```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                             3         COPY  LOG7805                ** MAP EC HISTORY **
                             4 ************************************************************************
                             5 *                                                                      *
                             6 *                     ***       PREREQUISITES       ***                *
                             7 *                                  NONE                                *
                             8 *                                                                      *
                             9 ************************************************************************
                            10 *                                                                      *
                            11 *                     ***       MODIFICATIONS       ***                *
                            12 *                                  NONE                                *
                            13 *                                                                      *
                            14 ************************************************************************
                            15 *                                                                      *
                            16 *                     ***     PEA'S INCORPORATED    ***                *
                            17 *                                  NONE                                *
                            18 *                                                                      *
                            19 ************************************************************************
                            20 *                                                                      *
                            21 *                     ***    SPECIAL INSTRUCTIONS   ***                *
                            22 *                                  NONE                                *
                            23 *                                                                      *
                            24 ************************************************************************
                            25 *                                                                      *
                            26 *                     ***       E. C. HISTORY       ***                *
                            27 *                                                                      *
                            28 *          DATE 01MAR78  DATE 01SEP78  DATE          DATE             *
                            29 *          E.C. 755285   E.C. 374888   E.C.          E.C.             *
                            30 *                                                                      *
                            31 ************************************************************************
002500                      32 I7805    START X'2500'            START ADDRESS OF ALL 'I' TYPE PROG
000100                      33 @QUES    EQU   X'0100'            EQUATED VALUE FOR MDI STATEMENT
000101                      34 @FIXT    EQU   X'0101'            EQUATED VALUE FOR MDI STATEMENT
000102                      35 @STOP    EQU   X'0102'            EQUATED VALUE FOR MDI STATEMENT
000200                      36 @GOTO    EQU   X'0200'            EQUATED VALUE FOR MDI STATEMENT
000201                      37 @CALL    EQU   X'0201'            EQUATED VALUE FOR MDI STATEMENT
000300                      38 @INPT    EQU   X'0300'            EQUATED VALUE FOR MDI STATEMENT
000400                      39 @QUXX    EQU   X'0400'            EQUATED VALUE FOR MDI STATEMENT
000500                      40 @TUXX    EQU   X'0500'            EQUATED VALUE FOR MDI STATEMENT
000600                      41 @NVLD    EQU   X'0600'            EQUATED VALUE FOR MDI STATEMENT
000000                      42 EQ       EQU   X'0000'            EQUATE FOR EQUAL
000004                      43 NE       EQU   X'0004'            EQUATE FOR NOT EQUAL
000008                      44 HI       EQU   X'0008'            EQUATE FOR HIGH
00000C                      45 NH       EQU   X'000C'            EQUATE FOR NOT HIGH
000010                      46 LO       EQU   X'0010'            EQUATE FOR LOW
000014                      47 NL       EQU   X'0014'            EQUATE FOR NOT LOW
000010                      48 LT       EQU   X'0010'            EQUATE FOR LESS THAN
00000C                      49 LE       EQU   X'000C'            EQUATE FOR LESS THAN OR EQUAL TO
000008                      50 GT       EQU   X'0008'            EQUATE FOR GREATER THAN
000014                      51 GE       EQU   X'0014'            EQUATE FOR GREATER THAN OR EQUAL TO
000200                      52 ON       EQU   X'0200'            EQUATE FOR ON
000202                      53 OF       EQU   X'0202'            EQUATE FOR OFF
000204                      54 MX       EQU   X'0204'            EQUATE FOR MIXED
000000                      55 EBC      EQU   X'0000'            EQUATE FOR EBCDIC DATA TRANSFER
000001                      56 HEX      EQU   X'0001'            EQUATE FOR HEX DATA TRANSFER
000001                      57 XTRNL    EQU   X'0001'            EQUATE FOR EXTERNAL REFERENCE
000000                      58 INTRNL   EQU   X'0000'            EQUATE FOR INTERNAL REFERENCE
000000                      59 PARM     EQU   X'0000'            EQUATE INDICATING PARAMETER
000001                      60 DA       EQU   X'0001'            EQUATE FOR DEVICE ADDRESS
000002                      61 UA       EQU   X'0002'            EQUATE FOR UNIT ADDRESS
000000                      62 DUMMY    EQU   X'0000'            DUMMY EQUATE
001800                      63 PID      EQU   *-X'0D00'          ADDRESS OF MDI HEADER
000232                      64 PTYPE    EQU   *-X'22CE'          ADDRESS OF PROCESSOR TYPE FIELD
00180C                      65 STEPNUM  EQU   PID+X'000C'         ADDRESS OF DECIMAL STEP NUMBER
00180E                      66 OPWD1    EQU   PID+X'000E'         ADDRESS OF OPTION WORD ONE
001810                      67 OPWD2    EQU   PID+X'0010'         ADDRESS OF OPTION WORD TWO
001818                      68 TUSTATUS EQU   PID+X'0018'         ADDRESS OF TU STATUS WORD
00181A                      69 TUWORK   EQU   PID+X'001A'         ADDRESS OF TU WORK AREA
00189A                      70 TUPARM1  EQU   PID+X'009A'         ADDRESS OF PARM 1 POINTER
00189C                      71 TUPARM2  EQU   PID+X'009C'         ADDRESS OF PARM 2 POINTER
00189E                      72 TUPARM3  EQU   PID+X'009E'         ADDRESS OF PARM 3 POINTER
0018A0                      73 TUPARM4  EQU   PID+X'00A0'         ADDRESS OF PARM 4 POINTER
0018A2                      74 TUPARM5  EQU   PID+X'00A2'         ADDRESS OF PARM 5 POINTER
0018A4                      75 TUPARM6  EQU   PID+X'00A4'         ADDRESS OF PARM 6 POINTER
0018A6                      76 TUPARM7  EQU   PID+X'00A6'         ADDRESS OF PARM 7 POINTER
0018A8                      77 TUPARM8  EQU   PID+X'00A8'         ADDRESS OF PARM 8 POINTER
0018AA                      78 TUPARM9  EQU   PID+X'00AA'         ADDRESS OF PARM 9 POINTER
0018AC                      79 TUPARM10 EQU   PID+X'00AC'         ADDRESS OF PARM 10 POINTER
0018AE                      80 TUPARM11 EQU   PID+X'00AE'         ADDRESS OF PARM 11 POINTER
0018B0                      81 TUPARM12 EQU   PID+X'00B0'         ADDRESS OF PARM 12 POINTER
0018B2                      82 TUPARM13 EQU   PID+X'00B2'         ADDRESS OF PARM 13 POINTER
0018B4                      83 TUPARM14 EQU   PID+X'00B4'         ADDRESS OF PARM 14 POINTER
0018B6                      84 TUPARM15 EQU   PID+X'00B6'         ADDRESS OF PARM 15 POINTER
0018B8                      85 TUPARM16 EQU   PID+X'00B8'         ADDRESS OF PARM 16 POINTER
0018BA                      86 TUMSGWTR EQU   PID+X'00BA'         ADDRESS OF -> TO COMMON MSG WRITER
0018BE                      87 TUUA     EQU   PID+X'00BE'         ADDRESS OF UNIT ADDRESS IN EBC
0018C0                      88 TUDA     EQU   PID+X'00C0'         ADDRESS OF DEVICE ADDRESS IN EBC
0018C2                      89 TUBUFF   EQU   PID+X'00C2'         ADDRESS OF LAST USED WORD IN MAP
0018C4                      90 TULAST   EQU   PID+X'00C4'         ADDRESS OF LAST ADDRESSABLE WORD
0018C6                      91 TURESULN EQU   PID+X'00C6'         ADDRESS OF LENGTH OF TU RESULTS
0018C8                      92 TURESULL EQU   PID+X'00C8'         ADDRESS OF TU RESULTS FIELD
0018FC                      93 MAPNAME  EQU   PID+X'00FC'         ADDRESS OF MAP NAME FIELD IN HEX
001948                      94 TUINPT   EQU   PID+X'0148'         ADDRESS OF $INPT DATA
00196E                      95 PARMARA  EQU   PID+X'016E'         ADDRESS OF $INPT INPUT AREA
0019B8                      96 @DCADD1  EQU   PID+X'01B8'         MDI POINTER
0019BA                      97 @DCADD2  EQU   PID+X'01BA'         MDI POINTER
0019C4                      98 SUPSTAT  EQU   PID+X'01C4'         ADDRESS OF MDI STATUS
0019D0                      99 DEVADD   EQU   PID+X'01D0'         ADDRESS OF DEVICE ADDRESS TABLE 0
0019DA                     100 DEVADD1  EQU   PID+X'01DA'         ADDRESS OF DEVICE ADDRESS TABLE 1
0019E4                     101 DEVADD2  EQU   PID+X'01E4'         ADDRESS OF DEVICE ADDRESS TABLE 2
0019EE                     102 DEVADD3  EQU   PID+X'01EE'         ADDRESS OF DEVICE ADDRESS TABLE 3
0019F8                     103 DEVADD4  EQU   PID+X'01F8'         ADDRESS OF DEVICE ADDRESS TABLE 4
001A02                     104 DEVADD5  EQU   PID+X'0202'         ADDRESS OF DEVICE ADDRESS TABLE 5
001A0C                     105 DEVADD6  EQU   PID+X'020C'         ADDRESS IF DEVICE ADDRESS TABLE 6
001A16                     106 DEVADD7  EQU   PID+X'0216'         ADDRESS OF DEVICE ADDRESS TABLE 7
                           107          PRINT OFF
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
002500  264E               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). THERE ARE FOUR TABLES USED FOR THIS     **
                           206 **   PURPOSE 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) INDICATOR 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 ************************************************************************
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                   COPYRIGHT IBM CORP 1976
                           308 ************************************************************************
                           309 ************************************************************************
                           310 **                                                                    **
                           311 **                    STEP AND RULE ADDRESS TABLE                     **
                           312 **                                                                    **
                           313 ************************************************************************
                           314 ************************************************************************
002502  2550               315          DC    AL2(N00001)
002504  0001               316          DC    XL2'0001'
000001                     317 EQN00001 EQU       0001
002506  2554               318          DC    AL2(N00002)
002508  0002               319          DC    XL2'0002'
000002                     320 EQN00002 EQU       0002
00250A  2560               321          DC    AL2(N00003)
00250C  0003               322          DC    XL2'0003'
000003                     323 EQN00003 EQU       0003
00250E  257A               324          DC    AL2(N00004)
002510  0004               325          DC    XL2'0004'
000004                     326 EQN00004 EQU       0004
002512  257E               327          DC    AL2(N00005)
002514  0005               328          DC    XL2'0005'
000005                     329 EQN00005 EQU       0005
002516  2590               330          DC    AL2(N00006)
002518  0006               331          DC    XL2'0006'
000006                     332 EQN00006 EQU       0006
00251A  2594               333          DC    AL2(N00007)
00251C  0007               334          DC    XL2'0007'
000007                     335 EQN00007 EQU       0007
00251E  25AE               336          DC    AL2(N00008)
002520  0008               337          DC    XL2'0008'
000008                     338 EQN00008 EQU       0008
002522  25B2               339          DC    AL2(N00009)
002524  0009               340          DC    XL2'0009'
000009                     341 EQN00009 EQU       0009
002526  25CC               342          DC    AL2(N00010)
002528  0010               343          DC    XL2'0010'
00000A                     344 EQN00010 EQU       0010
00252A  25D0               345          DC    AL2(N00011)
00252C  0011               346          DC    XL2'0011'
00000B                     347 EQN00011 EQU       0011
00252E  25EA               348          DC    AL2(N00012)
002530  0012               349          DC    XL2'0012'
00000C                     350 EQN00012 EQU       0012
002532  25EE               351          DC    AL2(N00013)
002534  0013               352          DC    XL2'0013'
00000D                     353 EQN00013 EQU       0013
002536  2608               354          DC    AL2(N00014)
002538  0014               355          DC    XL2'0014'
00000E                     356 EQN00014 EQU       0014
00253A  260C               357          DC    AL2(N00015)
00253C  0015               358          DC    XL2'0015'
00000F                     359 EQN00015 EQU       0015
00253E  2626               360          DC    AL2(N00016)
002540  0016               361          DC    XL2'0016'
000010                     362 EQN00016 EQU       0016
002542  262A               363          DC    AL2(N00017)
002544  0017               364          DC    XL2'0017'
000011                     365 EQN00017 EQU       0017
002546  2644               366          DC    AL2(N00018)
002548  0018               367          DC    XL2'0018'
000012                     368 EQN00018 EQU       0018
00254A  2648               369          DC    AL2(N00019)
00254C  0019               370          DC    XL2'0019'
000013                     371 EQN00019 EQU       0019
00254E  0000               372          DC    AL2(DUMMY)
                           373 ************************************************************************
                           374 ************************************************************************
                           375 **                                                                    **
                           376 **                    RULE INFORMATION TABLE                          **
                           377 **                                                                    **
                           378 ************************************************************************
                           379 ************************************************************************
                           380 N00001   $QUES QT=(Q00007),YES=N00003
002550  0100               381+N00001   DC    A(@QUES)
002552  2560               382+         DC    AL2(N0003)
                           383 N00002   $GOTO TYPE=INTPNL,EP=A,FT=(F00011),GTO=(N00001)
002554  0200               384+N00002   DC    A(@GOTO)
002556  2654               385+         DC    A(F00011)
002558  F3C3F0F0           386+         DC    CL4'3C00'
00255C  C140               387+         DC    CL2'A'
00255E  0000               388+         DC    AL2(INTRNL)
                           389 N00003   $TUXX T7801,10,00000000000000000000,EQ,QT=(Q00014),YES=N00005,X
002560  0500               390+N00003   DC    A(@TUXX)
002562  257E               391+         DC    AL2(N00005)
002564  2720               392+         DC    A(T7801)
002566  0000               393+         DC    AL2(EQ)
002568  000A               394+         DC    AL2(10)
00256A  00000000000000000000 395+       DC    X'00000000000000000000'
                           396+         ALIGN WORD
002574  0000               397+         DC    AL2(0)
002576  C1C1               398+         DC    C'AA'
                           399+         ALIGN WORD
002578  196E               400+         DC     AL2(PARMARA)
                           401 N00004   $FIXT FT=(F00005)
00257A  0101               402+N00004   DC    A(@FIXT)
00257C  2668               403+         DC    A(F00005)
                           404 N00005   $TUXX T7804,22,0000,EQ,QT=(Q00020),YES=N00007,CT=(C00019)
00257E  0500               405+N00005   DC    A(@TUXX)
002580  2594               406+         DC    AL2(N00007)
002582  29D0               407+         DC    A(T7804)
002584  0000               408+         DC    AL2(EQ)
002586  0002               409+         DC    AL2(02)
002588  0000               410+         DC    X'0000'
                           411+         ALIGN WORD
00258A  0000               412+         DC    AL2(0)
00258C  C1C1               413+         DC    C'AA'
                           414+         ALIGN WORD
00258E  196E               415+         DC     AL2(PARMARA)
                           416 N00006   $FIXT FT=(F00005)
002590  0101               417+N00006   DC    A(@FIXT)
002592  2668               418+         DC    A(F00005)
                           419 N00007   $TUXX T7806,10,00000000000000000000,FQ,QT=(000025),YES=N00009,X
002594  0500               420+N00007   DC    A(@TUXX)
002596  25B2               421+         DC    AL2(N00009)
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                   COPYRIGHT IBM CORP 1976
002598  2B20               422+         DC    A(T7806)
00259A  0000               423+         DC    AL2(EQ)
00259C  000A               424+         DC    AL2(10)
00259E  00000000000000000000 425+       DC    X'00000000000000000000'
                           426+         ALIGN WORD
0025A8  0000               427+         DC    AL2(0)
0025AA  C1C1               428+         DC    C'AA'
                           429+         ALIGN WORD
0025AC  196E               430+         DC     AL2(PARMARA)
                           431 N00008   $FIXT FT=(F00005)
0025AE  0101               432+N00008   DC    A(@FIXT)
0025B0  2668               433+         DC    A(F00005)
                           434 N00009   $TUXX T7807,10,00000000000000000000,EQ,PLNG=02,PARM=01,       X
0025B2  0500               435+N00009   DC    A(@TUXX)
0025B4  25D0               436+         DC    AL2(N00011)
0025B6  2BFC               437+         DC    A(T7807)
0025B8  0000               438+         DC    AL2(EQ)
0025BA  000A               439+         DC    AL2(10)
0025BC  00000000000000000000 440+       DC    X'00000000000000000000'
                           441+         ALIGN WORD
0025C6  0002               442+         DC    AL2(02)
0025C8  F0F1               443+         DC    C'01'
                           444+         ALIGN WORD
0025CA  196E               445+         DC     AL2(PARMARA)
                           446 N00010   $FIXT FT=(F00005)
0025CC  0101               447+N00010   DC    A(@FIXT)
0025CE  2668               448+         DC    A(F00005)
                           449 N00011   $TUXX T7807,10,00000000000000000000,EQ,PLNG=02,PARM=04,       X
0025D0  0500               450+N00011   DC    A(@TUXX)
0025D2  25EE               451+         DC    AL2(N00013)
0025D4  2BFC               452+         DC    A(T7807)
0025D6  0000               453+         DC    AL2(EQ)
0025D8  000A               454+         DC    AL2(10)
0025DA  00000000000000000000 455+       DC    X'00000000000000000000'
                           456+         ALIGN WORD
0025E4  0002               457+         DC    AL2(02)
0025E6  F0F4               458+         DC    C'04'
                           459+         ALIGN WORD
0025E8  196E               460+         DC     AL2(PARMARA)
                           461 N00012   $FIXT FT=(F00005)
0025EA  0101               462+N00012   DC    A(@FIXT)
0025EC  2668               463+         DC    A(F00005)
                           464 N00013   $TUXX T7807,10,00000000000000000000,EQ,PLNG=02,PARM=02,       X
0025EE  0500               465+N00013   DC    A(@TUXX)
0025F0  260C               466+         DC    AL2(N00015)
0025F2  2BFC               467+         DC    A(T7807)
0025F4  0000               468+         DC    AL2(EQ)
0025F6  000A               469+         DC    AL2(10)
0025F8  00000000000000000000 470+       DC    X'00000000000000000000'
                           471+         ALIGN WORD
002602  0002               472+         DC    AL2(02)
002604  F0F2               473+         DC    C'02'
                           474+         ALIGN WORD
002606  196E               475+         DC     AL2(PARMARA)
                           476 N00014   $FIXT FT=(F00005)
002608  0101               477+N00014   DC    A(@FIXT)
00260A  2668               478+         DC    A(F00005)
                           479 N00015   $TUXX T7807,10,00000000000000000000,EQ,PLNG=02,PARM=08,       X
00260C  0500               480+N00015   DC    A(@TUXX)
00260E  262A               481+         DC    AL2(N00017)
002610  2BFC               482+         DC    A(T7807)
002612  0000               483+         DC    AL2(EQ)
002614  000A               484+         DC    AL2(10)
002616  00000000000000000000 485+       DC    X'00000000000000000000'
                           486+         ALIGN WORD
002620  0002               487+         DC    AL2(02)
002622  F0F8               488+         DC    C'08'
                           489+         ALIGN WORD
002624  196E               490+         DC     AL2(PARMARA)
                           491 N00016   $FIXT FT=(F00005)
002626  0101               492+N00016   DC    A(@FIXT)
002628  2668               493+         DC    A(F00005)
                           494 N00017   $TUXX T7807,10,00000000000000000000,EQ,PLNG=02,PARM=10,       X
00262A  0500               495+N00017   DC    A(@TUXX)
00262C  2648               496+         DC    AL2(N00019)
00262E  2BFC               497+         DC    A(T7807)
002630  0000               498+         DC    AL2(EQ)
002632  000A               499+         DC    AL2(10)
002634  00000000000000000000 500+       DC    X'00000000000000000000'
                           501+         ALIGN WORD
00263E  0002               502+         DC    AL2(02)
002640  F1F0               503+         DC    C'10'
                           504+         ALIGN WORD
002642  196E               505+         DC     AL2(PARMARA)
                           506 N00018   $FIXT FT=(F00005)
002644  0101               507+N00018   DC    A(@FIXT)
002646  2668               508+         DC    A(F00005)
                           509 N00019   $FIXT FT=(F00060)
002648  0101               510+N00019   DC    A(@FIXT)
00264A  2688               511+         DC    A(F00060)
00264C  0000               512          DC    AL2(DUMMY)
00264E                     513 ENTPT    EQU   *
                           514 ************************************************************************
                           515 ************************************************************************
                           516 **                                                                    **
                           517 **                    ENTRY POINT TABLE                               **
                           518 **                                                                    **
                           519 ************************************************************************
                           520 ************************************************************************
                           521          ENTPT EP=A,STEP=00001
00264E  C140               522+         DC    CL2'A'
002650  2550               523+         DC    A(N00001)
002652  0000               524          DC    AL2(DUMMY)
                           525 ************************************************************************
                           526 ************************************************************************
                           527 **                                                                    **
                           528 **                    MESSAGE TABLE                                   **
                           529 **                                                                    **
