            2588         DC    X'0008'
0038AC  3000            2589         DC    X'3000'
0038AE  0200            2590         DC    X'0200'
0038B0  0008            2591         DC    X'0008'
0038B2  3000            2592         DC    X'3000'
0038B4  0008            2593         DC    X'0008'
0038B6  3000            2594         DC    X'3000'
0038B8  0008            2595         DC    X'0008'
0038BA  3000            2596         DC    X'3000'
0038BC  0008            2597         DC    X'0008'
0038BE  3000            2598         DC    X'3000'
0038C0  0008            2599         DC    X'0008'
0038C2  3000            2600         DC    X'3000'
0038C4  0200            2601         DC    X'0200'
0038C6  0008            2602         DC    X'0008'
0038C8  3000            2603         DC    X'3000'
0038CA  0200            2604         DC    X'0200'
0038CC  0008            2605         DC    X'0008'
0038CE  3000            2606         DC    X'3000'
0038D0  0200            2607         DC    X'0200'
0038D2  0008            2608         DC    X'0008'
```

```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT

0038D4  3000              2609        DC    X'3000'
0038D6  0008              2610        DC    X'0008'
0038D8  FFFE              2611        DC    X'FFFE'          DATA FIELD
0038DA  0123              2612        DC    X'0123'
0038DC  4567              2613        DC    X'4567'
0038DE  89AB              2614        DC    X'89AB'
0038E0  CDEF              2615        DC    X'CDEF'
0038E2  FFFE              2616        DC    X'FFFE'
0038E4  FFFE              2617        DC    X'FFFE'
0038E6  FFFC              2618        DC    X'FFFC'          REPEAT READ DATA (TOTAL COUNT 7C)
0038E8  007C              2619        DC    X'007C'          *
0038EA  0000              2620        DC    X'0000'          'DATA'
0038EC  7A8B              2621        DC    X'7A8B'          CRC ERROR-SHOULD BE '7B8B'
0038EE  FFFE              2622        DC    X'FFFE'
0038F0  FFFD              2623        DC    X'FFFD'          SEND CLOCKS
0038F2  0105              2624        DC    X'0105'
0038F4  3000              2625        DC    X'3000'
0038F6  FFFF              2626        DC    X'FFFF'
0038F8  FFFF              2627        DC    X'FFFF'
000000                    2629        END
```


CROSS-REFERENCE LISTING

```
DECLARED  NAME      ATTRIBUTES AND REFERENCES

    0     .R0.       ABSOLUTE.  HEX VALUE(00000000)
                    1582  1583  1627  1628  1638  1659  1660  1866  1867
                    1911  1912  1922  1943  1944  2128  2129  2173  2174
                    2184  2205  2206  2413  2414  2458  2459  2469  2490
                    2491
    0     .R1.       ABSOLUTE.  HEX VALUE(00000001)
                    1440  1443  1446  1449  1648  1649  1653  1654  1932
                    1933  1937  1938  2194  2195  2199  2200  2479  2480
                    2484  2485
    0     .R2.       ABSOLUTE.  HEX VALUE(00000002)
                    1445  1446  1541  1619  1621  1623  1626  1627  1627
                    1627  1640  1641  1643  1647  1648  1648  1648  1651
                    1659  1659  1659  1688  1691  1715  1822  1903  1905
                    1907  1910  1911  1911  1911  1924  1925  1927  1931
                    1932  1932  1932  1935  1943  1943  1943  1972  1975
                    1999  2087  2165  2167  2169  2172  2173  2173  2173
                    2186  2187  2189  2193  2194  2194  2194  2197  2205
                    2205  2205  2234  2237  2261  2368  2450  2452  2454
                    2457  2458  2458  2458  2471  2472  2474  2478  2479
                    2479  2479  2482  2490  2490  2490  2519  2522  2546
    0     .R3.       ABSOLUTE.  HEX VALUE(00000003)
                     971   972  1047  1050  1076  1079  1149  1159  1162
                    1163  1166  1168  1224  1225  1260  1266  1270  1300
                    1305  1318  1348  1393  1395  1396  1404  1438  1439
                    1443  1455  1584  1595  1711  1712  1868  1879  1995
                    1996  2130  2141  2257  2258  2415  2426  2542  2543
    0     .R4.       ABSOLUTE.  HEX VALUE(00000004)
                    1152  1153  1156  1170  1171  1173  1174  1177  1183
                    1189  1261  1262  1264  1268  1272  1301  1302  1303
                    1313  1314  1315  1317  1320  1330  1332  1334  1337
                    1339  1536  1551  1555  1578  1590  1599  1696  1713