                           530 ************************************************************************
                           531 ************************************************************************
002654                     532 F00011   EQU   *
002654  0001               533          DC    AL2(0001)
002656  0010               534          DC    A(0016)
002658  C9D5E5C1D3C9C440D  535          DC    CL0016'INVALID RESPONSE'
```

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

002668                     536 F00005   EQU   *
002668  0001               537          DC    AL2(0001)
00266A  001C               538          DC    A(0028)
00266C  D9C5D7D3C1C3C540F  539          DC    CL0028'REPLACE 4962 ATTACHMENT CARD'
002688                     540 F00060   EQU   *
002688  0002               541          DC    AL2(0002)
00268A  002C               542          DC    A(0044)
00268C  C9D5E2E3C1D3D340F  543          DC    CL0044'INSTALL 4962 CABLES ON ATTACHMENT CARD. RUN '
0026B8  0018               544          DC    A(0024)
0026BA  D4C1D7F7F8F2F040C  545          DC    CL0024'MAP7820 FOR MORE TESTING'
                           546          HDIT  00B2
0026D2  0000               548+OPTN1 DC    X'0000'                 PROGRAM OPTION CONTROL WORD 1
                           549+*
0026D4  0000               550+OPTN2 DC    X'0000'                 PROGRAM OPTION CONTROL WORD 2
                           551+*                    BIT     HEX
000010                     552+B48   EQU   16        0       8     PROBLEM PROGRAM CONTROL BITS
000011                     553+B49   EQU   17        1       4     *
000012                     554+B50   EQU   18        2       2     * THESE BITS ARE USED WITH THE
000013                     555+B51   EQU   19        3       1     * SECOND OPTION WD   AND ARE TO
000014                     556+B52   EQU   20        4       8     * BE ASSIGNED BY EACH PROGRAMMER
000015                     557+B53   EQU   21        5       4     *
000016                     558+B54   EQU   22        6       2     *
000017                     559+B55   EQU   23        7       1     *
000018                     560+B56   EQU   24        8       8     *
000019                     561+B57   EQU   25        9       4     *
00001A                     562+B58   EQU   26       10       2     *
00001B                     563+B59   EQU   27       11       1     *
00001C                     564+B60   EQU   28       12       8     *
00001D                     565+B61   EQU   29       13       4     *
00001E                     566+B62   EQU   30       14       2     *
00001F                     567+B63   EQU   31       15       1     *
00001E                     568+CH    EQU   30       14       2     CHARACTER SUPPLIED
00001F                     569+CMP   EQU   31       15       1     COMPARE OPERATION
0026D6  0000               571+OPTN3 DC    X'0000'                 PROGRAM OPTION CONTROL WORD 3
                           572+*
                           573+*  0  MYSTERY INTERRUPT    MI        8  CS STATUS IN PROGRESS   CS
                           574+*  1  ERROR INTERRUPT      ER        9  CS AVAILABLE            CSA
                           575+*  2  EXPECTED INTERRUPT   XI       10  CS STATUS INTERRUPT ERR CE
                           576+*  3  INTERRUPT RECEIVED   IN       11  ISB BITS ON (1-7)       ISBON
                           577+*
                           578+*  4  EXPECTED ERR/ATTENT  XE       12  TEST UNIT RESULTS VOID  NG
                           579+*  5  HARD ERROR FOUND     HE       13  OIO CC ERROR            IOCC
                           580+*  6  WRONG INTR LEVEL     $LE      14  NO INTERRUPT            NOIN
                           581+*  7  NO INTR EXPECTED     NI       15  INTERRUPT CC ERROR      INCC
                           582+*                    BIT     HEX
000020                     583+MI    EQU   32        0       8     MYSTERY INTERRUPT HAPPENED
000021                     584+ER    EQU   33        1       4     ERROR RECEIVED ON INTERRUPT
000022                     585+XI    EQU   34        2       2     EXPECTED INTERRUPT CONTROL BIT
000023                     586+IN    EQU   35        3       1     INTERRUPT RECEIVED CONTROL BIT
000024                     587+XE    EQU   36        4       8     EXPECTED ERROR RESPONSE
000025                     588+HE    EQU   37        5       4     HARD ERROR, 8 RETRIES
000026                     589+$LE   EQU   38        6       2     INTERRUPT ON WRONG LEVEL ERROR
000027                     590+NI    EQU   39        7       1     NO INTERRUPT EXPECTED E
000028                     591+CS    EQU   40        8       8     CYCLE STATUS IN PROGRESS
000029                     592+CSA   EQU   41        9       4     CYCLE STEAL AVAILABLE
00002A                     593+CE    EQU   42       10       2     CYCLE STEAL STATUS INERRRUPT ERROR
00002B                     594+ISBON EQU   43       11       1     ISB BITS ON (1-7)
00002C                     595+NG    EQU   44       12       8     TEST UNIT RESULTS NO GOOD
00002D                     596+IOCC  EQU   45       13       4     OIO CC ERROR
00002E                     597+NOIN  EQU   46       14       2     NO INTERRUPT
00002F                     598+INCC  EQU   47       15       1     INTERRUPT CC ERROR
                           599+*
                           600+*     COMMON BUFFER FOR PRINTING DATA
                           601+*
0026D8  0000               603+$TUID DC    A(*-*)                  TEST UNIT IDENTIFICATION
0026DA  0000               604+$IOIN DC    A(*-*)                  I/O AND INTR CONDITION CODES
0026DC  0000               605+$ISB  DC    A(*-*)                  R7, INTR STATUS BYTE & DEV ADRS
0026DE  0000               606+LSTIO DC    A(*-*)                  ADRS OF LAST I/O + 4 BYTES
0026E0  0000               607+DEV1  DC    A(*-*)                  DEVICE DEPENDENT DATA
0026E2  0000               608+DEV2  DC    A(*-*)                  *
0026E4  0000               609+DEV3  DC    A(*-*)                  *
0026E6  0000               610+DEV4  DC    A(*-*)                  *
0026E0                     611+SCTID EQU   DEV1                    READ ID BUFFER FOR IBIS & TERN
0026E8                     612+DCBUF EQU   *                       DCB BUFFER FOR LAST DCB USED
0026E8  0000               613+DCB1  DC    A(*-*)                  LAST DCB TABLE, CONTROL WORD
0026EA  0000               614+DCB2  DC    A(*-*)                  LAST DCB TABLE, DEV DEP WORD
0026EC  0000               615+DCB3  DC    A(*-*)                  LAST DCB TABLE, DEV DEP WORD
0026EE  0000               616+DCB4  DC    A(*-*)                  LAST DCB TABLE, DEV DEP WORD
0026F0  0000               617+DCB5  DC    A(*-*)                  LAST DCB TABLE, DEV DEP WORD
0026F2  0000               618+DCB6  DC    A(*-*)                  LAST DCB TABLE, CHAIN ADRS
0026F4  0000               619+DCB7  DC    A(*-*)                  LAST DCB TABLE, BYTE COUNT
0026F6  0000               620+DCB8  DC    A(*-*)                  LAST DCB TABLE, BUFFER ADDRESS
                           621+*
0026F8                     622+CSBUF EQU   *                       CYCLE STEAL DATA BUFFER
0026F8  0000               623+CSTL1 DC    A(*-*)                  CYCLE STEAL BUFFER, RESIDUAL ADRS
0026FA  0000               624+CSTL2 DC    A(*-*)                  CYCLE STEAL WD 2, DEVICE DEPEND
0026FC  0000               625+CSTL3 DC    A(*-*)                  CYCLE STEAL WD 3, DEVICE DEPEND
0026FE  0000               626+CSTL4 DC    A(*-*)                  CYCLE STEAL WD 4, DEVICE DEPEND
002700  0000               627+CSTL5 DC    A(*-*)                  CYCLE STEAL WD 5, DEVICE DEPEND
002702  0000               628+CSTL6 DC    A(*-*)                  CYCLE STEAL WD 6, DEVICE DEPEND
002704  0000               629+CSTL7 DC    A(*-*)                  CYCLE STEAL WD 7, DEVICE DEPEND
002706  0000               630+CSTL8 DC    A(*-*)                  CYCLE STEAL WD 8, DEVICE DEPEND
                           631+*
002708  0000               632+$SUBN DC    A(*-*)                  LAST SUBROUTINE ADDRESS USED
00270A  00000000           633+$DATA DC    2A(*-*)                 OPTIONAL DATA
00270E  0021               634+$INTL DC    X'0021'                 INTERRUPT LEVEL REQUESTED
002710  0000               635+TURTN DC    A(*-*)                  TEST UNIT RETURN ADRS TO MDI
002712  00B2               636+$DVID DC    X'00B2'                 DEVICE ID
002714  19D0               637+SVCAL DC    A(DEVADD)               ADRS OF DEVICE ADDRESS
002716  0000               638+      DC    A(*-*)                  IBIS CYLINDER ADDRESS
                           639+*
                           640+*     THIS TEST UNIT WILL RETURN TO MDI WITHOUT DOING ANY PROGRAM
                           641+*     FUNCTION. THE RESULTS THAT WERE SET UP IN THE RESULTS AREA ARE
                           642+*     STILL VALID BUT A DIFFERENT TEST IS TO BE PERFORMED.
                           643+*
002718  4020 26D8 3C02     644+T3C02 MVHI  X'3C02',$TUID             SET UP TEST UNIT ID
00271E  5700               645+      BXS   (R7)                      RETURN TO MDI SUPVR
                           647       COPY  COMEQU
                           648 ********************************************************************
                           649 *                                                                  *
                           650 *              EQUATED NAMES FOR SUPPORTED SVC'S                   *
                           651 *                                                                  *
                           652 ********************************************************************
000000                     653 OUT   EQU   0                       OUT SVC
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

000001                     654 OUTIN EQU   1                       OUTIN SVC
000002                     655 IDLE  EQU   2                       IDLE SVC
000003                     656 IDLE5 EQU   3                       IDLE SVC - INDEPENDENT OF CPU TYPE
000004                     657 CHNGE EQU   4                       CHANGE LEVEL SVC
000005                     658 PGMCK EQU   5                       ALLOW RETURN ON PROGRAM CHECK SVC
000006                     659 EXIT  EQU   6                       EXIT SVC
000007                     660 TERM  EQU   7                       TERMINATE SVC
000008                     661 RESET EQU   8                       RESET DEVICE SVC
000009                     662 RID   EQU   9                       READ ID SVC
00000A                     663 START EQU   10                      START CYCLE STEAL SVC
00000B                     664 STCSS EQU   11                      START CYCLE STEAL STATUS SVC
00000C                     665 PREP  EQU   12                      PREPARE DEVICE SVC
00000D                     666 READ0 EQU   13                      READ WITH FUNCTION BIT 3 OFF SVC
00000E                     667 READ1 EQU   14                      READ WITH FUNCTION BIT 3 ON SVC
00000F                     668 RSTAT EQU   15                      READ STATUS SVC
000010                     669 WRIT0 EQU   16                      WRITE WITH FUNCTION BIT 3 OFF SVC
000011                     670 WRIT1 EQU   17                      WRITE WITH FUNCTION BIT 3 ON SVC
000012                     671 CTRL  EQU   18                      CONTROL SVC
000013                     672 RICB  EQU   19                      RELEASE INTERUPT CONTROL BLOCK SVC
000014                     673 CICB  EQU   20                      CONNECT INTERUPT CONTROL BLOCK SVC
000015                     674 HIO   EQU   21                      HALT ALL I/O
000016                     675 REQSD EQU   22                      REQUEST USE OF DCP DISK SVC
000017                     676 RELSD EQU   23                      RELEASE USE OF DCP DISK SVC
000018                     677 HALT  EQU   24                      HALT SVC
000019                     678 ETOH  EQU   25                      EBCDIC TO HEX SVC (STRING)
00001A                     679 HTOE  EQU   26                      HEX TO EBCDIC SVC (STRING)
00001B                     680 ATOH  EQU   27                      ASCII TO HEX SVC (STRING)
00001C                     681 HTOA  EQU   28                      HEX TO ASCII SVC (STRING)
00001D                     682 ETOA  EQU   29                      EBCDIC TO ASCII SVC (STRING)
00001E                     683 ATOE  EQU   30                      ASCII TO EBCDIC SVC (STRING)
00001F                     684 READI EQU   31                      READ DATA SETS FOR MDI/UTIL
000020                     685 WRITI EQU   32                      WRITE DATA SETS FOR UTIL
                           687 ********************************************************************
                           688 *                                                                  *
                           689 *                EQUATES USED BY TU'S AS CONSTANTS                 *
                           690 *                                                                  *
                           691 ********************************************************************
00004E                     692 PLUS  EQU   C'+'                    PLUS CHAR
000060                     693 MINUS EQU   C'-'                    MINUS CHAR
000000                     695 ZERO  EQU   0
000001                     696 ONE   EQU   1
000002                     697 TWO   EQU   2
000003                     698 THREE EQU   3
000004                     699 FOUR  EQU   4
000005                     700 FIVE  EQU   5
000006                     701 SIX   EQU   6
000007                     702 SEVEN EQU   7
000008                     703 EIGHT EQU   8
000009                     704 NINE  EQU   9
00000A                     705 TEN   EQU   10
00000B                     706 ELEVN EQU   11                                      11
00000C                     707 TWELV EQU   12                                      12
00000D                     708 THRTN EQU   13                                      13
00000F                     709 FIVTN EQU   15                                      15
000010                     710 SIXTN EQU   16                                      16
000020                     711 THRY2 EQU   32                                      32
000040                     712 SIXT4 EQU   64                                      64
000080                     713 ONE28 EQU   128                                     128
000100                     714 TWO56 EQU   256                                     256
000400                     715 ONEK  EQU   1024                                    1024
000800                     716 TWOK  EQU   2048                                    2048
000C00                     717 THREK EQU   3072                                    3072
001000                     718 FOURK EQU   4096                                    4096
FFFFFF                     720 M1    EQU   -1                                      -1
FFFFFE                     721 M2    EQU   -2                                      -2
FFFFFD                     722 M3    EQU   -3                                      -3
FFFFFC                     723 M4    EQU   -4                                      -4
                           725 ********************************************************************
                           726 *                                                                  *
000000                     727 *     THE FOLLOWING ARE EQUATES FOR BIT DISPLACEMENTS FROM THE     *
000001                     728 *     BEGINNING OF THE BYTE TO EACH BIT IN THE WORD OF SWITCHES.   *
                           729 *                                                                  *
                           730 ********************************************************************
000000                     731 BS0   EQU   0
000001                     732 BS1   EQU   1
000002                     733 BS2   EQU   2
000003                     734 BS3   EQU   3
000004                     735 BS4   EQU   4
000005                     736 BS5   EQU   5
000006                     737 BS6   EQU   6
000007                     738 BS7   EQU   7
000008                     739 BS8   EQU   8
000009                     740 BS9   EQU   9
00000A                     741 BS10  EQU   10
00000B                     742 BS11  EQU   11
00000C                     743 BS12  EQU   12
00000D                     744 BS13  EQU   13
00000E                     745 BS14  EQU   14
00000F                     746 BS15  EQU   15
                           748       COPY  T7801                   01DEC76
                           749 T7801 TUIT ,1                                                06FEB76**
                           751+*
                           752+* TEST UNIT
                           753+*
                           754+*     4962 ATTACHMENT TEST                                    5/09/77
                           755+*
                           756+* PURPOSE
                           757+*
                           758+*
                           759+* CALLING SEQUENCE
                           760+*
                           761+*     ROUTINE WILL  PREPARE THE I/O DEVICE TO INTERRUPT ON LEVEL ZERO
                           762+*     AND CAUSE AN INTERRUPT. WHEN THE INTERRUPT OCCURS, THE LEVEL IS
                           763+*     COMPARED TO THE EXPECTED LEVEL. THIS IS DONE ON ALL LEVELS.
                           764+*     LEVEL THREE WILL NOT OCCUR BECAUSE THIS PROGRAM WILL BE RUNNING
                           765+*     AS A BACKGROUND PROGRAM.
                           766+*     CYCLE STEAL STATUS OP IS USED TO FORCE AN INTERRUPT. RESIDUAL
                           767+*     ADDRESS AND STATUS WORD ARE ALSO CHECKED.
                           768+*
                           769+*     PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
                           770+*     .      TURESUL BIT 0------------NOT USED
                           771+*     .      TURESUL BIT 1------------NOT USED
                           772+*     .      TURESUL BIT 2------------FALSE STORE PROTECT CHECK
```

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                            773+*      .      TURESUL BIT 3------------DCB SPEC CK NOT ON IN ISB
                            774+*      .
                            775+*      .      TURESUL BIT 4------------DCB SPEC CHECK NOT REPORTED
                            776+*      .      TURESUL BIT 5------------ STOR PROT NOT ON IN ISB
                            777+*      .      TURESUL BIT 6------------STOR PROTECT CHECK NOT REPORTED
                            778+*      .      TURESUL BIT 7------------ INV STOR CK NOT ON IN ISB
                            779+*      .
                            780+*      .      TURESUL BIT 8------------WRONG CONDITION CODE
                            781+*      .      TURESUL BIT 9------------ INVAL STOR ADDRESS NOT DETECTED
                            782+*      .      TURESUL BIT 10----------- WRONG CYCLE STEAL ADDRESS
                            783+*      .      TURESUL BIT 11----------RESIDUAL ADDRESS ERROR
                            784+*      .
                            785+*      .      TURESUL BIT 12-----------NOT USED
                            786+*      .      TURESUL BIT 13-----------OIO CC ERROR
                            787+*      .      TURESUL BIT 14---------- DEVICE ID MISCOMPARE
                            788+*      .      TURESUL BIT 15---------- SEEK NO-OP ERROR OR CS STATUS ERR
                            789+*      .
                            790+*      .      TURESUL BIT 16-31 ------ CYCLE STEAL STATUS FOR FAILING OP
                            791+*      .      TURESUL BIT 32-47 ------ CC - 32-39 OIO CC,40-47 INT CC
                            792+*      .      TURESUL BIT 48-63 ------ IBS
                            793+*      .      TURESUL BIT 64-79 ------ OPTION WORD 3 (ERROR INDICATORS)
                            794+*      .
                            795+*
                            796+* RETURN CONTROL
                            797+*
                            798+*      B      TURTN*                  RETURN TO MDI SUPERVISOR
                            799+*****************************************************************************
                            800+*****************************************************************************
002720  6F0D 2710           801+T7801  MVW    R7,TURTN                SAVE RETURN ADDRESS
002724  4020 26D8 7801      802+       MVWI   X'7801',$TUID           SAVE TU ID FOR DISPLAY
00272A  4424 26D2           803+       MVA    OPTN1,R4                SET UP POINTER ADRS IN R4
                            804+*
00272E  4020 270E 0020      805        MVWI   X'0020',$INTL           RESET PREPARE 'I' BIT & CONNECT
002734  6E03 3CD8           806        BAL    $CONC,R6                *
002738  29B4                807        DC     A(T01ER)                *
00273A  CA25 18C8           808        MVWZ   TURESUL,R2              CLEAR RESULTS WORD
00273E  CA25 18CA           809        MVWZ   TURESUL+2,R2            CLEAR RESULTS WORD 2
002742  CA25 18CC           810        MVWZ   TURESUL+4,R2            CLEAR RESULTS WORD 3
002746  CA25 18CE           811        MVWZ   TURESUL+6,R2            CLEAR RESULTS WORD 4
00274A  CA25 18D0           812        MVWZ   TURESUL+8,R2            CLEAR RESULTS WORD 5
00274E  4224 18C8           813        MVA    TURESUL,R2              ADDRESS OF RESULTS
002752  4224 18C8           814        MVA    TURESUL,R2              ADDRESS OF RESULTS WORD
002756  C020 0232           815        MVB    CPUID,R0                DETERMINE TYPE OF PROCESSOR
00275A  F025                816        CBI    37,R0                   *
00275C  1804                817        JNE    T01T                    JUMP IF NOT 4955
00275E  4020 277E 254C      818        MVWI   X'254C',T01T1+2         LOAD TIME CONSTANT FOR 2 SEC
002764  5003                819        J      T01T2                   *
002766  4020 277E 0C0E      820 T01T   MVWI   X'0C0E',T01T1+2         (4953) LOAD TIME CONS FOR 2 SEC
00276C  4020 270E FFF1      821 T01T2  MVWI   X'FFF1',$INTL           SET UP INTERRUPT LEVEL FOR PREP
002772  4724 3CC4           822        MVA    IOBLK,R7                RESET DEVICE
002776  4624 27BA           823        MVA    ITST1+10,R6             SETUP RETURN ADDRESS IF ERROR
00277A  6008                824        SVC    RESET                   *
00277C  4024 0000           825 T01T1  MVWI   X'0000',R0              TIME OUT 2 SEC
002780  6002                826 ITST5  SVC    IDLE                    *
002782  B8FE                827        JCT    ITST5,R0                *
002784  4724 3CC4           828        MVA    IOBLK,R7                RESET DEVICE
002788  6008                829        SVC    RESET                   *
00278A  4724 3CC4           830        MVA    IOBLK,R7                READ DEVICE ID
00278E  4624 27BA           831        MVA    ITST1+10,R6             SETUP RETURN ADDRESS IF ERROR
002792  6009                832 T01D   SVC    RID                     *
002794  402F 3CCE 00BA      833        CWI    X'00BA',IOMOD+4         VERIFY DEVICE ID-DUT,FIXED HEADS
00279A  100A                834        JE     ITST1
00279C  402F 3CCE 00AA      835        CWI    X'00AA',IOMOD+4         VERIFY DEVICE ID-DUT,NO FIXED HEADS
0027A2  1006                836        JE     ITST1
0027A4  402F 3CCE 00CA      837        CWI    X'00CA',IOMOD+4         VERIFY DEVICE ID-LARGE FILE
0027AA  1002                838        JE     ITST1
0027AC  6802 296C           839        B      T01A                    DEVICE ID ERROR
0027B0  4029 270E 0010      840 ITST1  AWI    X'10',$INTL             ADV INTR LEVEL, STARTING AT 0
0027B6  6E03 3CF0           841        BAL    $CONP,R6                CONNECT DEV CNTL BLOCK AND PREP DEV
0027BA  29B4                842        DC     A(T01ER)                ERROR
0027BC  4020 3A76 0008      843        MVWI   8,CEDAT                 SET DIAG MODE 1 AND 4
0027C2  6E03 3A0E           844        BAL    CEOP1,R6                *
0027C6  29B4                845        DC     A(T01ER)                ERROR
0027C8  4C64                846 ITST3  TBTS   (R4,XE)                 SET EXPECTED ERROR
0027CA  6E03 3BD0           847        BAL    XIOCS,R6                CYCLE STEAL STATUS TO CAUSE INTER
0027CE  29B4                848        DC     A(T01ER)                ERROR
0027D0  4CA1                849        TBTR   (R4,ER)                 INTERRUPT ERROR?
0027D2  6A00 2970           850        BON    T01B                    YES
0027D6  802B 396A 26DC      851        CB     ZER00,$ISB              CHECK ISB(0-7) FOR ZEROS
0027DC  6801 2970           852        BNE    T01B                    ERROR
0027E0  802B 19D0 26DD      853        CB     DEVADD,$ISB+1           CHECK DEVICE ADDRESS IN ISB
0027E6  6801 2970           854        BNE    T01B                    ERROR
0027EA  402B 26FA 0001      855        TWI    1,CSTL2                 CHECK CS STATS WORD 1 FOR NOT RDY
0027F0  6800 2970           856        BOFF   T01B                    ERROR
0027F4  402F 26FE 0000      857        CWI    0,CSTL4                 CHECK CS STATS WORD 3 FOR ZEROS
0027FA  6801 2970           858        BNE    T01B                    ERROR
0027FE  402F 270E 0021      859        CWI    X'21',$INTL             HAS INTR LEVEL COME DOWN TO 2
002804  18D5                860        JNE    ITST1                   * NO, BCH AND CONTINUE TEST
002806  4020 38FA 8005      861        MVWI   X'8005',SKDCB           SEEK CONTROL WORD - CHAINED TO XIOCS
00280C  4020 38FC 0000      862        MVWI   0,SKDCB+2               SEEK NO OP
002812  4020 3902 0000      863        MVWI   0,SKDCB+8               SELECT HEAD
002818  4020 3904 390A      864        MVA    CSDCB,SKDCB+10          CHAINING ADDRESS
00281E  4020 3A76 000A      865        MVWI   X'000A',CEDAT           SET DIAG MODE 2 & 4 TURN ON INTERNAL
002824  6E03 3A0E           866        BAL    CEOP1,R6                * READY TO ALLOW CYCLE STEALS
002828  2970                867        DC     A(T01B)                 *
00282A  4C64                868        TBTS   (R4,XE)                 SET EXPECTED ERROR
00282C  6E03 3AF6           869        BAL    $SEEK,R6                SEEK NO-OP
002830  2970                870        DC     A(T01B)                 ERROR
002832  4CA1                871        TBTR   (R4,ER)                 INTERRUPT ERROR?
002834  6800 2990           872        BOFF   T01C                    NO-DCB SPEC CHECK NOT DETECTED
002838  402B 26DC 1000      873        TWI    X'1000',$ISB            DCB SPEC CHECK?
00283E  6800 2994           874        BOFF   T01W                    NO ERROR
002842  4020 38FA 0005      875        MVWI   X'0005',SKDCB           RESTORE SEEK CONTROL WORD
002848  6E03 29B8           876        BAL    $CKSK,R6                SEEK CHAINED TO SEEK
00284C  2970                877        DC     A(T01B)                 *
00284E  4124 3907           878        MVA    SKDCB+13,R1             SHOULD BE RESIDULA ADDRESS
002852  4C64                879        TBTS   (R4,XE)                 SET EXPECTED ERROR
002854  6E03 3BD0           880        BAL    XIOCS,R6                CYCLE STEAL STATUS
002858  29B4                881        DC     A(T01ER)                *
00285A  4CA1                882        TBTR   (R4,ER)                 INTERRUPT ERROR?
00285C  6A00 2970           883        BON    T01B                    YES
002860  C924 26F8           884        CW     CSTL1,R1                CHECK RESIDUAL ADDRESS
002864  6801 2974           885        BNE    T01L                    RESIDUAL ADDRESS ERROR
002868  6808 18C4           886        MVW    TULAST,R0               LAST VALID STORAGE ADDRESS
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
002870  8828 18C2 3918      887        SWI    14,R0                   DEV LAST VALID STORAGE ADDR FOR CS
002870  8828 18C2 3918      888        MVW    TUBUFF,CSDCB+14         FIRST AVAILABLE STOR LOCATION
002876  4C64                889 T01H   TBTS   (R4,XE)                 SET EXPECTED ERROR
002878  6E03 3BD0           890        BAL    XIOCS,R6                CYCLE STEAL STATUS
00287C  29B4                891        DC     A(T01ER)                ERROR
00287E  4CA1                892        TBTR   (R4,ER)                 INTERRUPT ERROR?
002880  1277                893        JON    T01B                    YES
002882  C934 3918           894        CW     CSDCB+14*,R1            CHECK RESIDUAL ADDRESS
002886  1878                895        JNE    T01M                    WRONG CYCLE STEAL ADDRESS
002888  C824 3918           896        CW     CSDCB+14,R0             END OF PHYSICAL STORAGE?
00288C  1704                897        JLLT   T01G                    YES
00288E  4029 3918 0008      898        AWI    8,CSDCB+14              INCREMENT BUFFER ADDRESS
002894  50F0                899        J      T01H
002896  7806 FFF0           900 T01G   CWI    X'FFF0',R0              MAX STORAGE?
00289A  1011                901        JE     T01J                    YES
00289C  4029 3918 000A      902        AWI    10,CSDCB+14             FORCE INVALID STG ADDRESS
0028A2  4C64                903        TBTS   (R4,XE)                 SET EXPECTED ERROR
0028A4  6E03 3BD0           904        BAL    XIOCS,R6                CYCLE STEAL STATUS
0028A8  29B4                905        DC     A(T01ER)                ERROR
0028AA  4CA1                906        TBTR   (R4,ER)                 INTERRUPT ERROR?
0028AC  1067                907        JOFF   T01N                    NO,INV STG ADDR NOT REPORTED
0028AE  402F 26DA 0702      908        CWI    X'0702',$IOIN           ARE COND CODES 7 AND 2?
0028B4  1865                909        JNE    T01P                    NO-ERROR
0028B6  402B 26DC 0400      910        TWI    X'0400',$ISB            INVALID STORAGE BIT ON IN ISB?
0028BC  1063                911        JOFF   T01Q                    NO-ERROR
0028BE  4020 3918 26F8      912 T01J   MVA    CSBUF,CSDCB+14          CS ADDRESS
0028C4  C020 0232           913        MVB    CPUID,R0                DETERMINE TYPE OF PROCESSOR
0028C8  F025                914        CBI    37,R0                   *
0028CA  1826                915        JNE    T01Z                    JUMP IF NOT 4955
0028CC  4020 390A 2000      916        MVWI   X'2000',CSDCB           CS CONTROL WORD
0028D2  6208                917        EN     X'08'                   ENABLE STORE PROTECT KEY
0028D4  4C64                918        TBTS   (R4,XE)                 SET EXPECTED ERROR
0028D6  6E03 3BD0           919        BAL    XIOCS,R6                CYCLE STEAL STATUS TO CAUSE INTER
0028DA  29B4                920        DC     A(T01ER)                ERROR
0028DC  4CA1                921        TBTR   (R4,ER)                 INTERRUPT ERROR?
0028DE  125C                922        JON    T01Y                    YES-FLASE STORE PROTECT KEY
0028E0  4029 390A 0100      923 T01K   AWI    X'0100',CSDCB           SET OR INCREMENT KEYS
0028E6  4C64                924        TBTS   (R4,XE)                 SET EXPECTED ERROR
0028E8  6E03 3BD0           925        BAL    XIOCS,R6                CYCLE STEAL STATUS
0028EC  29B4                926        DC     A(T01ER)                ERROR
0028EE  4CA1                927        TBTR   (R4,ER)                 INTERRUPT ERROR?
0028F0  104B                928        JOFF   T01X                    NO,STOR PROTECT NOT REPORTED
0028F2  402F 26DA 0702      929        CWI    X'0702',$IOIN           ARE COND CODES 7 AND 2?
0028F8  1843                930        JNE    T01P                    NO-ERROR
0028FA  402B 26DC 0200      931        TWI    X'0200',$ISB            STOR PROT BIT NOT ON IN ISB?
002900  1045                932        JOFF   T01U                    NO-ERROR
002902  402F 390A 2700      933        CWI    X'2700',CSDCB           ALL KEYS CHECKED?
002908  18EB                934        JNE    T01K                    NO
00290A  6308                935        DIS    X'08'                   DISABLE STORAGE PROTECT
00290C  4020 390A 2000      936        MVWI   X'2000',CSDCB           RESTORE CS DCB
002912  4020 3918 26F8      937        MVA    CSBUF,CSDCB+14          *
002918  4029 3918 0001      938 T01Z   AWI    1,CSDCB+14              FORCE DCB SPEC CHECK
00291E  4C64                939        TBTS   (R4,XE)                 SET EXPECTED ERROR
002920  6E03 3BD0           940        BAL    XIOCS,R6                CYCLE STEAL STATUS
002924  29B4                941        DC     A(T01ER)                ERROR
002926  4CA1                942        TBTR   (R4,ER)                 INTERRUPT ERROR?
002928  1033                943        JOFF   T01V                    NO,DCB SPEC CHECK NOT REPORTED
00292A  402F 26DA 0702      944        CWI    X'0702',$IOIN           ARE COND CODES 7 AND 2?
002930  1827                945        JNE    T01P                    NO-ERROR
002932  402B 26DC 1000      946        TWI    X'1000',$ISB            DCB SPEC CHECK BIT ON IN ISB?
002938  102D                947        JOFF   T01W                    NO-ERROR
00293A  5001                948        J      T1END
00293C  8828 26FA 18CA      949 T01C   MVW    CSTL2,TURESUL+2         CYCLE STEAL STATUS FOR FAILING OP
002942  8828 26DA 18CC      950        MVW    $IOIN,TURESUL+4         CONDITION CODES
002948  8828 26DC 18CE      951        MVW    $ISB,TURESUL+6          ISB
00294E  8828 26D6 18D0      952        MVW    OPTN3,TURESUL+8         OPTION WORD 3 (CONDITION CODES)
002954  6308                953 T1END  DIS    X'08'                   DISABLE STORAGE PROTECT
002956  4020 390A 2000      954        MVWI   X'2000',CSDCB           RESTORE VALID CS DCB
00295C  4020 3918 26F8      955        MVA    CSBUF,CSDCB+14          *
002962  4724 3CC4           956        MVA    IOBLK,R7                RESET
002966  6008                957        SVC    RESET                   *
                            958        TXIT
002968  6802 3D5C           959+       B      $CONX                   RETURN TO MDI CONTROLLER
                            960+*****************************************************************************
                            961 *
00296C  4A4E                962 T01A   TBTS   (R2,14)                 DEVICE ID MISCOMPARE
00296E  50E6                963        J      T01C                    EXIT
002970  4A4F                964 T01B   TBTS   (R2,15)                 CYCLE STEAL STATUS OR SEEK ERROR
002972  50E4                965        J      T01C                    EXIT
002974  4A4B                966 T01L   TBTS   (R2,11)                 RESIDUAL ADDRESS ERROR
002976  50E2                967        J      T01C                    EXIT
002978  4A4A                968 T01M   TBTS   (R2,10)                 WRONG CYCLE STEAL ADDRESS
00297A  50E0                969        J      T01C                    EXIT
00297C  4A49                970 T01N   TBTS   (R2,9)                  INVALID STOR ADDR NOT DETECTED
00297E  50DE                971        J      T01C                    EXIT
002980  4A48                972 T01P   TBTS   (R2,8)                  WRONG CONDITION CODE
002982  50DC                973        J      T01C                    EXIT
002984  4A47                974 T01Q   TBTS   (R2,7)                  INV STOR BIT NOT ON IN ISB
002986  50DA                975        J      T01C                    EXIT
002988  4A46                976 T01X   TBTS   (R2,6)                  STOR PROTECT NOT DETECTED
00298A  50D8                977        J      T01C                    EXIT
00298C  4A45                978 T01U   TBTS   (R2,5)                  STOR PROT NOT ON IN ISB
00298E  50D6                979        J      T01C                    EXIT
002990  4A44                980 T01V   TBTS   (R2,4)                  DCB SPEC CHECK NOT REPORTED
002992  50D4                981        J      T01C                    EXIT
002994  4A43                982 T01W   TBTS   (R2,3)                  DCB SPEC CK NOT ON IN ISB
002996  50D2                983        J      T01C                    EXIT
002998  4A42                984 T01Y   TBTS   (R2,2)                  FALSE STORE PROTECT CHECK
00299A  50D0                985        J      T01C                    EXIT
00299C  CA25 18C8           986 T01R   MVWZ   TURESUL,R2              CLEAR RESULTS WORD
0029A0  CA25 18CA           987        MVWZ   TURESUL+2,R2            CLEAR RESULTS WORD 2
0029A4  CA25 18CC           988        MVWZ   TURESUL+4,R2            CLEAR RESULTS WORD 3
0029A8  CA25 18CE           989        MVWZ   TURESUL+6,R2            CLEAR RESULTS WORD 4
0029AC  CA25 18D0           990        MVWZ   TURESUL+8,R2            CLEAR RESULTS WORD 5
0029B0  4224 18C8           991        MVA    TURESUL,R2              ADDRESS OF RESULTS
0029B4  4A4D                992 T01ER  TBTS   (R2,13)                 OIO CC ERROR
0029B6  50C2                993        J      T01C                    EXIT
                            994 *
0029B8  4020 3CC8 29C2      995 $CKSK  MVA    CHSK,IODCB              SET UP CONTROL BLOCK FOR SVC CALL
0029BE  6802 3BC6           996        B      XIO
                            997 *
0029C2  8005                998 CHSK   DC     X'8005'                 SEEK CONTROL WORD - CHAINNING
0029C4  0000                999        DC     X'0000'                 NO OP
0029C6  0000               1000        DC     X'0000'
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

0029C8  0000              1001         DC    X'0000'
0029CA  0000              1002         DC    X'0000'
0029CC  38FA              1003         DC    A(SKDCB)                 CHAIN ADDRESS
0029CE  0000              1004         DC    X'0000'
                          1005 *
                          1007         COPY  T7804                    01DEC76
                          1008 T7804 TUIT $ERR$
                          1009+*****************************************************************06FEB76**
                          1010+*
                          1011+* TEST UNIT
                          1012+*
                          1013+*       THIS ROUTINE WILL FORCE ERRORS THAT THE ATTACHMENT WILL REJECT
                          1014+*
                          1015+* PURPOSE
                          1016+*
                          1017+*                                                              5/05/77
                          1018+* CALLING SEQUENCE
                          1019+*
                          1020+*       THE FOLLOWING ERRORS ARE FORCED:
                          1021+*       0.    INVALID COMMAND
                          1022+*       1.    INVALID SECTOR NUMBER (RD OP)
                          1023+*       2.    INVALID SECTOR NUMBER (RD SECTOR ID)
                          1024+*       3.    INVALID SECTOR NUMBER (DIAG OP)
                          1025+*       4.    ODD BYTE COUNT
                          1026+*       5.    INVALID BYTE COUNT (READ SECTOR ID)
                          1027+*       6.    INVALID BYTE COUNT (START DIAG)
                          1028+*       7.    ODD DATA ADDRESS
                          1029+*
                          1030+*       PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
                          1031+*       .     TURESUL BIT 0--INVALID COMMAND
                          1032+*       .     TURESUL BIT 1--INVALID SECTOR # (RD OP)
                          1033+*       .     TURESUL BIT 2--INVALID SECTOR # (RD SECTOR ID)
                          1034+*       .     TURESUL BIT 3--INVALID SECTOR # (DIAG OP)
                          1035+*       .     TURESUL BIT 4--ODD BYTE COUNT
                          1036+*       .     TURESUL BIT 5--INVALID BYTE COUNT (RD SECTOR ID)
                          1037+*       .     TURESUL BIT 6--INVALID BYTE COUNT (START ID)
                          1038+*       .     TURESUL BIT 7--ODD DATA ADDRESS
                          1039+*       .     TURESUL BIT 8--OIO ERROR
                          1040+*       .     TURESUL BIT 9---------- NOT USED
                          1041+*       .     TURESUL BIT 10--------- NOT USED
                          1042+*       .     TURESUL BIT 11---------NOT USED
                          1043+*       .     TURESUL BIT 12---------NOT USED
                          1044+*       .     TURESUL BIT 13---------NOT USED
                          1045+*       .     TURESUL BIT 14---------- NOT USED
                          1046+*       .     TURESUL BIT 15---------- NOT USED
                          1047+*       .