                    1817  1832  1836  1859  1874  1883  1980  1997  2082
                    2097  2101  2124  2136  2145  2242  2259  2363  2378
                    2382  2405  2421  2430  2527  2544
    0     .R5.       ABSOLUTE.  HEX VALUE(00000005)
                    1048  1050  1077  1079  1160  1162  1164  1166  1182
                    1187  1309  1310  1311  1342  1343  1345  1394  1395
                    1437  1450  1544  1547  1585  1586  1618  1633  1637
                    1645  1652  1657  1665  1669  1673  1678  1682  1716
                    1825  1828  1869  1870  1902  1917  1921  1929  1936
                    1941  1949  1953  1957  1962  1966  2000  2090  2093
                    2131  2132  2160  2179  2183  2191  2198  2203  2211
                    2215  2219  2224  2228  2262  2371  2374  2416  2417
                    2449  2464  2468  2476  2483  2488  2496  2500  2504
                    2509  2513  2547
    0     .R6.       ABSOLUTE.  HEX VALUE(00000006)
                     939   943   945   949   951   955   958   962   964
                     968   973  1158  1178  1190  1226  1331  1336  1338
                    1344  1347  1349  1399  1405  1407  1442  1447  1448
                    1537  1549  1553  1562  1565  1568  1571  1574  1580
                    1593  1597  1631  1635  1663  1667  1671  1676  1680
                    1689  1694  1700  1818  1830  1834  1843  1846  1849
                    1852  1855  1864  1877  1881  1915  1919  1947  1951
                    1955  1960  1964  1973  1978  1984  2083  2095  2099
                    2108  2111  2114  2117  2120  2126  2139  2143  2177
                    2181  2209  2213  2217  2222  2226  2235  2240  2246
                    2364  2376  2380  2389  2392  2395  2398  2401  2411
                    2424  2428  2462  2466  2494  2498  2502  2507  2511
                    2520  2525  2531
    0     .R7.       ABSOLUTE.  HEX VALUE(00000007)
                     637  1049  1078  1161  1165  1172  1265  1306  1392
                    1397  1402  1435  1441  1444  1456  1459  1534  1545
                    1610  1706  1707  1815  1826  1894  1990  1991  2080
                    2091  2156  2252  2253  2361  2372  2441  2537  2538
 1392   $CONC      ADDRESS.  HEX LOCATION(00002A7C) IN CSECT(I7821   ) LENGTH(2)
                    1537  1818  2083  2364
 1458   $CONX      ADDRESS.  HEX LOCATION(00002B00) IN CSECT(I7821   ) LENGTH(1)
                    1614  1898  2160  2445
  626   $INTL      ADDRESS.  HEX LOCATION(00002736) IN CSECT(I7821   ) LENGTH(2)
                    1311  1401
  596   $IOIN      ADDRESS.  HEX LOCATION(00002702) IN CSECT(I7821   ) LENGTH(2)
                     972  1167  1225  1305  1342  1403  1557  1838  2103
                    2384
  597   $ISB       ADDRESS.  HEX LOCATION(00002704) IN CSECT(I7821   ) LENGTH(2)
                    1168  1306  1345  1404
  581   $LE        ABSOLUTE.  HEX VALUE(00000026)
                    1173  1313
 1054   $RD        ADDRESS.  HEX LOCATION(000028DC) IN CSECT(I7821   ) LENGTH(6)
                    2411
 1046   $RDID      ADDRESS.  HEX LOCATION(000028C2) IN CSECT(I7821   ) LENGTH(6)
                    2126
 1063   $RKEW      ADDRESS.  HEX LOCATION(000028F4) IN CSECT(I7821   ) LENGTH(6)
                    1580
  595   $TUID      ADDRESS.  HEX LOCATION(00002700) IN CSECT(I7821   ) LENGTH(2)
                     636  1455  1489  1535  1816  2081  2362
 1083   $WKEW      ADDRESS.  HEX LOCATION(00002938) IN CSECT(I7821   ) LENGTH(6)
                    1864
  102   @DCADD1    ADDRESS.  HEX LOCATION(000019B8) IN CSECT(I7821   ) LENGTH(1)
                    1452
  103   @DCADD2    ADDRESS.  HEX LOCATION(000019BA) IN CSECT(I7821   ) LENGTH(1)
                    1453
   39   @FIXT      ABSOLUTE.  HEX VALUE(00000101)
                     399   402   429   432   459   462   489   492
   41   @GOTO      ABSOLUTE.  HEX VALUE(00000200)
                     495
   45   @TUXX      ABSOLUTE.  HEX VALUE(00000500)
                     375   387   405   417   435   447   465   477
 1463   BEGIN      ADDRESS.  HEX LOCATION(00002B0A) IN CSECT(I7821   ) LENGTH(2)
                    1480
 1484   BIT0080    ABSOLUTE.  HEX VALUE(00000080)
                    1454
 1479   BUFPT      ADDRESS.  HEX LOCATION(00002C12) IN CSECT(I7821   ) LENGTH(2)
                    1439