                          1048+*
                          1049+*
                          1050+* RETURN CONTROL
                          1051+*
                          1052+*       B     TURTN*                   RETURN TO MDI SUPERVISOR
                          1053+*
                          1054+*****************************************************************
0029D0  6F0D 2710         1055+T7804  MVW   R7,TURTN                   SAVE RETURN ADDRESS
0029D4  4020 26D8 7804    1056+       MVWI  X'7804',$TUID              SAVE TU ID FOR DISPLAY
0029DA  4024 26D2         1057+       MVA   OPTN1,R4                   SET UP POINTER ADRS IN R4
0029DE  6E03 3CD8         1058+       BAL   $CONC,R6                   CLEAR DEV DEP STG AND CONNECT I/O BL
0029E2  3D0C              1059+       DC    A($ERR$)                   ERROR ADRS FOR INVALID PREP
                          1060+*
0029E4  4020 3A76 000A    1061        MVWI  X'000A',CEDAT              TURN ON READY, MODE 184
0029EA  6E03 3A0E         1062        BAL   CEOP1,R6                   *
0029EE  2B1C              1063        DC    A(T04K)                    *
0029F0  CA25 18C8         1064        MVWZ  TURESUL,R2                 CLEAR RESULTS WORD
0029F4  4024 18C8         1065        MVA   TURESUL,R0                 ADDRESS OF RESULTS
0029F8  4020 393A 2006    1066        MVWI  X'2006',RDDCB              INVALID READ COMMAND
                          1067        ERTST 1,$RD$                     USE SPECIAL XIO ROUTINE
0029FE  4020 3E80 3B2C    1068+       MVA   $RD$,ERTST+4               SET UP ADDRESS FOR I/O COMMAND
002A04  6A03 3E7C         1069+       BAL   ERTST,R2                   USE COMMON ERROR TESTING SUBROUTINE
002A08  0001              1070+       DC    A(1)                       DISP FROM TOP OF DCB IN BYTES
002A0A  2AFC              1071        DC    A(T04A)                    ERROR ADDRESS
                          1072 *
002A0C  4020 393A 2009    1073        MVWI  X'2009',RDDCB              READ CONTROL WORD
002A12  4020 3942 004C    1074        MVWI  X'004C',RDDCB+8            SETUP INVALID SECTOR #
002A18  4020 3946 0002    1075        MVWI  X'0002',RDDCB+12           SETUP VALID BYTE COUNT
                          1076        ERTST 5,$RD$                     USE SPECIAL XIO ROUTINE
002A1E  4020 3E80 3B2C    1077+       MVA   $RD$,ERTST+4               SET UP ADDRESS FOR I/O COMMAND
002A24  6A03 3E7C         1078+       BAL   ERTST,R2                   USE COMMON ERROR TESTING SUBROUTINE
002A28  0009              1079+       DC    A(9)                       DISP FROM TOP OF DCB IN BYTES
002A2A  2B00              1080        DC    A(T04B)                    ERROR ADDRESS
                          1081 *
002A2C  4020 38DE 3C00    1082        MVWI  X'3C00',RSDCB+4            SETUP INVALID SEC NUM
                          1083        ERTST 3,$RDID                    USE SPECIAL XIO ROUTINE
002A32  4020 3E80 3B06    1084+       MVA   $RDID,ERTST+4              SET UP ADDRESS FOR I/O COMMAND
002A38  6A03 3E7C         1085+       BAL   ERTST,R2                   USE COMMON ERROR TESTING SUBROUTINE
002A3C  0005              1086+       DC    A(5)                       DISP FROM TOP OF DCB IN BYTES
002A3E  2B04              1087        DC    A(T04C)                    ERROR ADDRESS
                          1088 *
002A40  4020 38AE 3C00    1089        MVWI  X'3C00',DGDCB+4            SETUP INVALID SECTOR #
002A46  4020 38B6 0100    1090        MVWI  X'0100',DGDCB+12           SETUP VALID BYTE COUNT
                          1091        ERTST 3,$DIAG                    USE SPECIAL XIO ROUTINE
002A4C  4020 3E80 3BBE    1092+       MVA   $DIAG,ERTST+4              SET UP ADDRESS FOR I/O COMMAND
002A52  6A03 3E7C         1093+       BAL   ERTST,R2                   USE COMMON ERROR TESTING SUBROUTINE
002A56  0005              1094+       DC    A(5)                       DISP FROM TOP OF DCB IN BYTES
002A58  2B08              1095        DC    A(T04D)                    ERROR ADDRESS
                          1096 *
002A5A  4020 393A 2009    1097        MVWI  X'2009',RDDCB              READ CONTROL WORD
002A60  4020 3942 003B    1098        MVWI  X'003B',RDDCB+8            RESTORE VALID SECTOR #
002A66  4020 3946 0003    1099        MVWI  X'0003',RDDCB+12           SETUP INVALID BYTE COUNT
                          1100        ERTST 7,$RD$                     USE SPECIAL XIO ROUTINE
002A6C  4020 3E80 3B2C    1101+       MVA   $RD$,ERTST+4               SET UP ADDRESS FOR I/O COMMAND
002A72  6A03 3E7C         1102+       BAL   ERTST,R2                   USE COMMON ERROR TESTING SUBROUTINE
002A76  000D              1103+       DC    A(13)                      DISP FROM TOP OF DCB IN BYTES
002A78  2B0C              1104        DC    A(T04E)                    ERROR ADDRESS
                          1105 *
002A7A  4020 38DA 200A    1106        MVWI  X'200A',RSDCB              READ SECTOR ID CONTROL WORD
002A80  4020 38DE 0000    1107        MVWI  X'0000',RSDCB+4            VALIDATE SECTOR #
002A86  4020 38E6 0008    1108        MVWI  X'0008',RSDCB+12           SETUP INVALID BYTE COUNT
                          1109        ERTST 7,$RDID                    USE SPECIAL XIO ROUTINE
002A8C  4020 3E80 3B06    1110+       MVA   $RDID,ERTST+4              SET UP ADDRESS FOR I/O COMMAND
002A92  6A03 3E7C         1111+       BAL   ERTST,R2                   USE COMMON ERROR TESTING SUBROUTINE
002A96  000D              1112+       DC    A(13)                      DISP FROM TOP OF DCB IN BYTES
002A98  2B10              1113        DC    A(T04F)                    ERROR ADDRESS
002A9A  4020 38E6 0006    1114        MVWI  X'0006',RSDCB+12           RESTORE VALID BYTE COUNT
                          1115 *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

002AA0  4020 38AE 0000    1116        MVWI  X'0000',DGDCB+4          RESTORE VALID SECTOR #
002AA6  4020 38B6 0006    1117        MVWI  X'0006',DGDCB+12         SETUP INVALID BYTE COUNT
                          1118        ERTST 7,$DIAG                    USE SPECIAL XIO ROUTINE
002AAC  4020 3E80 3BBE    1119+       MVA   $DIAG,ERTST+4              SET UP ADDRESS FOR I/O COMMAND
002AB2  6A03 3E7C         1120+       BAL   ERTST,R2                   USE COMMON ERROR TESTING SUBROUTINE
002AB6  000D              1121+       DC    A(13)                      DISP FROM TOP OF DCB IN BYTES
002AB8  2B14              1122        DC    A(T04G)                    ERROR ADDRESS
002ABA  4020 38B6 0100    1123        MVWI  X'0100',DGDCB+12           RESTORE VALID BYTE COUNT
                          1124 *
002AC0  4020 393A 2009    1125        MVWI  X'2009',RDDCB              READ CONTROL WORD
002AC6  4020 3946 0002    1126        MVWI  X'0002',RDDCB+12           RESTORE VALID BYTE COUNT
002ACC  4020 3948 3FF9    1127        MVWI  X'3FF9',RDDCB+14           SETUP INVALID DATA ADDRESS
                          1128        ERTST 8,$RD$                     USE SPECIAL XIO ROUTINE
002AD2  4020 3E80 3B2C    1129+       MVA   $RD$,ERTST+4               SET UP ADDRESS FOR I/O COMMAND
002AD8  6A03 3E7C         1130+       BAL   ERTST,R2                   USE COMMON ERROR TESTING SUBROUTINE
002ADC  000F              1131+       DC    A(15)                      DISP FROM TOP OF DCB IN BYTES
002ADE  2B18              1132        DC    A(T04H)                    ERROR ADDRESS
002AE0  4020 38B6 0100    1133        MVWI  X'0100',DGDCB+12           RESTORE VALID BYTE COUNT
002AE6  8828 18C2 3948    1134        MVW   TUBUFF,RDDCB+14            RESTORE VALID DATA ADDRESS
002AEC  4029 3948 0500    1135        AWI   X'0500',RDDCB+14           *
                          1136 *
002AF2  4724 3CC4         1137 T04J   MVA   IOBLK,R7                   RESET
002AF6  6008              1138        SVC   RESET                      *
                          1139        TXIT
002AF8  6802 3D5C         1140+       B     $CONX                        RETURN TO MDI CONTROLLER
                          1141+*****************************************************************
                          1142 *
002AFC  4840              1143 T04A   TBTS  (R0,0)                     INVALID COMMAND
002AFE  50F9              1144        J     T04J
002B00  4841              1145 T04B   TBTS  (R0,1)                     INVALID SECTOR # (RD OP)
002B02  50F7              1146        J     T04J
002B04  4842              1147 T04C   TBTS  (R0,2)                     INVALID SECTOR # (RD SECTOR ID)
002B06  50F5              1148        J     T04J
002B08  4843              1149 T04D   TBTS  (R0,3)                     INVALID SECTOR # (DIAG OP)
002B0A  50F3              1150        J     T04J
002B0C  4844              1151 T04E   TBTS  (R0,4)                     ODD BYTE COUNT
002B0E  50F1              1152        J     T04J
002B10  4845              1153 T04F   TBTS  (R0,5)                     INVALID BYTE COUNT (RD SECTOR ID)
002B12  50EF              1154        J     T04J
002B14  4846              1155 T04G   TBTS  (R0,6)                     INVALID BYTE COUNT (START DIAG)
002B16  50ED              1156        J     T04J
002B18  4847              1157 T04H   TBTS  (R0,7)                     ODD DATA ADDRESS
002B1A  50EB              1158        J     T04J
002B1C  4848              1159 T04K   TBTS  (R0,8)                     OIO ERROR
002B1E  50E9              1160        J     T04J
                          1161 *
                          1162 *
                          1163 *
                          1164        COPY  T7806                    01DEC76
                          1165 T7806 TUIT T06ER
                          1166+*****************************************************************06FEB76**
                          1167+*
                          1168+* TEST UNIT
                          1169+*
                          1170+*       DATA BUFFER WRAP  TEST                                      5/05/77
                          1171+*
                          1172+* PURPOSE
                          1173+*
                          1174+*
                          1175+* CALLING SEQUENCE
                          1176+*
                          1177+*       THIS ROUTINE WILL VERIFY THE DATA BUFFER IN THE 4962 ATTACHMENT
                          1178+*       CARD BY TURNING ON DIAGNOSTIC MODE AND RUNNING BUFFER WRAP TEST.
                          1179+*
                          1180+*       PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
                          1181+*       .     TURESUL BIT 0------------NOT USED
                          1182+*       .     TURESUL BIT 1------------NOT USED
                          1183+*       .     TURESUL BIT 2------------NOT USED
                          1184+*       .     TURESUL BIT 3------------NOT USED
                          1185+*       .
                          1186+*       .     TURESUL BIT 4------------NOT USED
                          1187+*       .     TURESUL BIT 5------------NOT USED
                          1188+*       .     TURESUL BIT 6------------NOT USED
                          1189+*       .     TURESUL BIT 7------------ NOT USED
                          1190+*       .
                          1191+*       .     TURESUL BIT 8------------NOT USED
                          1192+*       .     TURESUL BIT 9------------ NOT USED
                          1193+*       .     TURESUL BIT 10----------- NOT USED
                          1194+*       .     TURESUL BIT 11-----------NOT DIAGNOSTIC MODE
                          1195+*       .
                          1196+*       .     TURESUL BIT 12-----------NOT USED
                          1197+*       .     TURESUL BIT 13-----------OIO CC ERROR
                          1198+*       .     TURESUL BIT 14---------- WRAP TEST FAILED
                          1199+*       .     TURESUL BIT 15---------- NO INTERRUPT RECEIVED
                          1200+*       .
                          1201+*       .     TURESUL BIT 16-31 ------ CYCLE STEAL STATUS FOR FAILING OP
                          1202+*       .     TURESUL BIT 32-47 ------ CC - 32-39 OIO CC,40-47 INT CC
                          1203+*       .     TURESUL BIT 48-63 ------ IBS
                          1204+*       .     TURESUL BIT 64-79 ------ OPTION WORD 3 (ERROR INDICATORS)
                          1205+*       .
                          1206+*
                          1207+* RETURN CONTROL
                          1208+*
                          1209+*       B     TURTN*                   RETURN TO MDI SUPERVISOR
                          1210+*
                          1211+*****************************************************************
002B20  6F0D 2710         1212+T7806  MVW   R7,TURTN                   SAVE RETURN ADDRESS
002B24  4020 26D8 7806    1213+       MVWI  X'7806',$TUID              SAVE TU ID FOR DISPLAY
002B2A  4424 26D2         1214+       MVA   OPTN1,R4                   SET UP POINTER ADRS IN R4
002B2E  6E03 3CD8         1215+       BAL   $CONC,R6                   CLEAR DEV DEP STG AND CONNECT I/O BL
002B32  2BC4              1216+       DC    A(T06ER)                   ERROR ADRS FOR INVALID PREP
                          1217+*
002B34  CA25 18C8         1218        MVWZ  TURESUL,R2                 CLEAR RESULTS WORD
002B38  CA25 18CA         1219        MVWZ  TURESUL+2,R2               CLEAR RESULTS WORD 2
002B3C  CA25 18CC         1220        MVWZ  TURESUL+4,R2               CLEAR RESULTS WORD 3
002B40  CA25 18CE         1221        MVWZ  TURESUL+6,R2               CLEAR RESULTS WORD 4
002B44  CA25 18D0         1222        MVWZ  TURESUL+8,R2               CLEAR RESULTS WORD 5
002B48  4224 18C8         1223        MVA   TURESUL,R2                 ADDRESS OF RESULTS
002B4C  4C67              1224        TBTS  (R4,NI)                    TURN ON NO INTER MODE INDICATOR
002B4E  4724 3CC4         1225        MVA   IOBLK,R7                   ISSUE DEVICE RESET
002B52  6008              1226        SVC   RESET                      *
002B54  4020 3A76 0000    1227        MVWI  0,CEDAT                    SET DIAGNOSTIC MODE
002B5A  6E03 3A0E         1228        BAL   CEOP1,R6                   *
002B5E  2BC4              1229        DC    A(T06ER)                   ERROR
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
002B60  6E03 3A44          1230         BAL   SENSO,R6              READ SENSE WORD ONE
002B64  2BC4               1231         DC    A(T06ER)              ERROR
002B66  402F 3A6E 8000     1232         CWI   X'8000',RDATA0        CHECK FOR DIAGNOSTIC MODE
002B6C  1025               1233         JOFF  T06D                  DIAG MODE NOT ON
002B6E  6E03 39FA          1234         BAL   WRAP,R6               READ DIAGNOSTIC WRAP
002B72  2BC4               1235         DC    A(T06ER)              ERROR
002B74  882B 3A76 3A7E     1236         CW    CEDAT,RAPDAT          COMPARE DATA BUFFER
002B7A  1820               1237         JNE   T06A                  ERROR
002B7C  4020 3A76 FFFF     1238         MVWI  X'FFFF',CEDAT         SET ALL ONES AS DATA PATTERN
002B82  6E03 3A0E          1239         BAL   CEOP1,R6              WRITE BUFFER DATA PATTERN
002B86  2BC4               1240         DC    A(T06ER)              ERROR
002B88  6E03 39FA          1241         BAL   WRAP,R6               READ DIAGNOSTIC WRAP
002B8C  2BC4               1242         DC    A(T06ER)              ERROR
002B8E  882B 3A76 3A7E     1243         CW    CEDAT,RAPDAT          COMPARE DATA BUFFER
002B94  1813               1244         JNE   T06A                  ERROR
002B96  4124 0001          1245         MVWI  1,R1                  INIT DATA PATTERN TO 1
002B9A  690D 3A76          1246 T06L    MVW   R1,CEDAT              LOAD DATA PATTERN IN WRT DATA BD
002B9E  6E03 3A0E          1247         BAL   CEOP1,R6              WRITE BUFFER DATA PATTERN
002BA2  2BC4               1248         DC    A(T06ER)              ERROR
002BA4  6E03 39FA          1249         BAL   WRAP,R6               READ DIAGNOSTIC WRAP
002BA8  2BC4               1250         DC    A(T06ER)              ERROR
002BAA  882B 3A76 3A7E     1251         CW    CEDAT,RAPDAT          COMPARE DATA BUFFER
002BB0  1805               1252         JNE   T06A                  ERROR
002BB2  3109               1253         SLL   1,R1                  SHIFT DATA PATTERN
002BB4  1718               1254         JCY   T6END                 ALL DATA PATTERNS TESTED
002BB6  50F1               1255         J     T06L                  LOOP
002BB8  4A4B               1256 T06D    TBTS  (R2,11)               NOT DIAGNOSTIC MODE
002BBA  5009               1257         J     T06C                  EXIT
002BBC  4A4E               1258 T06A    TBTS  (R2,14)               DATA BUFFER FAILURE
002BBE  5007               1259         J     T06C                  EXIT
002BC0  4A4F               1260 T06B    TBTS  (R2,15)               NO INTERRUPT RECEIVED
002BC2  5005               1261         J     T06C                  EXIT
002BC4  CA25 18C8          1262 T06ER   MVWZ  TURESUL,R2             CLEAR RESULTS WORD
002BC8  4224 18C8          1263         MVA   TURESUL,R2            ADDRESS OF RESULTS
002BCC  4A4D               1264         TBTS  (R2,13)               OIO CC ERROR
002BCE  8828 26FA 18CA     1265 T06C    MVW   CSTL2,TURESUL+2       CYCLE STEAL STATUS FOR FAILING OP
002BD4  8828 26DA 18CC     1266         MVW   $IOIN,TURESUL+4       CONDITION CODES
002BDA  8828 26DC 18CE     1267         MVW   $ISB,TURESUL+6        ISB
002BE0  8828 26D6 18D0     1268         MVW   OPTN3,TURESUL+8       OPTION WORD 3 (CONDITION CODES)
002BE6  4020 3A7A 0001     1269 T6END   MVWI  1,CEDAT2              RESET DIAG MODE
002BEC  6E03 3A22          1270         BAL   CEOP2,R6              *
002BF0  2BC4               1271         DC    A(T06ER)              *
002BF2  4724 3CC4          1272         MVA   IOBLK,R7              RESET
002BF6  6008               1273         SVC   RESET                 *
                           1274         TXIT                        EXIT
002BF8  6802 3D5C          1275+        B     $CONX                   RETURN TO MDI CONTROLLER
                           1276+*****************************************************************************
                           1277 *
                           1279         COPY  T7807                 01DEC76
                           1280 T7807 TUIT T07ER                    06FEB76**
                           1281+*****************************************************************************
                           1282+*
                           1283+* TEST UNIT
                           1284+*
                           1285+*      RAM AND BUFFER CONTROL DIAGNOSTIC WRAP                    7/10/78
                           1286+*
                           1287+* PURPOSE
                           1288+*
                           1289+*
                           1290+* CALLING SEQUENCE
                           1291+*
                           1292+*      THIS ROUTINE WILL VERIFY THE DATA RETENTION OF THE FSU RAM.
                           1293+*      PATTERNS 5555,AAAA,ETC ARE TESTED WITH VARIOUS BYTE COUNTS UP
                           1294+*      TO '0400'.
                           1295+*      PARM1=TEST NUMBER (1,2,4,8,10)
                           1296+*      .
                           1297+*      PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
                           1298+*      .       TURESUL BIT 0------------NOT USED
                           1299+*      .       TURESUL BIT 1------------NOT USED
                           1300+*      .       TURESUL BIT 2------------NOT USED
                           1301+*      .       TURESUL BIT 3------------NOT USED
                           1302+*      .
                           1303+*      .       TURESUL BIT 4------------NOT USED
                           1304+*      .       TURESUL BIT 5------------ NOT USED
                           1305+*      .       TURESUL BIT 6------------NOT USED
                           1306+*      .       TURESUL BIT 7------------ NOT USED
                           1307+*      .
                           1308+*      .       TURESUL BIT 8------------NOT USED
                           1309+*      .       TURESUL BIT 9------------ FRACTIONAL COUNT ERORR
                           1310+*      .       TURESUL BIT 10----------- TIME OUT ERROR
                           1311+*      .       TURESUL BIT 11-----------OIO CC ERROR
                           1312+*      .
                           1313+*      .       TURESUL BIT 12-----------TEST 1 DATA COMPARE ERROR
                           1314+*      .       TURESUL BIT 13---------- NOT USED
                           1315+*      .       TURESUL BIT 14-----------NOT USED
                           1316+*      .       TURESUL BIT 15---------- INTERRUPT ERROR
                           1317+*      .
                           1318+*      .       TURESUL BIT 16-31 ------ CYCLE STEAL STATUS FOR FAILING OP
                           1319+*      .       TURESUL BIT 32-47 ------ CC - 32-39 OIO CC,40-47 INT CC
                           1320+*      .       TURESUL BIT 48-63 ------ ISB
                           1321+*      .       TURESUL BIT 64-79 ------ OPTION WORD 3 (ERROR INDICATORS)
                           1322+*      .
                           1323+*
                           1324+* RETURN CONTROL
                           1325+*
                           1326+*       B      TURTN*                  RETURN TO MDI SUPERVISOR
                           1327+*
                           1328+*****************************************************************************
002BFC  6F0D 2710          1329+T7807   MVW   R7,TURTN                SAVE RETURN ADDRESS
002C00  4020 26D8 7807     1330+        MVWI  X'7807',$TUID           SAVE TU ID FOR DISPLAY
002C06  4424 26D2          1331+        MVA   OPTN1,R4                SET UP POINTER ADRS IN R4
002C0A  6E03 3CD8          1332+        BAL   $CONC,R6                CLEAR DEV DEP STG AND CONNECT I/O BL
002C0E  3062               1333+        DC    A(T07ER)                ERROR ADRS FOR INVALID PREP
                           1334+*
002C10  CA25 18C8          1335         MVWZ  TURESUL,R2            CLEAR RESULTS WORD
002C14  CA25 18CA          1336         MVWZ  TURESUL+2,R2          CLEAR RESULTS WORD 2
002C18  CA25 18CC          1337         MVWZ  TURESUL+4,R2          CLEAR RESULTS WORD 3
002C1C  CA25 18CE          1338         MVWZ  TURESUL+6,R2          CLEAR RESULTS WORD 4
002C20  CA25 18D0 3A71     1339         MVWZ  TURESUL+8,R2          CLEAR RESULTS WORD 5
002C24  8028 19D0          1340         MVB   DEVADD,IDCB1+1        LOAD DEVICE ADDRESS IN IDCB
002C2A  C020 0232          1341         MVB   CPUID,R0
002C2E  F025               1342         CBI   37,R0                 DETERMINE CPU TYPE
002C30  180D               1343         JNE   TT07                  JUMP IF NOT CLINGSTONE
002C32  4020 2E88 0300     1344         MVWI  X'0300',TT7A+2        LOAD TIME CONSTANT FOR 10 MSEC
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
002C38  4020 2EB2 254C     1345         MVWI  X'254C',TT7B+2        LOAD TIME CONSTANT FOR 2 SEC
002C3E  4020 2F0C 000B     1346         MVWI  X'000B',TT7C+2        LOAD TIME CONSTANT FOR 40 USEC
002C44  4020 2F8E 7860     1347         MVWI  X'7860',TT7D+2        LOAD TIME CONSTANT FOR 400 MSEC
002C4A  5C0D               1348         J     TT7E
002C4C  4020 2E88 0200     1349 TT07    MVWI  X'0200',TT7A+2        (ELBERTA) LOAD TIME CONS FOR 10  MSEC
002C52  4020 2EB2 0C00     1350         MVWI  X'0C00',TT7B+2        (ELBERTA) LOAD TIME CONS FOR 2 SEC
002C58  4020 2F0C 0007     1351         MVWI  X'0007',TT7C+2        (ELBERTA) LOAD TIME CONS FOR 40 USEC
002C5E  4020 2F8E 5000     1352         MVWI  X'5000',TT7D+2        (ELBERTA) LOAD TIME CONS FOR 400 MSEC
002C64  4C9C               1353         TBTR  (R4,B60)              RESET TABLE INDICATOR
002C66  4020 3B28 0400     1354 TT7E    MVWI  X'0400',$RD+8         SETUP COUNT TO CLEAR READ BUFFER
002C6C  4020 3928 30AA     1355         MVA   WRBUF,WRDCB+14        WRITE BUFFER ADDRESS IN DCB
002C72  4020 3948 34AA     1356         MVA   RBUF,RDDCB+14         READ BUFFER ADDRESS IN DCB
002C78  8038 189A 307E     1357         MVB   TUPARM1*,TEST         SET TEST NUMBER TO BE RUN
002C7E  4724 3CC4          1358         MVA   IOBLK,R7              ISSUE DEVICE RESET
002C82  6008               1359         SVC   RESET                 *
002C84  402B 307E 1000     1360         TWI   X'1000',TEST          TEST 10?