  970   CCERR      ADDRESS.  HEX LOCATION(00002890) IN CSECT(I7821   ) LENGTH(2)
                     942   948   954   961   967
  585   CE         ABSOLUTE.  HEX VALUE(0000002A)
                    1152  1264  1334
  981   CEDAT      ADDRESS.  HEX LOCATION(000028A8) IN CSECT(I7821   ) LENGTH(2)
                    1548  1829  2094  2375
  983   CEDAT2     ADDRESS.  HEX LOCATION(000028AC) IN CSECT(I7821   ) LENGTH(2)
                    1552  1561  1564  1567  1570  1573  1592  1630  1634
                    1662  1666  1670  1675  1679  1688  1833  1842  1845
```

CROSS-REFERENCE LISTING

DECLARED NAME ATTRIBUTES AND REFERENCES

```
                1848  1851  1854  1876  1914  1918  1946  1950  1954
                1959  1963  1972  2098  2107  2110  2113  2116  2119
                2138  2176  2180  2208  2212  2216  2221  2225  2234
                2379  2388  2391  2394  2397  2400  2423  2461  2465
                2493  2497  2501  2506  2510  2519
  945   CEOP1       ADDRESS. HEX LOCATION(00002840) IN CSECT(I7821   ) LENGTH(4)
                1549  1830  2095  2376
  951   CEOP2       ADDRESS. HEX LOCATION(00002854) IN CSECT(I7821   ) LENGTH(4)
                1553  1562  1565  1568  1571  1574  1593  1631  1635
                1663  1667  1671  1676  1680  1689  1834  1843  1846
                1849  1852  1855  1877  1915  1919  1947  1951  1955
                1960  1964  1973  2099  2108  2111  2114  2117  2120
                2139  2177  2181  2209  2213  2217  2222  2226  2235
                2380  2389  2392  2395  2398  2401  2424  2462  2466
                2494  2498  2502  2507  2511  2520
  665   CICB        ABSOLUTE. HEX VALUE(00000014)
                1398
  762   CLDCB       ADDRESS. HEX LOCATION(00002758) IN CSECT(I7821   ) LENGTH(2)
                1043
  583   CS          ABSOLUTE. HEX VALUE(00000028)
                1153  1156  1262  1303  1332
  584   CSA         ABSOLUTE. HEX VALUE(00000029)
                1337
  614   CSBUF       ADDRESS. HEX LOCATION(00002720) IN CSECT(I7821   ) LENGTH(1)
                 819  1164
  812   CSDCB       ADDRESS. HEX LOCATION(000027A8) IN CSECT(I7821   ) LENGTH(2)
                1154
  616   CSTL2       ADDRESS. HEX LOCATION(00002722) IN CSECT(I7821   ) LENGTH(2)
                1601  1885  2147  2432
  622   CSTL8       ADDRESS. HEX LOCATION(0000272E) IN CSECT(I7821   ) LENGTH(2)
                1265  1266
  892   CTR01       ADDRESS. HEX LOCATION(00002826) IN CSECT(I7821   ) LENGTH(2)
                1560  1576  1658  1683  1684  1841  1857  1942  1967
                1968  2106  2122  2204  2229  2230  2387  2403  2489
                2514  2515
  604   DCBUF       ADDRESS. HEX LOCATION(00002710) IN CSECT(I7821   ) LENGTH(1)
                1159
 1480   DC2PT       ADDRESS. HEX LOCATION(00002C14) IN CSECT(I7821   ) LENGTH(2)
                1453
  105   DEVADD      ADDRESS. HEX LOCATION(000019D0) IN CSECT(I7821   ) LENGTH(1)
                 629   940   946   952   959   965  1353  1362  1459
                1540  1821  2086  2367
  599   DEV1        ADDRESS. HEX LOCATION(00002708) IN CSECT(I7821   ) LENGTH(2)
                 603  1394
  750   DGDCB       ADDRESS. HEX LOCATION(00002748) IN CSECT(I7821   ) LENGTH(2)
                1094
   67   DUMMY       ABSOLUTE. HEX VALUE(00000000)
                 366   500   512
  501   ENTPT       ADDRESS. HEX LOCATION(00002606) IN CSECT(I7821   ) LENGTH(1)
                 198
   47   EQ          ABSOLUTE. HEX VALUE(00000000)
                 378   408   438   468
  576   ER          ABSOLUTE. HEX VALUE(00000021)
                1170  1189  1272  1314  1339  1599  1883  2145  2430
  651   EXIT        ABSOLUTE. HEX VALUE(00000006)
                1321
 1482   FAKETU      ADDRESS. HEX LOCATION(00002C18) IN CSECT(I7821   ) LENGTH(2)
                1452
  520   F00004      ADDRESS. HEX LOCATION(0000260C) IN CSECT(I7821   ) LENGTH(1)
                 400   430   460   490
  528   F00008      ADDRESS. HEX LOCATION(0000268C) IN CSECT(I7821   ) LENGTH(1)
                 403   433   463   493
  534   F00121      ADDRESS. HEX LOCATION(000026E6) IN CSECT(I7821   ) LENGTH(1)
                 496
 1488   HEBLK       ADDRESS. HEX LOCATION(00002C1A) IN CSECT(I7821   ) LENGTH(2)
                1435
  671   HTOE        ABSOLUTE. HEX VALUE(0000001A)
                1436
  980   IDCBCE1     ADDRESS. HEX LOCATION(000028A6) IN CSECT(I7821   ) LENGTH(2)
                 946   947