002C8A  6A00 2E12          1361         BON   T807                  YES
002C8E  4020 3B20 0BAA     1362         MVWI  X'0BAA',$RD           READ BUFFER INIT CHARACTER
002C94  4020 2FFA AAAA     1363         MVWI  X'AAAA',T7AA+2        *
002C9A  4C5B               1364         TBTS  (R4,B59)              SET TWO SEC INDICATOR
002C9C  08FF               1365         MVBI  X'FF',R0              DATA PATTERN 'FF'
002C9E  4124 30AA          1366         MVA   WRBUF,R1              WRITE BUFFER ADDRESS FROM MDI
002CA2  4724 0400          1367         MVWI  X'0400',R7            BYTE COUNT
002CA6  282C               1368         FFN   R0,(R1)               LOAD WRITE BUFFER
002CA8  6E03 2E2C          1369         BAL   T07X,R6               GO TO WRITE/READ ROUTINE
002CAC  4020 3B20 0BFF     1370         MVWI  X'0BFF',$RD           READ BUFFER INIT CHAPACTER
002CB2  4020 2FFA FFFF     1371         MVWI  X'FFFF',T7AA+2        *
002CB8  4C9B               1372         TBTR  (R4,B59)              RESET TWO SEC INDICATOR
002CBA  0855               1373         MVBI  X'55',R0              DATA PATTERN '55'
002CBC  4124 30AA          1374         MVA   WRBUF,R1              WRITE BUFFER ADDRESS FROM MDI
002CC0  4724 0400          1375         MVWI  X'0400',R7            BYTE COUNT
002CC4  282C               1376         FFN   R0,(R1)               LOAD WRITE BUFFER
002CC6  6E03 2E2C          1377         BAL   T07X,R6               GO TO WRITE/READ ROUTINE
002CCA  08AA               1378         MVBI  X'AA',R0              DATA PATTERN 'AA'
002CCC  4124 30AA          1379         MVA   WRBUF,R1              WRITE BUFFER ADDRESS FROM MDI
002CD0  4724 0400          1380         MVWI  X'0400',R7            BYTE COUNT
002CD4  282C               1381         FFN   R0,(R1)               LOAD WRITE BUFFER
002CD6  6E03 2E2C          1382         BAL   T07X,R6               GO TO WRITE/READ ROUTINE
002CDA  4C5C               1383         TBTS  (R4,B60)              SET TABLE INDICATOR FOR ONLY 400 BYTS
002CDC  4124 30AA          1384         MVA   WRBUF,R1              WRITE BUFFER ADDRESS FROM MDI
002CE0  4724 0200          1385         MVWI  X'0200',R7            WORD COUNT
002CE4  DEB6               1386 TT7G    MVWI  X'DEB6',(R1)+         LOAD WRITE BUFFER
002CE8  BFFD               1387         JCT   TT7G,R7               DECREMENT WORD COUNT
002CEA  6E03 2E2C          1388         BAL   T07X,R6               GO TO WRITE/READ ROUTINE
002CEE  4124 30AA          1389         MVA   WRBUF,R1              WRITE BUFFER ADDRESS FROM MDI
002CF2  4724 0200          1390         MVWI  X'0200',R7            WORD COUNT
002CF6  4050 0001          1391 TT7H    MVWI  X'0001',(R1)+         LOAD WRITE BUFFER
002CFA  BFFD               1392         JCT   TT7H,R7               DECREMENT WORD COUNT
002CFC  6E03 2E2C          1393         BAL   T07X,R6               GO TO WRITE/READ ROUTINE
002D00  4124 30AA          1394         MVA   WRBUF,R1              WRITE BUFFER ADDRESS FROM MDI
002D04  4724 0200          1395         MVWI  X'0200',R7            WORD COUNT
002D08  4050 0002          1396 TT7J    MVWI  X'0002',(R1)+         LOAD WRITE BUFFER
002D0C  BFFD               1397         JCT   TT7J,R7               DECREMENT WORD COUNT
002D0E  6E03 2E2C          1398         BAL   T07X,R6               GO TO WRITE/READ ROUTINE
002D12  4124 30AA          1399         MVA   WRBUF,R1              WRITE BUFFER ADDRESS FROM MDI
002D16  4724 0200          1400         MVWI  X'0200',R7            WORD COUNT
002D1A  4050 0004          1401 TT7K    MVWI  X'0004',(R1)+         LOAD WRITE BUFFER
002D1E  BFFD               1402         JCT   TT7K,R7               DECREMENT WORD COUNT
002D20  6E03 2E2C          1403         BAL   T07X,R6               GO TO WRITE/READ ROUTINE
002D24  4124 30AA          1404         MVA   WRBUF,R1              WRITE BUFFER ADDRESS FROM MDI
002D28  4724 0200          1405         MVWI  X'0200',R7            WORD COUNT
002D2C  4050 0008          1406 TT7L    MVWI  X'0008',(R1)+         LOAD WRITE BUFFER
002D30  BFFD               1407         JCT   TT7L,R7               DECREMENT WORD COUNT
002D32  6E03 2E2C          1408         BAL   T07X,R6               GO TO WRITE/READ ROUTINE
002D36  4124 30AA          1409         MVA   WRBUF,R1              WRITE BUFFER ADDRESS FROM MDI
002D3A  4724 0200          1410         MVWI  X'0200',R7            WORD COUNT
002D3E  4050 0010          1411 TT7M    MVWI  X'0010',(R1)+         LOAD WRITE BUFFER
002D42  BFFD               1412         JCT   TT7M,R7               DECREMENT WORD COUNT
002D44  6E03 2E2C          1413         BAL   T07X,R6               GO TO WRITE/READ ROUTINE
002D48  4124 30AA          1414         MVA   WRBUF,R1              WRITE BUFFER ADDRESS FROM MDI
002D4C  4724 0200          1415         MVWI  X'0200',R7            WORD COUNT
002D50  4050 0020          1416 TT7N    MVWI  X'0020',(R1)+         LOAD WRITE BUFFER
002D54  BFFD               1417         JCT   TT7N,R7               DECREMENT WORD COUNT
002D56  6E03 2E2C          1418         BAL   T07X,R6               GO TO WRITE/READ ROUTINE
002D5A  4124 30AA          1419         MVA   WRBUF,R1              WRITE BUFFER ADDRESS FROM MDI
002D5E  4724 0200          1420         MVWI  X'0200',R7            WORD COUNT
002D62  4050 0040          1421 TT7P    MVWI  X'0040',(R1)+         LOAD WRITE BUFFER
002D66  BFFD               1422         JCT   TT7P,R7               DECREMENT WORD COUNT
002D68  6E03 2E2C          1423         BAL   T07X,R6               GO TO WRITE/READ ROUTINE
002D6C  4124 30AA          1424         MVA   WRBUF,R1              WRITE BUFFER ADDRESS FROM MDI
002D70  4724 0200          1425         MVWI  X'0200',R7            WORD COUNT
002D74  4050 0080          1426 TT7Q    MVWI  X'0080',(R1)+         LOAD WRITE BUFFER
002D78  BFFD               1427         JCT   TT7Q,R7               DECREMENT WORD COUNT
002D7A  6E03 2E2C          1428         BAL   T07X,R6               GO TO WRITE/READ ROUTINE
002D7E  4124 30AA          1429         MVA   WRBUF,R1              WRITE BUFFER ADDRESS FROM MDI
002D82  4724 0200          1430         MVWI  X'0200',R7            WORD COUNT
002D86  4050 0100          1431 TT7R    MVWI  X'0100',(R1)+         LOAD WRITE BUFFER
002D8A  BFFD               1432         JCT   TT7R,R7               DECREMENT WORD COUNT
002D8C  6E03 2E2C          1433         BAL   T07X,R6               GO TO WRITE/READ ROUTINE
002D90  4124 30AA          1434         MVA   WRBUF,R1              WRITE BUFFER ADDRESS FROM MDI
002D94  4724 0200          1435         MVWI  X'0200',R7            WORD COUNT
002D98  4050 0200          1436 TT7S    MVWI  X'0200',(R1)+         LOAD WRITE BUFFER
002D9C  BFFD               1437         JCT   TT7S,R7               DECREMENT WORD COUNT
002D9E  6E03 2E2C          1438         BAL   T07X,R6               GO TO WRITE/READ ROUTINE
002DA2  4124 30AA          1439         MVA   WRBUF,R1              WRITE BUFFER ADDRESS FROM MDI
002DA6  4724 0200          1440         MVWI  X'0200',R7            WORD COUNT
002DAA  4050 0400          1441 TT7T    MVWI  X'0400',(R1)+         LOAD WRITE BUFFER
002DAE  BFFD               1442         JCT   TT7T,R7               DECREMENT WORD COUNT
002DB0  6E03 2E2C          1443         BAL   T07X,R6               GO TO WRITE/READ ROUTINE
002DB4  4124 30AA          1444         MVA   WRBUF,R1              WRITE BUFFER ADDRESS FROM MDI
002DB8  4724 0200          1445         MVWI  X'0200',R7            WORD COUNT
002DBC  4050 0800          1446 TT7U    MVWI  X'0800',(R1)+         LOAD WRITE BUFFER
002DC0  BFFD               1447         JCT   TT7U,R7               DECREMENT WORD COUNT
002DC2  6E03 2E2C          1448         BAL   T07X,R6               GO TO WRITE/READ ROUTINE
002DC6  4124 30AA          1449         MVA   WRBUF,R1              WRITE BUFFER ADDRESS FROM MDI
002DCA  4724 0200          1450         MVWI  X'0200',R7            WORD COUNT
002DCE  4050 1000          1451 TT7V    MVWI  X'1000',(R1)+         LOAD WRITE BUFFER
002DD2  BFFD               1452         JCT   TT7V,R7               DECREMENT WORD COUNT
002DD4  6E03 2E2C          1453         BAL   T07X,R6               GO TO WRITE/READ ROUTINE
002DD8  4124 30AA          1454         MVA   WRBUF,R1              WRITE BUFFER ADDRESS FROM MDI
002DDC  4724 0200          1455         MVWI  X'0200',R7            WORD COUNT
002DE0  4050 2000          1456 TT7W    MVWI  X'2000',(R1)+         LOAD WRITE BUFFER
002DE4  BFFD               1457         JCT   TT7W,R7               DECREMENT WORD COUNT
002DE6  6E03 2E2C          1458         BAL   T07X,R6               GO TO WRITE/READ ROUTINE
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 LOCTR   OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

002DEA  4124 30AA          1459         MVA   WRBUF,R1              WRITE BUFFER ADDRESS FROM MDI
002DEE  4724 0200          1460         MVWI  X'0200',R7            WORD COUNT
002DF2  4050 4000          1461 TT7X    MVWI  X'4000',(R1)+         LOAD WRITE BUFFER
002DF6  BFFD               1462         JCT   TT7X,R7               DECREMENT WORD COUNT
002DF8  6E03 2E2C          1463         BAL   T07X,R6               GO TO WRITE/READ ROUTINE
002DFC  4124 30AA          1464         MVA   WRBUF,R1              WRITE BUFFER ADDRESS FROM MDI
002E00  4724 0200          1465         MVWI  X'0200',R7            WORD COUNT
002E04  4050 8000          1466 TT7Y    MVWI  X'8000',(R1)+         LOAD WRITE BUFFER
002E08  BFFD               1467         JCT   TT7Y,R7               DECREMENT WORD COUNT
002E0A  6E03 2E2C          1468         BAL   T07X,R6               GO TO WRITE/READ ROUTINE
002E0E  6802 2F58          1469         B     T7END                 EXIT
002E12  6E03 3BD0          1470 T807    BAL   XIOCS,R6              CYCLE STEAL STATS-CABLES OUT OR
002E16  3062               1471         DC    A(T07ER)              * POWER OFF
002E18  4CA1               1472         TBTR  (R4,ER)               INTERRUPT ERROR?
002E1A  6A00 3062          1473         BON   T07ER                 YES
002E1E  402F 26FA FFFD     1474         CWI   X'FFFD',CSTL2         CYCLE STEAL STATUS BITS ON?
002E24  6801 3062          1475         BNE   T07ER                 NO - ERROR
002E28  6802 2F58          1476         B     T7END                 EXIT
                           1477 *
                           1478 *
                           1479 *       WRITE/READ ROUTINE
                           1480 *
002E2C  6E0D 303A          1481 T07X    MVW   R6,T07Y+2             SAVE RETURN ADDRESS
002E30  4C1C               1482         TBT   (R4,B60)              TEST TABLE INDICATOR (400 BYTS ONLY)
002E32  1204               1483         JON   T07SS                 YES
002E34  4020 397E 3080     1484         MVA   T07W,JOE              LOAD PARM LIST ADDRESS
002E3A  5003               1485         J     T07T
002E3C  4020 397E 30A4     1486 T07SS   MVA   T07WW,JOE             LOAD PARM LIST ADDRESS (400 BYTS )
002E42  4020 3A76 000A     1487 T07T    MVWI  X'000A',CEDAT         SET DIAGNOSTIC MODE 1,2 & 4
002E48  6E03 3A0E          1488         BAL   CEOP1,R6              *
002E4C  3062               1489         DC    A(T07ER)              ERROR
002E4E  4020 3A7A 8000     1490         MVWI  X'8000',CEDAT2        TURN ON READY
002E54  6E03 3A22          1491         BAL   CEOP2,R6              *
002E58  3062               1492         DC    A(T07ER)              *
002E5A  4C9D               1493         TBTR  (R4,B61)              CLEAR INDICATOR
002E5C  8838 397E 397C     1494         MVW   JOE*,BCNT             LOAD BYTE COUNT- 1ST COUNT
002E62  4029 397E 0002     1495         AWI   2,JOE                 INCREMENT TABLE ADDRESS TO 2ND COUNT
002E68  4020 391A 0001     1496         MVWI  X'0001',WRDCB         CONTROL WORD - NO CHAINING
002E6E  4020 3920 012E     1497         MVWI  X'012E',WRDCB+6       SETUP CYLINDER
002E74  4020 391E 0000     1498         MVWI  X'0000',WRDCB+4       SETUP FLAG
002E7A  4020 3922 0000     1499         MVWI  X'0000',WRDCB+8       SETUP HEAD,SECTOR
002E80  8828 397C 3926     1500         MVW   BCNT,WRDCB+12         SETUP BYTE COUNT
002E86  4024 FFFF          1501 TT7A    MVWI  X'FFFF',R0            SET UP TIME OUT CONSTANT FOR 10MS
002E8A  4C67               1502         TBTS  (R4,NI)               TURN ON NO INTER MODE INDICATOR
002E8C  6E03 3B3C          1503         BAL   $WRT,R6               WRITE
002E90  3062               1504         DC    A(T07ER)              ERROR
002E92  4CA3               1505 T07A    TBTR  (R4,IN)               HAS AN INTERRUPT OCCURED?
002E94  6A00 2F34          1506         BON   T07J                  YES-ERROR
002E98  B8FC               1507         JCT   T07A,R0               TIME OUT 10 MS
002E9A  4020 3A7A 0001     1508         MVWI  1,CEDAT2              RESET DIAG MODE
002EA0  6E03 3A22          1509         BAL   CEOP2,R6              *
002EA4  3062               1510         DC    A(T07ER)              *
002EA6  4724 3CC4          1511         MVA   IOBLK,R7              RESET DEVICE
002EAA  6008               1512         SVC   RESET                 *
002EAC  4C1B               1513         TBT   (R4,B59)              2 SEC TIME OUT?
002EAE  1004               1514         JOFF  TTTF                  NO
002EB0  4024 FFFF          1515 TT7B    MVWI  X'FFFF',R0            CONSTANT FOR 2 SEC TIME OUT
002EB4  6002               1516 TTTT    SVC   IDLE                  TIME OUT 2 SEC
002EB6  B8FE               1517         JCT   TTTT,R0               *
002EB8  402B 307E 0C00     1518 TTTF    TWI   X'0C00',TEST          TEST 4 OR 8?
002EBE  1106               1519         JMIX  T07B                  YES
002EC0  4020 3A76 0004     1520         MVWI  4,CEDAT               SET DIAGNOSTIC MODE 1&3
002EC6  6E03 3A0E          1521         BAL   CEOP1,R6              *
002ECA  3062               1522         DC    A(T07ER)              ERROR
002ECC  4020 3A76 000A     1523 T07B    MVWI  X'000A',CEDAT         SET DIAGNOSTIC MODE 1,2 & 4
002ED2  6E03 3A0E          1524         BAL   CEOP1,R6              *
002ED6  3062               1525         DC    A(T07ER)              ERROR
002ED8  4020 3A7A 8000     1526         MVWI  X'8000',CEDAT2        TURN ON READY
002EDE  6E03 3A22          1527         BAL   CEOP2,R6              *
002EE2  3062               1528         DC    A(T07ER)              *
002EE4  8828 397C 3946     1529 T07S    MVW   BCNT,RDDCB+12         SETUP BYTE COUNT
002EEA  4020 393A 2009     1530         MVWI  X'2009',RDDCB         CONTROL WORD -  NO CHAINING
002EF0  4020 3940 012E     1531         MVWI  X'012E',RDDCB+6       SETUP CYLINDER
002EF6  4020 393E 0000     1532         MVWI  X'0000',RDDCB+4       SETUP FLAG
002EFC  4020 3942 0000     1533         MVWI  X'0000',RDDCB+8       SETUP HEAD,SECTOR
002F02  4C67               1534         TBTS  (R4,NI)               TURN ON NO INTER MODE INDICATOR
002F04  6E03 3B20          1535         BAL   $RD,R6                READ
002F08  3062               1536         DC    A(T07ER)              ERROR
002F0A  4024 FFFF          1537 TT7C    MVWI  X'FFFF',R0            SET UP CONSTANT FOR 40 US TIME OUT
002F0E  B8FF               1538         JCT   *,R0                  TIME OUT 40 USEC
002F10  6F18 397E          1539         MVW   JOE*,R7               FULL SECT BT CT FOR FILE RAM REQUEST
002F14  370A               1540         SRL   1,R7                  DEVELOP WORD CTN FOR RAM REQUESTS
002F16  4020 3A7A 0004     1541         MVWI  4,CEDAT2              DIAG RAM REQUEST
002F1C  6E03 3A22          1542 T07C    BAL   CEOP2,R6              *
002F20  3062               1543         DC    A(T07ER)              ERROR
002F22  7FB2 0001          1544         SWI   1,R7                  DECREMENT WORD COUNT
002F26  18FA               1545         JNZ   T07C                  LOOP
002F28  4CA3               1546         TBTR  (R4,IN)               HAS INTERRUPT OCCURRED?
002F2A  1021               1547         JOFF  T07Z                  NO-
002F2C  402B 307E 0C00     1548 T07JJ   TWI   X'0C00',TEST          TEST 4 OR 8?
002F32  1112               1549         JMIX  T7END                 YES
002F34  402C 18C8 0001     1550 T07J    OWI   X'0001',TURESUL       INTERRUPT ERROR
002F3A  6E03 3BCC          1551         BAL   XIOCS-4,R6            FORCE CYCLE STEAL STATUS
002F3E  3062               1552         DC    A(T07ER)              *
002F40  8828 26FA 18CA     1553 T07CD   MVW   CSTL2,TURESUL+2        CYCLE STEAL STATUS FOR FAILING OP
002F46  8828 26DA 18CC     1554         MVW   $IOIN,TURESUL+4       CONDITION CODES
002F4C  8828 26DC 18CE     1555         MVW   $ISB,TURESUL+6        ISB
002F52  8828 26D6 18D0     1556         MVW   OPTN3,TURESUL+8       OPTION WORD 3 (CONDITION CODES)
002F58  4020 3A7A 0001     1557 T7END   MVWI  1,CEDAT2              RESET DIAG MODE
002F5E  6E03 3A22          1558         BAL   CEOP2,R6              *
002F62  3062               1559         DC    A(T07ER)              *
002F64  4724 3CC4          1560         MVA   IOBLK,R7              DEVICE RESET
002F68  6008               1561         SVC   RESET                 *
                           1562         TXIT                        EXIT
002F6A  6802 3D5C          1563+        B     $CONX                  RETURN TO MDI CONTROLLER
                           1564+*****************************************************************
002F6E  402B 307E 0300     1565 T07Z    TWI   X'0300',TEST          TEST 1 OR 2?
002F74  1105               1566         JMIX  T07BB                 YES
002F76  50DA               1567         J     T07JJ
002F78  402C 18C8 0040     1568 T07Q    OWI   X'0040',TURESUL       FRACTION SECTOR ERROR
002F7E  50E0               1569         J     T07CD
002F80  4020 3A7A 0002     1570 T07BB   MVWI  2,CEDAT2              DIAG END SECTOR PULSE
002F86  6E03 3A22          1571         BAL   CEOP2,R6              *
002F8A  3062               1572         DC    A(T07ER)              ERROR
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 LOCTR   OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

002F8C  4024 FFFF          1573 TT7D    MVWI  X'FFFF',R0            TIME OUT CONSTANT 400MS
002F90  4CA3               1574 T07E    TBTR  (R4,IN)               HAS INTERRUPT OCCURRED?
002F92  1205               1575         JON   T07G                  YES
002F94  B8FD               1576         JCT   T07E,R0               TIME OUT 400MS
002F96  402C 18C8 0020     1577         OWI   X'0020',TURESUL       TIME OUT ERROR
002F9C  50D1               1578 T07CE   J     T07CD
002F9E  6F08 397C          1579 T07G    MVW   BCNT,R7               BYTE COUNT
002FA2  4524 30AA          1580         MVA   WRBUF,R5              WRITE DATA ADDRESS
002FA6  4324 34AA          1581         MVA   RDBUF,R3              READ DATA ADDRESS
002FAA  2BA6               1582         CFNEN (R3),(R5)             COMPARE READ DATA TO WRITE
002FAC  6801 303C          1583         BNE   T07L                  COMPARE ERROR
002FB0  4724 0400          1584         MVWI  X'0400',R7            MAX SIZE READ BUFFER
002FB4  6F08 397C          1585         SW    BCNT,R7               ADJ BYTE COUNT (UNUSED BYTE CTN)
002FB8  1003               1586         JZ    T07K                  RESULTANT BYTE COUNT IS ZERO
002FBA  2BA7               1587         CFEN  (R3),(R5)             COMP REMAINDER OF FIELD
002FBC  6800 2F78          1588         BE    T07Q                  TOO MUCH READ
002FC0  6918 397E          1589 T07K    MVW   JOE*,R1               FULL SECTOR BYTE COUNT-2ND COUNT
002FC4  402E 397E 0002     1590         SWI   2,JOE                 ADJ TABLE POINTER TO 1ST COUNT
002FCA  6A18 397E          1591         MVW   JOE*,R2               FRACTIONAL SECTOR BYTE COUNT-1ST CTN
002FCE  4029 397E 0002     1592         AWI   2,JOE                 ADJ TABLE POINTER TO 2ND COUNT
002FD4  722A               1593         SW    R2,R1                 SUBTRACT BYTE COUNTS
002FD6  1015               1594         JZ    T07M                  RESULTANT BYTE COUNT IS ZERO
002FD8  6B08 3928          1595         MVW   WRDCB+14,R3           ADDRESS OF WRITE BUFFER
002FDC  7268               1596         AW    R2,R3                 FRAC CTN ADDED TO ADDR OF WR BUFF
002FDE  6D08 3948          1597         MVW   RDDCB+14,R5           ADDRESS OF READ BUFFER
002FE2  72A8               1598         AW    R2,R5                 FRAC CTN ADDED TO ADDR  OF RD BUFF
002FE4  71E4               1599         MVW   R1,R7                 LOAD BYTE COUNT IN R7 (DIFFERENCE)
002FE6  03FF               1600         ABI   -1,R3                 ADJ WR BUF PTR TO LAST BYTE WRITTEN
002FE8  C3C0               1601         MVB   (R3),R3               LAST BYTE WRITTEN IN FRACTIONAL SEC
002FEA  2BAF               1602         SFEN  R3,(R5)               COMP LAST BYTE TO READ BUFFER
002FEC  6800 2F78          1603         BE    T07Q                  TOO MUCH READ ON FRACT SECT READ OP
002FF0  6D08 3948          1604         MVW   RDDCB+14,R5           ADDR OF RD BUFFER
002FF4  72A8               1605         AW    R2,R5                 FRAC CTN ADDED TO ADDR OF RD BUF
002FF6  71E4               1606         MVW   R1,R7                 RESIDUAL BYTE COUNT
002FF8  4324 FFFF          1607 T7AA    MVWI  X'FFFF',R3            LOAD 'FFFF' OR 'AAAA'
002FFC  2BAE               1608         SFNEN R3,(R5)               COMPARE FOR 'FF'
002FFE  6801 2F78          1609         BNE   T07Q                  TOO MUCH READ
003002  4029 397E 0002     1610 T07M    AWI   2,JOE                 INCREMENT TABLE ADDRESS
003008  4CDD               1611 T07P    TBTV  (R4,B61)              TEST AND INVERT BIT
00300A  1208               1612         JON   T07RR                 BCH IF ON
00300C  402E 397E 0002     1613         SWI   2,JOE                 INCREMENT TABLE ADDRESS-2ND COUNT
003012  8838 397E 397C     1614         MVW   JOE*,BCNT             SETUP FULL BYTE COUNT-2ND COUNT
003018  6802 2EE4          1615         B     T07S                  READ FULL SECTOR
00301C  4020 3A7A 0001     1616 T07RR   MVWI  1,CEDAT2              RESET DIAG MODE
003022  6E03 3A22          1617         BAL   CEOP2,R6              *
003026  3062               1618         DC    A(T07ER)              *
003028  4724 3CC4          1619         MVA   IOBLK,R7              DEVICE RESET
00302C  6008               1620         SVC   RESET                 *
00302E  403F 397E FFFF     1621         CWI   -1,JOE*               CHECK FOR END OF TABLE
003034  6801 2E42          1622         BNE   T07T
003038  6802 0000          1623 T07Y    B     *-*                   RETURN ADDRESS
00303C  6918 397E          1624 T07L    MVW   JOE*,R1               LOAD FULL SECTOR BYTE COUNT-2ND CTN
003040  402E 397E 0002     1625         SWI   2,JOE                 ADJ TABLE POINTER-1ST COUNT
003046  6A18 397E          1626         MVW   JOE*,R2               LOAD FRACTIONAL SECT BYTE COUNT-1ST
00304A  4029 397E 0004     1627         AWI   4,JOE                 ADJ TABLE POINTER-NEXT 1ST OR END(F)
003050  722A               1628         SW    R2,R1                 SUB BYTE COUNTS
003052  6800 305A          1629         BZ    T07V                  NO FRACTION SECT -- COMP ERROR
003056  71E5               1630         CW    R1,R7                 TEST RESIDUAL BYTE COUNT IN R7
003058  10D7               1631         JE    T07P                  BCH IF OK
00305A  402C 18C8 0008     1632 T07V    OWI   X'0008',TURESUL       COMPARE ERROR (TEST1)
003060  509D               1633         J     T07CE
                           1634 *
                           1635 *
003062  CA25 18C8          1636 T07ER   MVWZ  TURESUL,R2             CLEAR RESULTS WORD
003066  CA25 18CA          1637         MVWZ  TURESUL+2,R2          CLEAR RESULTS WORD 2
00306A  CA25 18CC          1638         MVWZ  TURESUL+4,R2          CLEAR RESULTS WORD 3
00306E  CA25 18CE          1639         MVWZ  TURESUL+6,R2          CLEAR RESULTS WORD 4
003072  CA25 18D0          1640         MVWZ  TURESUL+8,R2          CLEAR RESULTS WORD 5
003076  4224 18C8          1641         MVA   TURESUL,R2            ADDRESS OF RESULTS
00307A  4A4B               1642         TBTS  (R2,11)               OIO CC ERROR
00307C  508F               1643         J     T07CE                 EXIT
                           1644 *
00307E  0000               1645 TEST    DC    A(*-*)                TEST NUMBER FROM MDI
                           1646 *
                           1647 ****************************************************************
                           1648 *
                           1649 *       WRITE PARAMETER TABLE
                           1650 *
                           1651 ****************************************************************
                           1652 *
003080  0002               1653 T07W    DC    F'2'                  BYTE COUNT
003082  0100               1654         DC    F'256'                FULL SECTOR BYTE COUNT
003084  0064               1655         DC    F'100'                BYTE COUNT
003086  0100               1656         DC    F'256'                FULL SECTOR BYTE COUNT
003088  00FE               1657         DC    F'254'                BYTE COUNT
00308A  0100               1658         DC    F'256'                FULL SECTOR BYTE COUNT
00308C  0100               1659         DC    F'256'                BYTE COUNT
00308E  0100               1660         DC    F'256'                FULL SECTOR BYTE COUNT
003090  0102               1661         DC    F'258'                BYTE COUNT
003092  0200               1662         DC    F'512'                FULL SECTOR BYTE COUNT
003094  012C               1663         DC    F'300'                BYTE COUNT
003096  0200               1664         DC    F'512'                FULL SECTOR BYTE COUNT
003098  01FE               1665         DC    F'510'                BYTE COUNT
00309A  0200               1666         DC    F'512'                FULL SECTOR BYTE COUNT
00309C  0200               1667         DC    F'512'                BYTE COUNT
00309E  0200               1668         DC    F'512'                FULL SECTOR BYTE COUNT
0030A0  03FE               1669         DC    F'1022'               BYTE COUNT
0030A2  0400               1670         DC    F'1024'               FULL SECTOR BYTE COUNT
0030A4  0400               1671 T07WW   DC    F'1024'               BYTE COUNT
0030A6  0400               1672         DC    F'1024'               FULL SECTOR BYTE COUNT
0030A8  FFFF               1673         DC    X'FFFF'               END OF PAR LIST
                           1674 *
0030AA                     1675 WRBUF   EQU   *                       WRITE DATA BUFFER
                           1676         ORG   WRBUF+X'0400'         *
0034AA                     1677 RDBUF   EQU   *                       READ DATA BUFFER
                           1678         ORG   RDBUF+X'0400'         *
                           1679 *
                           1681         COPY  T78DCB                01DEC76
                           1682 ** (T78DCB)
                           1683 ************************************************12/1/76***********
                           1684 *
                           1685 *       DCB TABLES AND DC'S
                           1686 *
                           1687 ****************************************************************
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                           1688 *
                           1689 ***** DIAGNOSTIC DCB   ********
                           1690 *
0038AA  2008               1691 DGDCB DC    X'2008'              DIAGNOSTIC DCB
0038AC  0000               1692       DC    X'0000'              NOT USED
0038AE  0000               1693       DC    A(*-*)               0-7 = PHYSICAL SECTOR # MINUS ONE
0038B0  0000               1694       DC    X'0000'              NOT USED
0038B2  0000               1695       DC    X'0000'              NOT USED
0038B4  0000               1696       DC    A(*-*)               CHAINING ADDRESS
0038B6  0100               1697       DC    X'0100'              BYTE COUNT
0038B8  0000               1698       DC    A(*-*)               DATA ADDRESS
                           1699 *
                           1700 *
                           1701 ***** RECALIBRATE DCB  ********
                           1702 *
0038BA  0007               1703 CLDCB DC    X'0007'              RECALIBRATE DCB
0038BC  00000000000000000  1704       DC    7A(*-*)
                           1705 *
                           1706 ***** WRITE SECTOR ID  **
                           1707 *
0038CA  0002               1708 WSDCB  DC    X'0002'               WRITE SECTOR ID CONTROL WORD
0038CC  0000               1709       DC    X'0000'              NOT USED
0038CE  0000               1710       DC    A(*-*)               0-7 = PHYSICAL SECTOR # MINUS ONE
0038D0  0000               1711       DC    A(*-*)               NOT USED
0038D2  0000               1712       DC    A(*-*)               NOT USED
0038D4  0000               1713       DC    A(*-*)               CHAIN ADDRESS
0038D6  0006               1714       DC    X'0006'              BYTE COUNT
0038D8  3990               1715       DC    A(WRSID)             ADDR OF SECTOR ID DATA
                           1716 ***** READ SECTOR ID DCB  *******
                           1717 *
0038DA  200A               1718 RSDCB DC    X'200A'              READ SECTOR ID
0038DC  0000               1719       DC    X'0000'              NOT USED
0038DE  0000               1720       DC    X'0000'              0-7 = PHYSICAL SECTOR # MINUS ONE
0038E0  0000               1721       DC    X'0000'              NOT USED
0038E2  0000               1722       DC    X'0000'              NOT USED
0038E4  0000               1723       DC    X'0000'              CHAIN ADDRESS
0038E6  0006               1724       DC    X'0006'              BYTE COUNT FOR READ SECTOR ID
0038E8  26E0               1725       DC    A(SCTID)             SECTOR ID DATA ADDRESS
                           1726 *
                           1727 *
                           1728 ***** READ SECTOR ID IMMEDIATE DCB  *******
                           1729 *
0038EA  200E               1730 RIDCB DC    X'200E'              READ SECTOR ID
0038EC  0000               1731       DC    X'0000'              NOT USED
0038EE  0000               1732       DC    X'0000'              NOT USED
0038F0  0000               1733       DC    X'0000'              NOT USED
0038F2  0000               1734       DC    X'0000'              NOT USED
0038F4  0000               1735       DC    A(*-*)               CHAIN ADDRESS
0038F6  0006               1736       DC    X'0006'              BYTE COUNT FOR READ SECTOR ID
0038F8  26E0               1737       DC    A(SCTID)             SECTOR ID DATA ADDRESS
                           1738 *
                           1739 *
                           1740 ***** SEEK DCB  ********
                           1741 *
0038FA  0005               1742 SKDCB DC    X'0005'              SEEK DCB
0038FC  0000               1743       DC    X'0000'              BIT 0-3=0; BIT4=DIRECTION; 5-15=)IFFER
0038FE  0000               1744       DC    F'0'
003900  0000               1745       DC    F'0'
003902  0000               1746       DC    X'0000'              0-7 = HEAD; 8-15 NOT USED
003904  0000               1747       DC    A(*-*)               CHAIN ADDRESS
003906  0000               1748       DC    F'0'                 NOT USED
003908  0000               1749       DC    F'0'                 NOT USED
                           1750 *
                           1751 ***** CYCLE STEAL STATUS DCB  ********
                           1752 *
00390A  2000               1753 CSDCB DC    X'2000'              CONTROL WORD
00390C  0000               1754       DC    F'0'                 NOT USED
00390E  0000               1755       DC    F'0'                 NOT USED
003910  0000               1756       DC    F'0'                 NOT USED
003912  0000               1757       DC    F'0'                 NOT USED
003914  0000               1758       DC    F'0'                 NOT USED
003916  0008               1759       DC    X'0008'              4 WORDS OF STATS
003918  26F8               1760       DC    A(CSBUF)             ADDRESS OF CYCLE STEAL STATUS DATA
                           1761 *
                           1762 ***** WRITE DCB  **********
                           1763 *
00391A  0001               1764 WRDCB DC    X'0001'              WRITE CONTROL WORD
00391C  0000               1765       DC    F'0'                 NOT USED
00391E  0000               1766       DC    X'0000'              0-7=0; 8-15 = FLAG BYTE
003920  0000               1767       DC    X'0000'              SERCH ARGUMENT CYLINDER
003922  0000               1768       DC    X'0000'              SEARCH ARGUMENT HEAD-SECTOR
003924  0000               1769       DC    A(*-*)               CHAIN ADDRESS
003926  0000               1770       DC    F'0'                 BYTE COUNT
003928  0000               1771       DC    A(*-*)               WRITE DATA ADDRESS
                           1772 *
                           1773 ***** VERIFY DCB   *******
                           1774 *
00392A  200C               1775 VRDCB DC    X'200C'              CONTROL WORD
00392C  0000               1776       DC    F'0'                 NOT USED
00392E  0000               1777       DC    X'0000'              0-7=0; 8-15 = FLAG BYTE
003930  0000               1778       DC    X'0000'              CYLINDER
003932  0000               1779       DC    X'0000'              HEAD - SECTOP
003934  0000               1780       DC    A(*-*)               CHAIN ADDRESS
003936  0000               1781       DC    F'0'                 BYTE COUNT
003938  0000               1782       DC    A(*-*)               VERIFY DATA ADDRESS
                           1783 *
                           1784 ***** READ DCB   *******
                           1785 *
00393A  2009               1786 RDDCB DC    X'2009'              READ DCB CONTROL WORD
00393C  0000               1787       DC    F'0'                 NOT USED
00393E  0000               1788       DC    X'0000'              0-7=0, 8-15 = FLAG BYTE
003940  0000               1789       DC    X'0000'              SEARCH ARGUMENT CYLINDER
003942  0101               1790       DC    X'0101'              SEARCH ARGUMENT H-R
003944  0000               1791       DC    A(*-*)               CHAIN ADDRESS
003946  0000               1792       DC    F'0'                 BYTE COUNT
003948  0000               1793       DC    A(*-*)               READ DATA ADDRESS
                           1794 *
                           1795 ****  WRITE SECTOR ID SKEWED   ****
                           1796 *
00394A  0003               1797 WKDCB DC    X'0003'              CONTROL WORD
00394C  0000               1798       DC    X'0000'              NOT USED
00394E  0000               1799       DC    A(*-*)               0-7 = PHYSICAL SECTOR # MINUS ONE
003950  0000               1800       DC    A(*-*)               NOT USED
003952  0000               1801       DC    A(*-*)               NOT USED
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
003954  0000               1802       DC    A(*-*)               CHAIN ADDRESS
003956  0006               1803       DC    X'0006'              BYTE COUNT
003958  3990               1804       DC    A(WRSID)             ADDR OF SECTOR ID DATA
                           1805 *
                           1806 ****  READ SECTOR ID SKEWED    ****
                           1807 *
00395A  200B               1808 RKDCB DC    X'200B'              CONTROL WORD
00395C  0000               1809       DC    X'0000'              NOT USED
00395E  0000               1810       DC    X'0000'              0-7 = PHYSICAL SECTOR # MINUS ONE
003960  0000               1811       DC    X'0000'              NOT USED
003962  0000               1812       DC    X'0000'              NOT USED
003964  0000               1813       DC    A(*-*)               CHAIN ADDRESS
003966  0006               1814       DC    X'0006'              BYTE COUNT FOR READ SECTOR ID
003968  26E0               1815       DC    A(SCTID)             SECTOR ID DATA ADDRESS
                           1816 *
                           1817 *     CONSTANTS AND DEFINED STORAGE  LOCATIONS
00396A  0000               1818 ZERO0 DC    X'0000'              CONSTANT ZERO
00396C  0001               1819 ONE1  DC    X'0001'              CONSTANT ONE
00396E  00000000           1820 TIMEOUT DC  2A(*-*)              TIMEOUT COUNTER
003972  0000               1821 TONE  DC    X'0000'              CONSTANT FOR ADD DOUBLE
003974  0001               1822       DC    X'0001'              *
003976  0500               1823 COUNT DC    F'1280'              BYTE COUNT (1280)
003978  0000               1824 DIFF  DC    A(*-*)               SPEK DIFFERENCE
00397A  0000               1825 XXX   DC    A(*-*)               WORK WORD INT TO ZERO
00397C  0000               1826 BCNT  DC    X'0000'              BYTE COUNT
00397E  0000               1827 JOB   DC    A(*-*)               WRITE PARAMETER POINTER
003980  0000               1828 JOE1  DC    A(*-*)               SAVE LOC FOR PARM LIST ADDRESS
003982  DEB6               1829 WDATA DC    X'DEB6'              WRITE DATA
003984  6BED               1830       DC    X'6BED'              *
003986  0000               1831 TABLE DC    A(*-*)               ADDR OF WRT PAR LIST FOR FORMAT RTNS
003988  0000               1832 LGSEC DC    X'0000'              LOGICAL SECTOR #
00398A  0000               1833 PHYSC DC    X'0000'              CONVERTED PHYSICAL SEC #
00398C  1D00               1834 CB29  DC    X'1D00'              CONSTANT BYTE 29
00398E  13B0               1835 FIVE9 DC    X'13B0'              CONSTANT BYTE 59
003990  0000               1836 WRSID DC    X'0000'              FLAG,CYLINDER (WRT SECTOR ID DATA)
003992  0000               1837       DC    X'0000'              CYLINDER,HEAD
003994  0000               1838       DC    X'0000'              LOG SECTOR,NOT USED
003996  00FF               1839 CDAT  DC    X'00FF'              INVALID DATA CONSTANT
003998  FF34               1840 WSIDT DC    X'FF34'              WRITE SECTOR ID TEST DATA
00399A  5678               1841       DC    X'5678'              *
00399C  9A00               1842       DC    X'9A00'              *
00399E  0000               1843 SCTST DC    X'0000'              READ SECTOR ID TEST DATA BUFFER
0039A0  0000               1844       DC    X'0000'              *
0039A2  0000               1845       DC    X'0000'              *
0039A4  0000               1846 CTR01 DC    X'0000'              COUNTER
0039A6  0000               1847 CTR02 DC    X'0000'              COUNTER
0039A8  0000               1848 CTR03 DC    X'0000'              COUNTER
0039AA  0000               1849 CTR04 DC    X'0000'              COUNTER
0039AC  0000               1850 CTR05 DC    X'0000'              COUNTER
0039AE  0000               1851 CTR06 DC    X'0000'              COUNTER
0039B0  0000               1852 SAVR3 DC    X'0000'              SAVE AREA
0039B2  0000               1853 SAVR5 DC    X'0000'              SAVE AREA
0039B4  0000               1854 WR2   DC    X'0000'
0039B6  0000               1855 SVSEK DC    X'0000'
0039B8  0000               1856 LCT   DC    X'0000'
0039BA  0000               1857 T56AA DC    X'0000'
0039BC  0000               1858 T56BB DC    X'0000'
0039BE  0000               1859 T56CC DC    X'0000'
0039C0  0000               1860 T56DD DC    X'0000'
0039C2  0000               1861 T56EE DC    X'0000'
0039C4  0000               1862 T56FF DC    X'0000'
0039C6  0000               1863 T56GG DC    X'0000'
0039C8  0000               1864 T86AA DC    X'0000'