  982   IDCBCE2     ADDRESS. HEX LOCATION(000028AA) IN CSECT(I7821   ) LENGTH(2)
                 952   953
  984   IDCBRAP     ADDRESS. HEX LOCATION(000028AE) IN CSECT(I7821   ) LENGTH(2)
                 940   941
  976   IDCB0       ADDRESS. HEX LOCATION(0000289E) IN CSECT(I7821   ) LENGTH(2)
                 965   966
  978   IDCB1       ADDRESS. HEX LOCATION(000028A2) IN CSECT(I7821   ) LENGTH(2)
                 959   960  1540  1821  2086  2367
  647   IDLE        ABSOLUTE. HEX VALUE(00000002)
                1185
  578   IN          ABSOLUTE. HEX VALUE(00000023)
                1171  1183  1302  1555  1590  1696  1713  1836  1874
                1980  1997  2101  2136  2242  2259  2382  2421  2527
                2544
 1362   INTBL       ADDRESS. HEX LOCATION(00002A74) IN CSECT(I7821   ) LENGTH(2)
                1397
 1259   INTER       ADDRESS. HEX LOCATION(000029DC) IN CSECT(I7821   ) LENGTH(2)
                1364
 1268   INTES       ADDRESS. HEX LOCATION(000029F4) IN CSECT(I7821   ) LENGTH(2)
                1263
 1272   INTET       ADDRESS. HEX LOCATION(000029FC) IN CSECT(I7821   ) LENGTH(2)
                1269
 1299   INTOK       ADDRESS. HEX LOCATION(00002A00) IN CSECT(I7821   ) LENGTH(2)
                1363
 1321   INTRX       ADDRESS. HEX LOCATION(00002A30) IN CSECT(I7821   ) LENGTH(2)
                1316  1319
 1302   INTR1       ADDRESS. HEX LOCATION(00002A08) IN CSECT(I7821   ) LENGTH(2)
                1267  1271  1273
 1307   INTR2       ADDRESS. HEX LOCATION(00002A16) IN CSECT(I7821   ) LENGTH(1)
                1304
 1315   INTR3       ADDRESS. HEX LOCATION(00002A24) IN CSECT(I7821   ) LENGTH(2)
                1312
 1353   IOBLK       ADDRESS. HEX LOCATION(00002A68) IN CSECT(I7821   ) LENGTH(2)
                1172  1402  1545  1610  1826  1894  2091  2156  2372
                2441
 1355   IODCB       ADDRESS. HEX LOCATION(00002A6C) IN CSECT(I7821   ) LENGTH(2)
                1040  1043  1046  1054  1057  1060  1063  1067  1071
                1075  1083  1087  1090  1094  1154  1160  1401
 1356   IOMOD       ADDRESS. HEX LOCATION(00002A6E) IN CSECT(I7821   ) LENGTH(2)
                1149  1155
   37   I7821       CSECT. STAPT(00002500) LENGTH(5114) ESDID(0)
```


CROSS-REFERENCE LISTING

DECLARED NAME ATTRIBUTES AND REFERENCES

```
                  37
 1469   LINE1       ADDRESS. HEX LOCATION(00002F42) IN CSECT(I7821   ) LENGTH(40)
                1440
  598   LSTIO       ADDRESS. HEX LOCATION(00002706) IN CSECT(I7821   ) LENGTH(2)
                 939   945   951   958   964  1158  1405
  575   MI          ABSOLUTE. HEX VALUE(00000020)
                1317
 1443   MVBUF       ADDRESS. HEX LOCATION(00002ACE) IN CSECT(I7821   ) LENGTH(2)
                1447  1450
  587   NG          ABSOLUTE. HEX VALUE(0000002C)
                1320
  582   NI          ABSOLUTE. HEX VALUE(00000027)
                1177  1578  1859  2124  2405
  375   N00001      ADDRESS. HEX LOCATION(00002548) IN CSECT(I7821   ) LENGTH(2)
                 315   511
  387   N00002      ADDRESS. HEX LOCATION(0000255A) IN CSECT(I7821   ) LENGTH(2)
                 318
  399   N00003      ADDRESS. HEX LOCATION(0000256C) IN CSECT(I7821   ) LENGTH(2)
                 321
  402   N00004      ADDRESS. HEX LOCATION(00002570) IN CSECT(I7821   ) LENGTH(2)
                 324   388
  405   N00005      ADDRESS. HEX LOCATION(00002574) IN CSECT(I7821   ) LENGTH(2)
                 327   376
  417   N00006      ADDRESS. HEX LOCATION(00002586) IN CSECT(I7821   ) LENGTH(2)
                 330
  429   N00007      ADDRESS. HEX LOCATION(00002598) IN CSECT(I7821   ) LENGTH(2)
                 333
  432   N00008      ADDRESS. HEX LOCATION(0000259C) IN CSECT(I7821   ) LENGTH(2)
                 336   418
  435   N00009      ADDRESS. HEX LOCATION(000025A0) IN CSECT(I7821   ) LENGTH(2)
                 339   406
  447   N00010      ADDRESS. HEX LOCATION(000025B2) IN CSECT(I7821   ) LENGTH(2)
                 342
  459   N00011      ADDRESS. HEX LOCATION(000025C4) IN CSECT(I7821   ) LENGTH(2)
                 345
  462   N00012      ADDRESS. HEX LOCATION(000025C8) IN CSECT(I7821   ) LENGTH(2)
                 348   448
  465   N00013      ADDRESS. HEX LOCATION(000025CC) IN CSECT(I7821   ) LENGTH(2)
                 351   436
  477   N00014      ADDRESS. HEX LOCATION(000025DE) IN CSECT(I7821   ) LENGTH(2)
                 354
  489   N00015      ADDRESS. HEX LOCATION(000025F0) IN CSECT(I7821   ) LENGTH(2)
                 357
  492   N00016      ADDRESS. HEX LOCATION(000025F4) IN CSECT(I7821   ) LENGTH(2)
                 360   478
  495   N00017      ADDRESS. HEX LOCATION(000025F8) IN CSECT(I7821   ) LENGTH(2)
                 363   466
   57   ON          ABSOLUTE. HEX VALUE(00000200)
                 390   420   450   480
  540   OPTN1       ADDRESS. HEX LOCATION(000026FA) IN CSECT(I7821   ) LENGTH(2)
                1261  1301  1536  1817  2082  2363
  563   OPTN3       ADDRESS. HEX LOCATION(000026FE) IN CSECT(I7821   ) LENGTH(2)
                1348  1396
  101   PARMARA     ADDRESS. HEX LOCATION(0000196E) IN CSECT(I7821   ) LENGTH(1)
                 385   397   415   427   445   457   475   487
   69   PID         ADDRESS. HEX LOCATION(00001800) IN CSECT(I7821   ) LENGTH(1)
                  71    72    73    74    75    76    77    78    79
                  80    81    82    83    84    85    86    87    88
                  89    90    91    92    93    94    95    96    97
                  98    99   100   101   102   103   104   105   106
                 107   108   109   110   111   112  1451
 1483   PIDMSG10    ABSOLUTE. HEX VALUE(0000F1F0)
                1451
  657   PREP        ABSOLUTE. HEX VALUE(0000000C)
                1406
  979   RDATA       ADDRESS. HEX LOCATION(000028A4) IN CSECT(I7821   ) LENGTH(2)
                1702  1703  1705  1706  1986  1987  1989  1990  2248
                2249  2251  2252  2533  2534  2536  2537
  977   RDATA0      ADDRESS. HEX LOCATION(000028A0) IN CSECT(I7821   ) LENGTH(2)
                1698  1699  1982  1983  2244  2245  2529  2530
 2556   RDBUF       ADDRESS. HEX LOCATION(00003770) IN CSECT(I7821   ) LENGTH(2)
                2410
  845   RDDCB       ADDRESS. HEX LOCATION(000027D8) IN CSECT(I7821   ) LENGTH(2)
                1054  2406  2407  2408  2409  2410
  653   RESET       ABSOLUTE. HEX VALUE(00000008)
                1546  1611  1827  1895  2092  2157  2373  2442
  664   RICB        ABSOLUTE. HEX VALUE(00000013)
                1460
  867   RKDCB       ADDRESS. HEX LOCATION(000027F8) IN CSECT(I7821   ) LENGTH(2)
                1063  1064  1071  1072  1579
  777   RSDCB       ADDRESS. HEX LOCATION(00002778) IN CSECT(I7821   ) LENGTH(2)
                1046  1051  1075  1080  2125
  603   SCTID       ADDRESS. HEX LOCATION(00002708) IN CSECT(I7821   ) LENGTH(2)
                 784   796   874  1048  1051  1064
  889   SCTST       ADDRESS. HEX LOCATION(00002820) IN CSECT(I7821   ) LENGTH(2)
                1072  1077  1080
  964   SENS0       ADDRESS. HEX LOCATION(0000287C) IN CSECT(I7821   ) LENGTH(4)
                1694  1978  2240  2525
  958   SENS1       ADDRESS. HEX LOCATION(00002868) IN CSECT(I7821   ) LENGTH(4)
                1700  1984  2246  2531
  801   SKDCB       ADDRESS. HEX LOCATION(00002798) IN CSECT(I7821   ) LENGTH(2)
                1040
  655   START       ABSOLUTE. HEX VALUE(0000000A)
                1175
  104   SUPSTAT     ADDRESS. HEX LOCATION(000019C4) IN CSECT(I7821   ) LENGTH(1)
                1454
   92   TUMSGWTR    ADDRESS. HEX LOCATION(000018BA) IN CSECT(I7821   ) LENGTH(1)
                1456
   98   TURESUL     ADDRESS. HEX LOCATION(000018C8) IN CSECT(I7821   ) LENGTH(1)
                1544  1547  1608  1612  1825  1828  1892  1896  2090
                2093  2154  2158  2371  2374  2439  2443
  627   TURTN       ADDRESS. HEX LOCATION(00002738) IN CSECT(I7821   ) LENGTH(2)
                1461  1534  1815  2080  2361
   74   TUSTATUS    ADDRESS. HEX LOCATION(00001818) IN CSECT(I7821   ) LENGTH(1)
                1434
   75   TUWORK      ADDRESS. HEX LOCATION(0000181A) IN CSECT(I7821   ) LENGTH(1)
                1438  1490
  636   T3C02       ADDRESS. HEX LOCATION(00002740) IN CSECT(I7821   ) LENGTH(6)
                 389   419   449   479
 1699   T65A        ADDRESS. HEX LOCATION(00002E5E) IN CSECT(I7821   ) LENGTH(6)
                1697
```

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
1706	T65B	ADDRESS. HEX LOCATION(00002E7E) IN CSECT(I7821) LENGTH(4) 1704
1692	T65C	ADDRESS. HEX LOCATION(00002E4A) IN CSECT(I7821) LENGTH(4) 1618
1618	T65CC	ADDRESS. HEX LOCATION(00002D40) IN CSECT(I7821) LENGTH(4) 1585
1585	T65D	ADDRESS. HEX LOCATION(00002CE6) IN CSECT(I7821) LENGTH(4) 1587
1612	T65E	ADDRESS. HEX LOCATION(00002D36) IN CSECT(I7821) LENGTH(6) 1596 1603 1605
1688	T65EE	ADDRESS. HEX LOCATION(00002E3C) IN CSECT(I7821) LENGTH(4) 1625