0039CA  0000               1865 T86BB DC    X'0000'
0039CC  0000               1866 T86CC DC    X'0000'
0039CE  0000               1867 T86DD DC    X'0000'
0039D0  0000               1868 T86EE DC    X'0000'
0039D2  0000               1869 T86FF DC    X'0000'
0039D4  0000               1870 T86GG DC    X'0000'
0039D6  0000               1871 T41D  DC    X'0000'
0039D8  0000               1872 T41LP DC    X'0000'
0039DA  0000               1873 WRLCT DC    X'0000'
0039DC  0000               1874 CYLOC DC    X'0000'
0039DE  0000               1875 PASS1 DC    A(*-*)
0039E0  0000               1876 HEAD0 DC    A(*-*)
0039E2  0000               1877 HEAD1 DC    A(*-*)
0039E4  0000               1878 GDSE0 DC    A(*-*)
0039E6  0000               1879 GDSE1 DC    A(*-*)
0039E8  0000               1880 ER00  DC    A(*-*)
0039EA  0000               1881 ER01  DC    A(*-*)
0039EC  0000               1882 HD0SV DC    A(*-*)
0039EE  0000               1883 HD1SV DC    A(*-*)
0039F0  0000               1884 ER0SV DC    A(*-*)
0039F2  0000               1885 ER1SV DC    A(*-*)
0039F4  0000               1886 PATTR DC    A(*-*)
0039F6  0000               1887 CECYL DC    A(*-*)
0039F8  0000               1888 STATS DC    A(*-*)
                           1889 *
                           1891       COPY  T78DPCIO             01DEC76
                           1892 ** (T78DPCIO)
                           1893 *                                                    2/07/77
                           1894 *     EXECUTE DPC INPUT/OUTPUT COMMANDS
                           1895 *     THIS ROUTINE HAS THE FOLLOWING ENTRIES:
                           1896 *
                           1897 * 1   BAL   CEOP1,R6             CE DIAGNOSTIC OP1(TURN ON DIAG MODE)
                           1898 *
                           1899 * 2   BAL   CEOP2,R6             WRITE DIAG CLOCK STEP DATA
                           1900 *
                           1901 * 3   BAL   SENS0,R6             CE READ SENSE WORD ZERO
                           1902 *
                           1903 * 4   BAL   SENS1,R6             CE READ SENSE WORD ONE
                           1904 *
                           1905 * 5   BAL   WRAP,R6              READ DIAGNOSTIC WRAP
                           1906 *
                           1907 *     BXS   (R6,2)               RETURN
                           1908 *
                           1909 ************************************************************************
                           1910 *
                           1911 *     CE DIAGNOSTIC OP2 DATA WORD  (CLOCK STEP)
                           1912 *
                           1913 *     BIT 00  - SET READY
                           1914 *     BIT 01  - RESET READY
                           1915 *     BIT 02  - SET WRITE CLOCK
                           1916 *     BIT 03  - SET READ CLOCK
```

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 LOCTR  OBJECT TEXT       STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                          1917 *      BIT 04  - INDEX PULSE
                          1918 *      BIT 05  - SECTOR PULSE
                          1919 *      BIT 06  - STANDARD READ DATA
                          1920 *      BIT 07  - SPEED PULSE
                          1921 *      BIT 08  - BEHIND HOME
                          1922 *      BIT 09  - SET SEEK COMPLETE
                          1923 *      BIT 10  - RESET SEEK COMPLETE
                          1924 *      BIT 11  - PLO OUT OF SYNC
                          1925 *      BIT 12  - PST RD/WRT CLOCK
                          1926 *      BIT 13  -
                          1927 *      BIT 14  -
                          1928 *      BIT 15  - RESET DIAGNOSTIC MODE
                          1929 *
                          1930 ********************************************************************
                          1931 *
                          1932 *
0039FA  6E0D 26DE         1933 WRAP   MVW   R6,LSTIO          SAVE ADDRESS OF LAST IO
0039FE  8028 19D0 3A7D    1934        MVB   DEVADD,IDCBRAP+1  LOAD DEVICE ADDRESS IN IDCB
003A04  680C 3A7C         1935        IO    IDCBRAP           READ SENSE WORD 1
003A08  6F05 3A5E         1936        BNCC  7,CCERR           CHECK COND CODE
003A0C  5601              1937        BXS   (R6,2)            RETURN TO CALLER
                          1938 *
003A0E  6E0D 26DE         1939 CEOP1  MVW   R6,LSTIO          SAVE ADDRESS OF LAST IO
003A12  8028 19D0 3A75    1940        MVB   DEVADD,IDCBCE1+1  LOAD DEVICE ADDRESS IN IDCB
003A18  680C 3A74         1941        IO    IDCBCE1           SET DIAGNOSTIC MODE
003A1C  6F05 3A5E         1942        BNCC  7,CCERR           CHECK COND CODE
003A20  5601              1943        BXS   (R6,2)            RETURN TO CALLER
                          1944 *
003A22  6E0D 26DE         1945 CEOP2  MVW   R6,LSTIO          SAVE ADDRESS OF LAST IO
003A26  8028 19D0 3A79    1946        MVB   DEVADD,IDCBCE2+1  LOAD DEVICE ADDRESS IN IDCB
003A2C  680C 3A78         1947        IO    IDCBCE2           WRITE DIAG CLOCK STEP
003A30  6F05 3A5E         1948        BNCC  7,CCERR           CHECK COND CODE
003A34  5601              1949        BXS   (R6,2)            RETURN TO CALLER
                          1950 *
                          1951 *
003A36  6E0D 26DE         1952 SENS1  MVW   R6,LSTIO          SAVE ADDRESS OF LAST IO
003A3A  8028 19D0 3A71    1953        MVB   DEVADD,IDCB1+1    LOAD DEVICE ADDRESS IN IDCB
003A40  680C 3A70         1954        IO    IDCB1             READ SENSE WORD 2
003A44  6F05 3A5E         1955        BNCC  7,CCERR           CHECK COND CODE
003A48  5601              1956        BXS   (R6,2)            RETURN TO CALLER
                          1957 *
003A4A  6E0D 26DE         1958 SENS0  MVW   R6,LSTIO          SAVE ADDRESS OF LAST IO
003A4E  8028 19D0 3A6D    1959        MVB   DEVADD,IDCB0+1    LOAD DEVICE ADDRESS IN IDCB
003A54  680C 3A6C         1960        IO    IDCB0             READ SENSE WORD 1
003A58  6F05 3A5E         1961        BNCC  7,CCERR           CHECK COND CODE
003A5C  5601              1962        BXS   (R6,2)            RETURN TO CALLER
                          1963 *
003A5E  706E              1964 CCERR  DC    X'706E'           COPY STATUS ANY LEVEL INTO R3
003A60  336A              1965        SRL   13,R3             POSITION CC CODE TO BITS 13-15
003A62  C328 26DA         1966        MVB   R3,$IOIN          * PUT IN LOG AREA
003A66  68D2 0000         1967        B     (R6)*             RETURN TO USER
                          1968 *
003A6A  6F05              1969 IORST  DC    X'6F05'           RESET IO
003A6C  2205              1970 IDCB0  DC    X'2205'           SENSE WORD ZERO
003A6E  0000              1971 RDATA0 DC    A(*-*)            DATA WORD
003A70  2105              1972 IDCB1  DC    X'2105'           SENSE WORD ONE
003A72  0000              1973 RDATA  DC    A(*-*)
003A74  4005              1974 IDCBCE1 DC   X'4005'           CE DIAG OP1
003A76  0000              1975 CEDAT  DC    A(*-*)            SENSE DATA
003A78  4105              1976 IDCBCE2 DC   X'4105'           CE DIAG OP2
003A7A  0000              1977 CEDAT2 DC    A(*-*)            SENSE DATA
003A7C  2F05              1978 IDCBRAP DC   X'2F05'           READ DIAG WRAP
003A7E  0000              1979 RAPDAT DC    A(*-*)            SENSE DATA
000232                    1980 CPUID  EQU   X'0232'           CPU ID
                          1981 *
                          1983        COPY  T78IO             01DEC76
                          1984 ** (T78IO)
                          1985 ****************************12/01/76**********************************
                          1986 *
                          1987 *  SUBROUTINE
                          1988 *
                          1989 *      PURPOSE
                          1990 *
                          1991 *           COMPARE READ SECTOR ID DATA TO WRITE SECTOR ID DATA
                          1992 *           NORMAL AND TEST DATA.
                          1993 *
                          1994 *      CALLING SEQUENCE
                          1995 *
                          1996 *           BAL  CMPRW,R6          (NORMAL)
                          1997 *           BAL  CMPRT,R6          (TEST)
                          1998 *
                          1999 *      RETURN
                          2000 *
                          2001 *           BXS (R6,2)     -   NORMAL
                          2002 *
                          2003 *
                          2004 ********************************************************************
                          2005 *
003A80  4724 0005         2006 CMPRT MVWI   5,R7              BYTE COUNT
003A84  4324 399F         2007       MVA    SCTST+1,R3       ADDR OF RD SECT ID DATA (TEST)
003A88  4524 3998         2008       MVA    WSIDT,R5         ADDR OF WR SECT ID DATA (TEST)
003A8C  5006              2009       J      TT4Y
003A8E  4724 0005         2010 CMPRW MVWI   5,R7              COMPARE BYTE COUNT
003A92  4324 26E1         2011       MVA    SCTID+1,R3       ADDR OF RD SEC ID DATA
003A96  4524 3990         2012       MVA    WRSID,R5         ADDR OF WR SEC ID DATA
003A9A  2BA6              2013 TT4Y  CFNEN  (R3),(R5)        COMPARE ID DATA
003A9C  68C0 0002         2014       BE     (R6,2)           BCH IF WRITE ID DATA OK
003AA0  68D2 0000         2015       B      (R6)*            COMPARE ERROR
                          2016 *
                          2017 ********************************************************************
                          2018 *
                          2019 *  SUBROUTINE
                          2020 *
                          2021 *      PURPOSE
                          2022 *           CONVERT LOGICAL SECTOR NUMBER TO A PHYSICAL SECTOR MINUS
                          2023 *           ONE.
                          2024 *           SETUP LOGICAL SECTOR # IN LOCATION 'LGSEC'
                          2025 *           PHYSICAL SECTOR # WILL BE LOADED IN LOCATION 'PHYSC'
                          2026 *
                          2027 *      LOGICAL SECTOR# TO PHYSICAL SECTOR# CONVERSION
                          2028 * LOGICAL- X 00, 1E, 01, 1F, 02, 20, 03, 21, 04, 22, 05, 23, 06, 24,
                          2029 * PHYSICAL X 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B, 0C, 0D,
                          2030 *
                          2031 * LOGICAL-   07, 25, 08, 26, 09, 27, 0A, 28, 0B, 29, 0C, 2A, 0D, 2E,
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 LOCTR  OBJECT TEXT       STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                          2032 * PHYSICAL   0E, 0F, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 1A, 1B,
                          2033 *
                          2034 * LOGICAL-   0E, 2C, 0F, 2D, 10, 2E, 11, 2F, 12, 30, 13, 31, 14, 32,
                          2035 * PHYSICAL   1C, 1D, 1E, 1F, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29,
                          2036 *
                          2037 * LOGICAL-   15, 33, 16, 34, 17, 35, 18, 36, 19, 37, 1A, 38, 1B, 39,
                          2038 * PHYSICAL   2A, 2B, 2C, 2D, 2E, 2F, 30, 31, 32, 33, 34, 35, 36, 37,
                          2039 *
                          2040 * LOGICAL-   1C, 3A, 1D, 3B, X
                          2041 * PHYSICAL   38, 39, 3A, 3B, X
                          2042 *
                          2043 *
                          2044 *      CALLING SEQUENCE
                          2045 *
                          2046 *           BAL  CONVT,R6
                          2047 *
                          2048 *      RETURN
                          2049 *
                          2050 *           B    (TT304+2)
                          2051 *
                          2052 ********************************************************************
                          2053 *
003AA4  6E0D 3AE4         2054 CONVT MVW    R6,TT304+2        SETUP RETURN ADDR
003AA8  802B 396A 3989    2055       CB     ZERO0,LGSEC+1      CK FOR LOG # ZERO
003AAE  100D              2056       JE     TT304              BCH IF LOG # IS ZERO
003AB0  802B 3989 398C    2057       CB     LGSEC+1,CB29       COMP LOG TO 29
003AB6  1C0D              2058       JGE    RTT01              BCH IF LGSEC EQ OR LESS THAN CB29
003AB8  4024 0002         2059       MVWI   2,R0               SETUP MULTIPLIER
003ABC  E821 3989         2060       MB     LGSEC+1,R0         LOG SECTOR # TIMES 2
003AC0  7802 003C         2061       SWI    60,R0              LOG SEC TIMES 2 MINUS 60
003AC4  C028 398B         2062       MVB    R0,PHYSC+1         PHYSICAL SECTOR NUMBER
003AC8  500C              2063       J      TT304              RETURN TO CALLER
003ACA  8028 398E 398B    2064 TT303 MVB    FIVE9,PHYSC+1      PHYSICAL SECTOR # 59
003AD0  5008              2065       J      TT304              RETURN TO CALLER
003AD2  4024 0002         2066 RTT01 MVWI   2,R0               LOAD MULTIPLIER
003AD6  E821 3989         2067       MB     LGSEC+1,R0         LOG SECTOR # TIMES 2
003ADA  7802 0001         2068       SWI    1,R0               SUBTRACT ONE
003ADE  C028 398B         2069       MVB    R0,PHYSC+1         LOAD PHYSICAL SECTOR #
003AE2  6802 0000         2070 TT304 B      *-*                RETURN TO CALLER
                          2071 *
                          2072 ********************************************************************
                          2073 *
                          2074 *  SUBROUTINE
                          2075 *
                          2076 *      PURPOSE
                          2077 *
                          2078 *           LOAD WRITE SECTOR ID DATA BUFFER FROM RD SEC ID BUFFER
                          2079 *
                          2080 *      CALLING SEQUENCE
                          2081 *
                          2082 *           BAL  LWSID,R6
                          2083 *
                          2084 *      RETURN
                          2085 *
                          2086 *           BXS    (R6)
                          2087 *
                          2088 ********************************************************************
                          2089 *
                          2090 *
003AE6  4724 0005         2091 LWSID MVWI   5,R7              BYTE COUNT
003AEA  4324 26E1         2092       MVA    SCTID+1,R3       ADDR OF RD SECT ID DATA BUFFER
003AEE  4524 3990         2093       MVA    WRSID,R5         ADDR OF WR SECT ID DATA BUFFER
003AF2  2BA4              2094       MVFN   (R3),(R5)        MOV DATA FROM RD TO WR BUFFER
003AF4  5600              2095       BXS    (R6)             RETURN TO CALLER
                          2096 *
                          2098 *
                          2099 *      EXECUTE INPUT & OUTPUT COMMANDS
                          2100 *      TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.
                          2101 *      EACH OF THESE ENTRIES SET R7 WITH THE ADRS OF ITS PARAMETER
                          2102 *      LIST AND ANY SPECIAL SWITCHES BEFORE BRANCHING TO THE
                          2103 *      SUPVR CALL.
                          2104 *
                          2105 *      THIS SUBROUTINE WILL CHECK FOR THE FOLLOWING:
                          2106 *
                          2107 *      1. LOST INTERRUPTS BY TIMING OUT A COUNTING LOOP
                          2108 *      2. ERROR INTERRUPTS RECEIVED FROM SUPVR
                          2109 *
                          2110 *      THIS ROUTINE HAS THE FOLLOWING ENTRIES:
                          2111 *
                          2112 *  1   BAL   $RKEW,R6             READ SECTOR ID SKEWED
                          2113 *
                          2114 *  2   BAL   $WKST,R6             WRITE SECTOR ID SKEWED  (TEST)
                          2115 *
                          2116 *  3   BAL   $RWST,R6             READ SECTOR ID SKEWED (TEST)
                          2117 *
                          2118 *  4   BAL   $RIDS,R6             READ SECTOR ID (TEST)
                          2119 *
                          2120 *  5   BAL   $WKEW,R6             WRITE SECTOR ID SKEWED
                          2121 *
                          2122 *  6   BAL   $WSEC,R6             WRITE SECTOR ID
                          2123 *
                          2124 *  7   BAL   $WSTS,R6             WRITE SECTOR ID (TEST
                          2125 *
                          2126 *  8   BAL   $DIAG,R6             DIAGNOSTIC
                          2127 *
                          2128 *  9   BAL   XIOCS,R6             CYCLE STEAL STATUS
                          2129 *
                          2130 *  10  BAL   $SEEK,R6             SEEK
                          2131 *
                          2132 *  11  BAL   $RECL,R6             RECALIBRATE
                          2133 *
                          2134 *  12  BAL   $RDID,R6             READ SECTOR ID
                          2135 *
                          2136 *  13  BAL   $RD,R6               READ
                          2137 *
                          2138 *  14  BAL   $RDVY,R6             READ VERIFY
                          2139 *
                          2140 *  15  BAL   $WRT,R6              WRITE
                          2141 *
                          2142 *
003AF6  4020 3CC8 38FA    2143 $SEEK MVA    SKDCB,IODCB         SET UP CONTROL BLOCK FOR SVC CALL
003AFC  5064              2144       J      XIO
                          2145 *
003AFE  4020 3CC8 38BA    2146 $RECL MVA    CLDCB,IODCB         SET UP BLOCK FOR SVC CALL
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                           2147         J     XIO
                           2148 *
003B06  4020 3CC8 38DA     2149 $RDID MVA   RSDCB,IODCB          SET UP BLOCK FOR SVC CALL
003B0C  0BFF               2150        MVBI  X'FF',R3           SET BUFFEP TO F'S
003B0E  4524 26E0          2151        MVA   SCTID,P5           SETUP READ SECTOR ID BUFFER ADPS
003B12  4724 0006          2152        MVWI  6,R7               SETUP BUFFER LENGTH
003B16  2BAC               2153        FFN   R3,(R5)            INIT READ SECTOR ID BUFFER
003B18  4020 38E8 26E0     2154        MVA   SCTID,RSDCB+14     DATA ADDR
003B1E  5053               2155        J     XIO
                           2156 *
003B20  0BFF               2157 $RD   MVBI  X'FF',R3           SETRD BUFFER TO ALL F'S
003B22  6D08 3948          2158        MVW   RDDCB+14,R5        SET UP READ BUFFER ADRS
003B26  4724 0100          2159        MVWI  X'0100',R7         SET UP BUFFER LENGTH
003B2A  2BAC               2160        FFN   R3,(R5)            CLEAR READ BUFFER
003B2C  4020 3CC8 393A     2161 $RD$  MVA   RDDCB,IODCB        SET UP BLOCK FOP SVC CALL
003B32  5049               2162        J     XIO
                           2163 *
003B34  4020 3CC8 392A     2164 $RDVY MVA   VRDCB,IODCB        SET UP CONTROL BLOCK FOR SVC CALL
003B3A  5045               2165        J     XIO
                           2166 *
003B3C  4020 3CC8 391A     2167 $WRT  MVA   WRDCB,IODCB        SET UP CONTROL BLOCK FOR SVC CALL
003B42  5041               2168        J     XIO
                           2169 *
003B44  4020 3CC8 395A     2170 $RKEW MVA   RKDCB,IODCB         SET UP CONTROL BLOCK FOR SVC CALL
003B4A  0BFF               2171        MVBI  X'FF',R3           SET BUFFER TO F'S
003B4C  4524 26E0          2172        MVA   SCTID,R5           SETUP READ SECTOR ID BUFFER ADRS
003B50  4724 0006          2173        MVWI  6,R7               SETUP BUFFER LENGTH
003B54  2BAC               2174        FFN   R3,(R5)            INIT READ SECTOR ID BUFFER
003B56  4020 3968 26E0     2175        MVA   SCTID,RKDCB+14      DATA ADDR
003B5C  5034               2176        J     XIO
                           2177 *
003B5E  4020 3CC8 394A     2178 $WKST MVA   WKDCB,IODCB        SET UP CONTROL BLOCK FOR SVC CALL
003B64  4020 3958 3998     2179        MVA   WSIDT,WKDCB+14     DATA ADDR
003B6A  502D               2180        J     XIO
                           2181 *
003B6C  4020 3CC8 395A     2182 $RWST MVA   RKDCB,IODCB        SET UP CONTROL BLOCK FOR SVC CALL
003B72  4020 3968 399E     2183        MVA   SCTST,RKDCB+14     DATA ADDR
003B78  5026               2184        J     XIO
                           2185 *
003B7A  4020 3CC8 38DA     2186 $RIDS MVA   RSDCB,IODCB        SET UP CONTROL BLOCK FOR SVC CALL
003B80  0BFF               2187        MVBI  X'FF',R3           SET BUFFER TO F'S
003B82  4524 399E          2188        MVA   SCTST,R5           SETUP READ SECTOR ID BUFFER ADPS
003B86  4724 0006          2189        MVWI  6,R7               SETUP BUFFER LENGTH
003B8A  2BAC               2190        FFN   R3,(R5)            INTT READ SECTOR ID BUFFER
003B8C  4020 38E8 399E     2191        MVA   SCTST,RSDCB+14     DATA ADDR
003B92  5019               2192        J     XIO
                           2193 *
003B94  4020 3CC8 394A     2194 $WKEW MVA   WKDCB,IODCB         SET UP CONTROL BLOCK FOR SVC CALL
003B9A  4020 3958 3990     2195        MVA   WRSID,WKDCB+14     DATA ADDR
003BA0  5012               2196        J     XIO
                           2197 *
003BA2  4020 3CC8 38CA     2198 $WSEC MVA   WSDCB,IODCB         SET UP CONTROL BLOCK FOR SVC CALL
003BA8  4020 38D8 3990     2199        MVA   WRSID,WSDCB+14     DATA ADDR
003BAE  500B               2200        J     XIO
003BB0  4020 3CC8 38CA     2201 $WSTS MVA   WSDCB,IODCB        SET UP CONTROI PLOCK FOR SVC CALL
003BB6  4020 38D8 3998     2202        MVA   WSIDT,WSDCB+14     DATA ADDR
003BBC  5004               2203        J     XIO
                           2204 *
003BBE  4020 3CC8 38AA     2205 $DIAG MVA   DGDCB,IODCB        SET UP CONTROL BLOCK FOR SVC CALL
003BC4  5000               2206        J     XIO
                           2207        XEQIT
                           2208+*****************************************************************29JUL76**
                           2209+**
                           2210+** SUB-ROUTINE
                           2211+**
                           2212+**     EXECUTE INPUT AND OUTPUT COMMANDS
                           2213+**
                           2214+** PURPOSE
                           2215+**
                           2216+**     TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.