1608	T65ER	ADDRESS. HEX LOCATION(00002D28) IN CSECT(I7821) LENGTH(6) 1538 1550 1554 1556 1559 1563 1566 1569 1572 1575 1581 1594 1598 1600 1632 1636 1664 1668 1672 1677 1681 1690 1695 1701
1590	T65F	ADDRESS. HEX LOCATION(00002CF0) IN CSECT(I7821) LENGTH(2) 1620
1691	T65FF	ADDRESS. HEX LOCATION(00002E46) IN CSECT(I7821) LENGTH(4) 1629 1642
1675	T65G	ADDRESS. HEX LOCATION(00002E08) IN CSECT(I7821) LENGTH(6) 1661
1560	T65H	ADDRESS. HEX LOCATION(00002C84) IN CSECT(I7821) LENGTH(6) 1558
1683	T65HH	ADDRESS. HEX LOCATION(00002E28) IN CSECT(I7821) LENGTH(6) 1674
1610	T65I	ADDRESS. HEX LOCATION(00002D30) IN CSECT(I7821) LENGTH(4) 1591
1716	T65J	ADDRESS. HEX LOCATION(00002EA4) IN CSECT(I7821) LENGTH(2) 1714
1687	T65JJ	ADDRESS. HEX LOCATION(00002E38) IN CSECT(I7821) LENGTH(4) 1657 1685
1657	T65L	ADDRESS. HEX LOCATION(00002DC6) IN CSECT(I7821) LENGTH(4) 1645 1652
1660	T65LL	ADDRESS. HEX LOCATION(00002DD2) IN CSECT(I7821) LENGTH(2) 1686
1626	T65M	ADDRESS. HEX LOCATION(00002D5C) IN CSECT(I7821) LENGTH(4) 1624
1628	T65N	ADDRESS. HEX LOCATION(00002D62) IN CSECT(I7821) LENGTH(4) 1639
1647	T65R	ADDRESS. HEX LOCATION(00002DA6) IN CSECT(I7821) LENGTH(4) 1644
1722	T65RE	ADDRESS. HEX LOCATION(00002EAE) IN CSECT(I7821) LENGTH(2) 1602 1604
1710	T65RR	ADDRESS. HEX LOCATION(00002E8E) IN CSECT(I7821) LENGTH(6) 1708
1567	T65S	ADDRESS. HEX LOCATION(00002CA2) IN CSECT(I7821) LENGTH(6) 1577
1694	T65SS	ADDRESS. HEX LOCATION(00002E4E) IN CSECT(I7821) LENGTH(4) 1586 1633 1637 1665 1669 1673 1678 1682
1726	T65ST	ADDRESS. HEX LOCATION(00002EB4) IN CSECT(I7821) LENGTH(1) 1541
1640	T65T	ADDRESS. HEX LOCATION(00002D90) IN CSECT(I7821) LENGTH(4) 1622 1646 1650 1655
1721	T65TP	ADDRESS. HEX LOCATION(00002EAA) IN CSECT(I7821) LENGTH(2) 1699 1710 1711 1712
1720	T65U	ADDRESS. HEX LOCATION(00002EA6) IN CSECT(I7821) LENGTH(2) 1542 1543 1601 1602 1604 1707 1709 1710
1652	T65V	ADDRESS. HEX LOCATION(00002DB6) IN CSECT(I7821) LENGTH(4) 1656
1614	T65X	ADDRESS. HEX LOCATION(00002D3C) IN CSECT(I7821) LENGTH(4) 1606 1609
1724	T65XR	ADDRESS. HEX LOCATION(00002EB2) IN CSECT(I7821) LENGTH(2) 1595
1983	T66A	ADDRESS. HEX LOCATION(00003158) IN CSECT(I7821) LENGTH(6) 1981
1990	T66B	ADDRESS. HEX LOCATION(00003178) IN CSECT(I7821) LENGTH(4) 1988
1976	T66C	ADDRESS. HEX LOCATION(00003144) IN CSECT(I7821) LENGTH(4) 1902
1902	T66CC	ADDRESS. HEX LOCATION(0000303A) IN CSECT(I7821) LENGTH(4) 1869
1869	T66D	ADDRESS. HEX LOCATION(00002FE0) IN CSECT(I7821) LENGTH(4) 1871
1896	T66E	ADDRESS. HEX LOCATION(00003030) IN CSECT(I7821) LENGTH(6) 1880 1887 1889
1972	T66EE	ADDRESS. HEX LOCATION(00003136) IN CSECT(I7821) LENGTH(4) 1909
1892	T66ER	ADDRESS. HEX LOCATION(00003022) IN CSECT(I7821) LENGTH(6) 1819 1831 1835 1837 1840 1844 1847 1850 1853 1856 1865 1878 1882 1884 1916 1920 1948 1952 1956 1961 1965 1974 1979 1985
1874	T66F	ADDRESS. HEX LOCATION(00002FEA) IN CSECT(I7821) LENGTH(2) 1904
1975	T66FF	ADDRESS. HEX LOCATION(00003140) IN CSECT(I7821) LENGTH(4) 1913 1926
1959	T66G	ADDRESS. HEX LOCATION(00003102) IN CSECT(I7821) LENGTH(6) 1945
1841	T66H	ADDRESS. HEX LOCATION(00002F6C) IN CSECT(I7821) LENGTH(6) 1839
1967	T66HH	ADDRESS. HEX LOCATION(00003122) IN CSECT(I7821) LENGTH(6) 1958
1894	T66I	ADDRESS. HEX LOCATION(0000302A) IN CSECT(I7821) LENGTH(4) 1875
2000	T66J	ADDRESS. HEX LOCATION(0000319E) IN CSECT(I7821) LENGTH(2) 1998
1971	T66JJ	ADDRESS. HEX LOCATION(00003132) IN CSECT(I7821) LENGTH(4) 1941 1959
1941	T66L	ADDRESS. HEX LOCATION(000030C0) IN CSECT(I7821) LENGTH(4) 1929 1936
1944	T66LL	ADDRESS. HEX LOCATION(000030CC) IN CSECT(I7821) LENGTH(2) 1970
1910	T66M	ADDRESS. HEX LOCATION(00003056) IN CSECT(I7821) LENGTH(4) 1908
1912	T66N	ADDRESS. HEX LOCATION(0000305C) IN CSECT(I7821) LENGTH(4) 1923
1931	T66R	ADDRESS. HEX LOCATION(000030A0) IN CSECT(I7821) LENGTH(4) 1928
2006	T66RE	ADDRESS. HEX LOCATION(000031A8) IN CSECT(I7821) LENGTH(2) 1886 1888
1994	T66RR	ADDRESS. HEX LOCATION(00003188) IN CSECT(I7821) LENGTH(6) 1992

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
1848	T66S	ADDRESS. HEX LOCATION(00002F8A) IN CSECT(I7821) LENGTH(6) 1858
1978	T66SS	ADDRESS. HEX LOCATION(00003148) IN CSECT(I7821) LENGTH(4) 1870 1917 1921 1949 1953 1957 1962 1966
2010	T66ST	ADDRESS. HEX LOCATION(000031AE) IN CSECT(I7821) LENGTH(1) 1822
1924	T66T	ADDRESS. HEX LOCATION(0000308A) IN CSECT(I7821) LENGTH(4) 1906 1930 1934 1939
2005	T66TP	ADDRESS. HEX LOCATION(000031A4) IN CSECT(I7821) LENGTH(2) 1983 1994 1995 1996
2004	T66U	ADDRESS. HEX LOCATION(000031A0) IN CSECT(I7821) LENGTH(2) 1823 1824 1885 1886 1888 1991 1993 1994
1936	T66V	ADDRESS. HEX LOCATION(000030B0) IN CSECT(I7821) LENGTH(4) 1940
1898	T66X	ADDRESS. HEX LOCATION(00003036) IN CSECT(I7821) LENGTH(4) 1890 1093
2008	T66XR	ADDRESS. HEX LOCATION(000031AC) IN CSECT(I7821) LENGTH(2) 1879
2245	T67A	ADDRESS. HEX LOCATION(0000341A) IN CSECT(I7821) LENGTH(6) 2243
2252	T67B	ADDRESS. HEX LOCATION(0000343A) IN CSECT(I7821) LENGTH(4) 2250
2238	T67C	ADDRESS. HEX LOCATION(00003406) IN CSECT(I7821) LENGTH(4) 2164
2164	T67CC	ADDRESS. HEX LOCATION(000032FC) IN CSECT(I7821) LENGTH(4) 2131
2131	T67D	ADDRESS. HEX LOCATION(000032A2) IN CSECT(I7821) LENGTH(4) 2133
2158	T67E	ADDRESS. HEX LOCATION(000032F2) IN CSECT(I7821) LENGTH(6) 2142 2149 2151
2234	T67EE	ADDRESS. HEX LOCATION(000033F8) IN CSECT(I7821) LENGTH(4) 2171
2154	T67ER	ADDRESS. HEX LOCATION(000032E4) IN CSECT(I7821) LENGTH(6) 2084 2096 2100 2102 2105 2109 2112 2115 2118 2121 2127 2140 2144 2146 2178 2182 2210 2214 2218 2223 2227 2236 2241 2247
2136	T67F	ADDRESS. HEX LOCATION(000032AC) IN CSECT(I7821) LENGTH(2) 2166
2237	T67FF	ADDRESS. HEX LOCATION(00003402) IN CSECT(I7821) LENGTH(4) 2175 2188
2221	T67G	ADDRESS. HEX LOCATION(000033C4) IN CSECT(I7821) LENGTH(6) 2207
2106	T67H	ADDRESS. HEX LOCATION(00003240) IN CSECT(I7821) LENGTH(6) 2104
2229	T67HH	ADDRESS. HEX LOCATION(000033E4) IN CSECT(I7821) LENGTH(6) 2220
2156	T67I	ADDRESS. HEX LOCATION(000032EC) IN CSECT(I7821) LENGTH(4) 2137
2262	T67J	ADDRESS. HEX LOCATION(00003460) IN CSECT(I7821) LENGTH(2) 2260
2233	T67JJ	ADDRESS. HEX LOCATION(000033F4) IN CSECT(I7821) LENGTH(4) 2203 2231
2203	T67L	ADDRESS. HEX LOCATION(00003382) IN CSECT(I7821) LENGTH(4) 2191 2198
2206	T67LL	ADDRESS. HEX LOCATION(0000338E) IN CSECT(I7821) LENGTH(2) 2232
2172	T67M	ADDRESS. HEX LOCATION(00003318) IN CSECT(I7821) LENGTH(4) 2170
2174	T67N	ADDRESS. HEX LOCATION(0000331E) IN CSECT(I7821) LENGTH(4) 2185
2193	T67P	ADDRESS. HEX LOCATION(00003362) IN CSECT(I7821) LENGTH(4) 2190
2268	T67PE	ADDRESS. HEX LOCATION(0000346A) IN CSECT(I7821) LENGTH(2) 2148 2150
2256	T67RR	ADDRESS. HEX LOCATION(0000344A) IN CSECT(I7821) LENGTH(6) 2254
2113	T67S	ADDRESS. HEX LOCATION(0000325E) IN CSECT(I7821) LENGTH(4) 2123
2240	T67SS	ADDRESS. HEX LOCATION(0000340A) IN CSECT(I7821) LENGTH(4) 2132 2179 2183 2211 2215 2219 2224 2228
2272	T67ST	ADDRESS. HEX LOCATION(00003470) IN CSECT(I7821) LENGTH(1) 2087
2186	T67T	ADDRESS. HEX LOCATION(0000334C) IN CSECT(I7821) LENGTH(4) 2168 2192 2196 2201
2267	T67TP	ADDRESS. HEX LOCATION(00003466) IN CSECT(I7821) LENGTH(2) 2245 2256 2257 2258
2266	T67U	ADDRESS. HEX LOCATION(00003462) IN CSECT(I7821) LENGTH(2) 2088 2089 2147 2148 2150 2253 2255 2256
2198	T67V	ADDRESS. HEX LOCATION(00003372) IN CSECT(I7821) LENGTH(4) 2202
2160	T67X	ADDRESS. HEX LOCATION(000032F8) IN CSECT(I7821) LENGTH(4) 2152 2155
2270	T67XR	ADDRESS. HEX LOCATION(0000346E) IN CSECT(I7821) LENGTH(2) 2141
2530	T68A	ADDRESS. HEX LOCATION(0000371A) IN CSECT(I7821) LENGTH(6) 2528
2537	T68B	ADDRESS. HEX LOCATION(0000373A) IN CSECT(I7821) LENGTH(4) 2535
2523	T68C	ADDRESS. HEX LOCATION(00003706) IN CSECT(I7821) LENGTH(4) 2449
2449	T68CC	ADDRESS. HEX LOCATION(000035FC) IN CSECT(I7821) LENGTH(4) 2416
2416	T68D	ADDRESS. HEX LOCATION(000035A2) IN CSECT(I7821) LENGTH(4) 2418
2443	T68E	ADDRESS. HEX LOCATION(000035F2) IN CSECT(I7821) LENGTH(6) 2427 2434 2436
2519	T68EE	ADDRESS. HEX LOCATION(000036F8) IN CSECT(I7821) LENGTH(4) 2456
2439	T68ER	ADDRESS. HEX LOCATION(000035E4) IN CSECT(I7821) LENGTH(6) 2365 2377 2381 2383 2386 2390 2393 2396 2399 2402 2412 2425 2429 2431 2463 2467 2495 2499 2503 2508 2512 2521 2526 2532
2421	T68F	ADDRESS. HEX LOCATION(000035AC) IN CSECT(I7821) LENGTH(2) 2451
2522	T68FF	ADDRESS. HEX LOCATION(00003702) IN CSECT(I7821) LENGTH(4) 2460 2473
2506	T68G	ADDRESS. HEX LOCATION(000036C4) IN CSECT(I7821) LENGTH(6) 2492
2387	T68H	ADDRESS. HEX LOCATION(00003528) IN CSECT(I7821) LENGTH(6) 2385

CROSS-REFERENCE LISTING

```
DECLARED  NAME     ATTRIBUTES AND REFERENCES
  2514    T68HH     ADDRESS. HEX LOCATION(000036E4) IN CSECT(I7821   ) LENGTH(6)
                   2505
  2441    T68I      ADDRESS. HEX LOCATION(000035EC) IN CSECT(I7821   ) LENGTH(4)
                   2422
  2547    T68J      ADDRESS. HEX LOCATION(00003760) IN CSECT(I7821   ) LENGTH(2)
                   2545
  2518    T68JJ     ADDRESS. HEX LOCATION(000036F4) IN CSECT(I7821   ) LENGTH(4)
                   2488  2516
  2488    T68L      ADDRESS. HEX LOCATION(00003682) IN CSECT(I7821   ) LENGTH(4)
                   2476  2483
  2491    T68LL     ADDRESS. HEX LOCATION(0000368E) IN CSECT(I7821   ) LENGTH(2)
                   2517
  2457    T68M      ADDRESS. HEX LOCATION(00003618) IN CSECT(I7821   ) LENGTH(4)
                   2455
  2459    T68N      ADDRESS. HEX LOCATION(0000361E) IN CSECT(I7821   ) LENGTH(4)
                   2470
  2478    T68R      ADDRESS. HEX LOCATION(00003662) IN CSECT(I7821   ) LENGTH(4)
                   2475
  2553    T68RE     ADDRESS. HEX LOCATION(0000376A) IN CSECT(I7821   ) LENGTH(2)
                   2433  2435
  2541    T68RR     ADDRESS. HEX LOCATION(0000374A) IN CSECT(I7821   ) LENGTH(6)
                   2539
  2394    T68S      ADDRESS. HEX LOCATION(00003546) IN CSECT(I7821   ) LENGTH(6)
                   2404
  2525    T68SS     ADDRESS. HEX LOCATION(0000370A) IN CSECT(I7821   ) LENGTH(4)
                   2417  2464  2468  2496  2500  2504  2509  2513
  2558    T68ST     ADDRESS. HEX LOCATION(00003870) IN CSECT(I7821   ) LENGTH(1)
                   2368
  2471    T68T      ADDRESS. HEX LOCATION(0000364C) IN CSECT(I7821   ) LENGTH(4)
                   2453  2477  2481  2486
  2552    T68TP     ADDRESS. HEX LOCATION(00003766) IN CSECT(I7821   ) LENGTH(2)
                   2530  2541  2542  2543
  2551    T68U      ADDRESS. HEX LOCATION(00003762) IN CSECT(I7821   ) LENGTH(2)
                   2369  2370  2432  2433  2435  2538  2540  2541
  2483    T68V      ADDRESS. HEX LOCATION(00003672) IN CSECT(I7821   ) LENGTH(4)
                   2487
  2445    T68X      ADDRESS. HEX LOCATION(000035F8) IN CSECT(I7821   ) LENGTH(4)
                   2437  2440
  2555    T68XR     ADDRESS. HEX LOCATION(0000376E) IN CSECT(I7821   ) LENGTH(2)
                   2426
  1534    T7865     ADDRESS. HEX LOCATION(00002C20) IN CSECT(I7821   ) LENGTH(4)
                    407
  1815    T7866     ADDRESS. HEX LOCATION(00002F08) IN CSECT(I7821   ) LENGTH(4)
                    437
  2080    T7867     ADDRESS. HEX LOCATION(000031DC) IN CSECT(I7821   ) LENGTH(4)
                    467
  2361    T7868     ADDRESS. HEX LOCATION(000034C4) IN CSECT(I7821   ) LENGTH(4)
                    377
   834    VPDCB     ADDRESS. HEX LOCATION(000027C8) IN CSECT(I7821   ) LENGTH(2)
                   1057
   856    WKDCB     ADDRESS. HEX LOCATION(000027E8) IN CSECT(I7821   ) LENGTH(2)
                   1067  1068  1083  1084  1860
   823    WPDCB     ADDRESS. HEX LOCATION(000027B8) IN CSECT(I7821   ) LENGTH(2)
                   1060
   883    WRSID     ADDRESS. HEX LOCATION(00002814) IN CSECT(I7821   ) LENGTH(2)
                    774   863  1084  1088  1861  1862  1863
   767    WSDCB     ADDRESS. HEX LOCATION(00002768) IN CSECT(I7821   ) LENGTH(2)
                   1087  1088  1090  1091
   886    WSIDT     ADDRESS. HEX LOCATION(0000281A) IN CSECT(I7821   ) LENGTH(2)
                   1068  1091
   579    XE        ABSOLUTE. HEX VALUE(00000024)
                   1268  1330
   577    XI        ABSOLUTE. HEX VALUE(00000022)
                   1174  1315  1551  1832  2097  2378
  1149    XIO       ADDRESS. HEX LOCATION(0000296A) IN CSECT(I7821   ) LENGTH(4)
                   1041  1044  1052  1055  1058  1061  1065  1069  1073
                   1081  1085  1089  1092  1095
  1330    XIOCK     ADDRESS. HEX LOCATION(00002A32) IN CSECT(I7821   ) LENGTH(2)
                   1184
  1337    XIOCO     ADDRESS. HEX LOCATION(00002A44) IN CSECT(I7821   ) LENGTH(2)
                   1335
  1154    XIOCS     ADDRESS. HEX LOCATION(00002974) IN CSECT(I7821   ) LENGTH(6)
                   1346  1597  1881  2143  2428
  1339    XIOCV     ADDRESS. HEX LOCATION(00002A48) IN CSECT(I7821   ) LENGTH(2)
                   1333
  1348    XIOCX     ADDRESS. HEX LOCATION(00002A62) IN CSECT(I7821   ) LENGTH(4)
                   1340
  1223    XIOER     ADDRESS. HEX LOCATION(000029D0) IN CSECT(I7821   ) LENGTH(2)
                   1354
  1158    XIO1      ADDRESS. HEX LOCATION(00002984) IN CSECT(I7821   ) LENGTH(4)
                   1150
  1171    XIO2      ADDRESS. HEX LOCATION(000029AA) IN CSECT(I7821   ) LENGTH(2)
                   1157
  1183    XIO8      ADDRESS. HEX LOCATION(000029BE) IN CSECT(I7821   ) LENGTH(2)
                   1188
    62    XTRNL     ABSOLUTE. HEX VALUE(00000001)
                    499
```

********** LAST PAGE **********