                           2217+**     THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:
                           2218+**
                           2219+**     1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED
                           2220+**        THE I/O COMMAND.
                           2221+**     2. SAVES THE DCB BLOCK USED UNLESS IT IS A START CYCLE STATUS
                           2222+**        ISSUED BY THIS SUBROUTINE.
                           2223+**     3. CLEAR OUT THE CYCLE STEAL STATUS STORAGE UNLESS THE
                           2224+**        START CYCLE STATUS WAS ISSUED BY THIS SUBROUTINE.
                           2225+**     4. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT
                           2226+**        SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND,
                           2227+**        MYSTERY INTERRUPT (MI) CONTROL BIT IS SET.
                           2228+**     5. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE
                           2229+**        EXPECTED INTERRUPT CONTROL BIT AND ISSUE THE 'SVC  START'.
                           2230+**     6. WHEN THE SUPVR RETURNS AFTER ISSUING THE I/O COMMAND, TIMING
                           2231+**        STARTS TO DETERMINE A LOST INTERPUPT.
                           2232+**     7. ACCEPT THE INTERRUPT AND GATHER INFORMATION TO DETERMINE IF IT
                           2233+**        WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL.
                           2234+**     8. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.
                           2235+**     9. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN.
                           2236+**    10. CHECK IF THERE WAS AN ERROR CONDITION, IF NOT RETURN.
                           2237+**    11. CHECK TO SEE IF THE EXERCISER IS TO BE TERMINATED.
                           2238+**    12. CHECK IF A CYCLE STEAL OPERATION WAS IN PROGRESS THAT WAS
                           2239+**        ISSUED BY THIS SUBROUTINE.
                           2240+**    13. CHECK THE ISB BITS THAT APE ON. IF BIT 0 IS ON, ISSUE A
                           2241+**        CYCLE STEAL STATUS COMMAND. CHECK FOR ANY OTHER BIT BEING ON,
                           2242+**        COUNT IT AND SET UP THE PROPER ERROR MESSAGE TO BE PRINTED.
                           2243+**
                           2244+** CALLING SEQUENCE
                           2245+**
                           2246+**     THIS ROUTINE HAS THE FOLLOWING ENTRIES:
                           2247+**
                           2248+** --> BAL   XIO        OR         XEQ ANY CYCLE STEAL COMMAND, MOD=0
                           2249+** --> BAL   XIO1                 MOD PARM PRELOADED IN 'IOMOD'
                           2250+** --> BAL   XIOCS,R6   OR         XEQ START CYCLE STEAL STATUS, MOD=F
                           2251+** --> BAL   XIOCS-4,R6           AUTO CS  STATUS  (FOLLOWING OTHER XIO
                           2252+**     .                          AND DOES NOT POST INTERRUPT STATUS)
                           2253+**
                           2254+** RETURN CONTROL
                           2255+**
                           2256+**     BXS   (R6,2)               RETURN TO USER NO ERROR
                           2257+** OR  B     (R6)*                RETURN AND RETPY ON ERROR
                           2258+*****************************************************************
003BC6  CB25 3CCA          2260+XIO   MVWZ  IOMOD,R3             SET MOF OF 0 FOR CYCLE STEAL OP
003BCA  500A               2261+      J     XIO1                 CS I/O'S ARF NOT RETRIED
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                           2262+*
003BCC  4CAA               2263+      TBTR  (R4,CE)              RESET CS STATUS INTER ERROR INDICAT.
003BCE  4C68               2264+      TBTS  (R4,CS)              SET 'CYCLE STEAL STATUS' IN PROGRESS
003BD0  4020 3CC8 390A     2265+XIOCS MVA   CSDCB,IODCB          SET UP CONTROL BLOCK FOR SVC CALL
003BD6  4020 3CCA 000F     2266+      MVWI  X'000F',IOMOD        SET CYCLE STEAL MODIFIER
003BDC  4C28               2267+      TBT   (R4,CS)              IS CS IN PROGRESS, ERROR CONDITION
003BDE  1213               2268+      JON   XIO2                 * YES,  BYPASS SAVING I/O ADRS
003BE0  6E0D 26DE          2269+XIO1  MVW   R6,LSTIO             SAVE IAR FOR RETRY IF REQUESTED
003BE4  4324 26E8          2270+      MVA   DCBUF,R3             SET UP TO ADRS TO MOVE DCB TABLE
003BE8  6D08 3CC8          2271+      MVW   IODCB,R5             * AND THE FROM ADRS, ALONG WITH
003BEC  0F10               2272+      MVBI  16,R7                * THE NUMBER OF MOVES
003BEE  2D64               2273+      MVFN  (R5),(R3)            MOVE 1 STATUS WORD AND ADJUST
003BF0  0BFF               2274+      MVBI  255,R3               CLEAR CYCLE STATUS BUFFER
003BF2  4524 26F8          2275+      MVA   CSBUF,R5             *  TO ALL ONES  *
003BF6  0F10               2276+      MVBI  16,R7                *
003BF8  2BAC               2277+      FFN   R3,(R5)              *
003BFA  4020 26DA 0708     2278+      MVWI  X'0708',$IOIN        OVERLAY OLD CONDITION CODES
003C00  CB25 26DC          2279+      MVWZ  $ISB,R3              ZERO OUT OLD ISB VALUE
                           2280+*
003C04  4CA1               2281+      TBTR  (R4,ER)              RESET ANY ERROR BEFORE I/O COMMAND
003C06  4CA3               2282+XIO2  TBTR  (R4,IN)              CLEAR INTERRUPT RECEIVED CNTL BIT
003C08  4724 3CC4          2283+      MVA   IOBLK,R7             SET UP CONTROL BLOCK FOR SUPVR
003C0C  4CA6               2284+      TBTR  (R4,LE)              RESET LEVEL ERROR INDICATOR
003C0E  4C62               2285+      TBTS  (R4,XI)              SET EXPECTED INTR CONTROL BIT
003C10  600A               2286+      SVC   START                CALL SUPVR FOR I/O COMMAND
                           2287+*
003C12  4CA7               2288+      TBTR  (R4,NI)              IS AN INTR EXPECTED
003C14  6AC0 0002          2289+      BN    (R6,2)               * NO, RETURN TO USER
                           2290+*
                           2291+*          THE INTR SHOULD OCCUR WHILE SPINNING IN THE NEXT SECTION
                           2292+*
003C18  0D00               2293+      MVBI  X'00',R5             SET UP WORK REG FOR 'LOST INTR'
003C1A  4CA3               2294+XIO8  TBTR  (R4,IN)              HAS INTERRUPT BEEN RECEIVED
003C1C  1238               2295+      JON   XIOCK                * YES, CHECK IF ALL WAS SATISFACTORY
003C1E  6002               2296+      SVC   IDLE                 ALLOW ANOTHER PROGRAM A CHANCE TO RUN
                           2297+*                                SUPVR WILL RETURN HERE
003C20  7DA1 0001          2298+      AWI   1,R5                 ADVANCE TIME OUT COUNT
003C24  18FA               2299+      JNZ   XIO8                 BCH IF TIME OUT NOT REACHED
003C26  4C61               2300+      TBTS  (R4,ER)              SET ON ERROR CONTROL BIT
003C28  68D2 0000          2301+      B     (R6)*                ERR 'NO INTERRUPT'
                           2303+*****************************************************************03FEB76**
                           2304+*
                           2305+* SUBROUTINE
                           2306+*
                           2307+*     I/O EXECUTE ERROR HANDLING ROUTINE
                           2308+*
                           2309+* PURPOSE
                           2310+*
                           2311+*     THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE
                           2312+*     PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE
                           2313+*     SUPERVISOR AND IT WAS NOT ACCEPTED.
                           2314+*
                           2315+* CALLING SEQUENCE
                           2316+*
                           2317+*     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O COMMAND
                           2318+*
                           2319+* RETURN CONTROL
                           2320+*
                           2321+*     B     (R6)*                RETURN TO USERS ERROR HANDLER
                           2322+*
                           2323+*****************************************************************
                           2324+*
                           2325+* CC        0= DEVICE NOT ATTACHED
                           2326+* FOR       1= DEVICE BUSY
                           2327+* I/O       2= DEVICE BUSY AFTER RESET
                           2328+*           3= COMMAND REJECT
                           2329+*           4= INTERVENTION REQUIPED
                           2330+*           5= INTERFACE DATA CHECK
                           2331+*           6= CONTROLLER BUSY
                           2332+*           7= I/O COMMAND ACCEPTED
                           2333+*
003C2C  706E               2334+XIOER DC    X'706E'              COPY STATUS ANY LEVEL INTO R3
003C2E  336A               2335+      SRL   13,R3                POSITION CC CODE TO BITS 13-15
003C30  C328 26DA          2336+      MVB   R3,$IOIN             * PUT IN LOG OUT AREA
003C34  68D2 0000          2337+      B     (R6)*                RETURN TO USER ERROR HANDLER
                           2339+*****************************************************14APR76**IL
                           2340+*                                                              IL
                           2341+* SUB-ROUTINE                                                 IL
                           2342+*                                                              IL
                           2343+*     ERROR INTERRUPT            RUNS ON INTERRUPT LEVEL '$INTL'  IL
                           2344+*                                                              IL
                           2345+* PURPOSE                                                     IL
                           2346+*                                                              IL
                           2347+*     THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR  IL
                           2348+*     OR THE INTERRUPTING CONDITION CODE DOES NOT AGREE WITH THE    IL
                           2349+*     EXPECTED CODE.                                           IL
                           2350+*                                                              IL
                           2351+* CALLING SEQUENCE                                            IL
                           2352+*                                                              IL
                           2353+*     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT IL
                           2354+*                                                              IL
                           2355+* RETURN CONTROL                                              IL
                           2356+*                                                              IL
                           2357+*     SVC   FXIT                 RETURN TO USER VIA SUPVR      IL
                           2358+*                                                              IL
                           2359+*****************************************************************IL
                           2360+*                                                              IL
                           2361+* CC        0= CONTROLLER END                ISB   0= ADD STATUS   IL
                           2362+* FOR       1= PROGRAM CONTROL INTERRUPT     BITS  1= COMD REJECT  IL
                           2363+* INTR      2= EXCEPTION INTERRUPT           FOR   2= INCOR LENGTH IL
                           2364+*           3= DEVICE END INTERRUPT          INTR  3= DCB SPEC CK  IL
                           2365+*           4= ATTENTION INTERRUPT                 4= STG DATA CK  IL
                           2366+*           5= ATTENTION / PROGRAM CNTL INTR       5= INV STG ADRS IL
                           2367+*           6= ATTENTION / EXCEPTION INTR          6= PROTRCT CK   IL
                           2368+*           7= ATTENTION / DEVICE END INTR         7= I-FACE DATA  IL
                           2369+*                                                              IL
                           2370+INTER DC    X'706E'              COPY STATUS ANY LEVEL INTO R3  IL
                           2371+      SRL   13,R3                POSITION INDICATORS IN R3      IL
                           2372+      MVA   OPTN1,R4             SET UP BASE ADRS               IL
                           2373+      TBT   (R4,CS)              IS CS IN PROGRESS              IL
                           2374+      JOFF  INTES                * NO                           IL
                           2375+      TBTS  (R4,CE)              TURN ON CYCLE STEAL INTER ERROR IL
                           2376+      MVW   R7,CSTL8             SAVE CS FRR ISB VALUE, BITS 0-7 IL
                           2377+      MVB   R3,CSTL8+1           * AND THE COND CODE            IL
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

003C4E  500A              2378+       J     INTR1                                                    IL
003C50  4C24              2379+INTES  TBT   (R4,XE)              TEST  EXPECTED ATTEN / ERROR IND   IL
003C52  1002              2380+       JOFF  INTET               BCH IF NOT EXPECTED                IL
003C54  F304              2381+       CBI   4,R3                IS THIS AN 'ATTENTION' INTR         IL
003C56  1006              2382+       JE    INTR1               * YES, BCH TO END INTR SEQUENCE    IL
003C58  4C61              2383+INTET  TBTS  (R4,ER)              SET ERROR ON I/O COMMAND CNTL BIT  IL
003C5A  5004              2384+       J     INTR1                                                    IL
                          2385+                                 THE ERROR INTERRUPT USES THE SAME  IL
                          2386+                                 ENDING SEQUENCE AS THE NORMAL INTR IL
                          2388+*****************************************************************14APR76IL
                          2389+                                                                    IL
                          2390+* SOUBROUTINE                                                      IL
                          2391+*                                                                  IL
                          2392+*      OKAY  INTERRUPT           RUNS ON INTERRUPT LEVEL '$INTL'   IL
                          2393+*                                                                  IL
                          2394+* PURPOSE                                                         IL
                          2395+*                                                                  IL
                          2396+*      TO CHECK THE INTERRUPT AND CONTINUE THE TEST              IL
                          2397+*                                                                  IL
                          2398+* CALLING SEQUENCE                                               IL
                          2399+*                                                                  IL
                          2400+*      SUPERVISOR WILL ENTER HERE  IF INTR CC IS AS REQUESTED    IL
                          2401+*      THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS ROUTINE   IL
                          2402+*      AFTER THE SPECIAL PART HAS BEEN COMPLETED  AND THE        IL
                          2403+*      COMMON SECTION IS HANDLED HERE.                           IL
                          2404+*                                                                  IL
                          2405+* RETURN CONTROL                                                  IL
                          2406+*                                                                  IL
                          2407+*      SVC   EXIT                RETURN TO USER VIA SUPVR          IL
                          2408+*                                                                  IL
                          2409+*****************************************************************IL
003C5C  706E              2410+INTOK  DC    X'706E'             COPY STATUS ANY LEVEL INTO R3     IL
003C5E  336A              2411+       SRL   13,R3               POSITION INDICATORS IN R3         IL
003C60  4424  26D2        2412+       MVA   OPTN1,R4            SET UP BASE ADRS                  IL
003C64  4C63              2413+INTR1  TBTS  (R4,IN)             SET   INTERRUPT RECEIVED          IL
003C66  4C28              2414+       TBT   (R4,CS)             IS 'CS IN PROGRESS' ON            IL
003C68  1204              2415+       JON   INTR2               * YES, BCH AROUND UPDATE          IL
003C6A  C328  26DB        2416+       MVB   R3,$IOIN+1          SAVE INTERRUPTING CC CODE         IL
003C6E  6F0D  26DC        2417+       MVW   R7,$ISB             SAVE INTR STATUS AND DEV ADRS     IL
003C72                    2418+INTR2  EQU   *                                                     IL
                          2419+*      CPCL  R5                  CURRENT LEVEL COPIED BY DCP       IL
003C72  3521              2420+       SLL   4,R5                POSITION INTR LEVEL AND PUT       IL
003C74  0501              2421+       ABI   1,R5                * IN 'I' BIT                      IL
003C76  CD24  270E        2422+       CW    $INTL,R5            IS THIS THE CORRECT INTR LEVEL    IL
003C7A  1002              2423+       JE    INTR3               * YES, GO EXIT THIS LEVEL         IL
003C7C  4C6C              2424+       TBTS  (R4,ILE)            SET INTR LEVEL ERROR CONTROL BIT  IL
003C7E  4C61              2425+       TBTS  (R4,ER)             SET ERROR ON I/O COMMAND CNTL BIT IL
003C80  4CA2              2426+INTR3  TBTR  (R4,XI)             WAS INTERRUPT EXPECTED            IL
003C82  1204              2427+       JON   INTRX               * YES, EXIT OFF THIS INTR LEVEL   IL
003C84  4C60              2428+       TBTS  (R4,MI)             * NO, SET MYSTERY INTR CONTROL BIT IL
003C86  F304              2429+       CBI   4,R3                ATTENTION INTERRUPT?              IL
003C88  1001              2430+       JE    INTRX               YES                               IL
003C8A  4C6C              2431+       TBTS  (R4,NG)             ERROR,UNEXPECTED INTERRUPT        IL
003C8C  6006              2432+INTRX  SVC   EXIT                EXIT THIS LEVEL VIA SUPVR TO PGM  IL
                          2434+*****************************************************************03FEB76**
                          2435+*
                          2436+*      THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT
                          2437+*      HAS BEEN SERVICED. THE EXERCISER FINDS AN INTERRUPT HAS BEEN
                          2438+*      RECEIVED AND BRANCHES HERE TO CHECK FOR ANY INTERROR CONDITIONS.
                          2439+*
                          2440+*
003C8E  4CA4              2441+XIOCK  TBTR  (R4,XE)             WAS AN ERROR EXPECTED
003C90  6AC0  0002        2442+       BN    (R6,2)              * YES, EXIT THIS ROUTINE
003C94  4CA8              2443+       TBTR  (R4,CS)             WAS AUTO CS IN PROGRESS
003C96  1006              2444+       JOFF  XIOCV               * NO, CONTINUE CHECKING
003C98  4C2A              2445+       TBT   (R4,CE)             IS CS IN AN ERR CONDITION
003C9A  1002              2446+       JOFF  XIOCO               * NO, BCH
003C9C  68D2  0000        2447+       B     (R6)*               CS ERROR
003CA0  4C69              2448+XIOCO  TBTS  (R4,CSA)            TURN ON CS STATS AVAIL FLAG
003CA2  5601              2449+       BXS   (R6,2)              GO TO USER
003CA4  4C21              2450+XIOCV  TBT   (R4,ER)             WAS ERROR INTR CONTROL BIT ON
003CA6  100B              2451+       JOFF  XIOCX               * NO, EXIT THIS ROUTINE
                          2452+*
003CA8  C520  26DB        2453+       MVB   $IOIN+1,R5          GET LAST INTR CC CODE
003CAC  F502              2454+       CBI   2,R5                IS THIS CC=2
003CAE  68D1  0000        2455+       BNE   (R6)*               * NO, BCH TO ERROR HANDLER
003CB2  C520  26DC        2456+XIOCQ  MVB   $ISB,R5             GET LAST ISB DATA BYTE AND IF CS
003CB6  6A00  3BCC        2457+       BN    XIOCS-4             * AVAILABLE, GO AND GET IT
003CBA  68D2  0000        2458+       B     (R6)*               ERROR
003CBE  C825  26D6        2459+XIOCX  MVWZ  OPTN3,R3            CLEAR OUT OPTION 3 CNTL BITS
003CC2  5601              2460+       BXS   (R6,2)              RETURN TO USER VIA REG 6
                          2461+*
                          2462+*           I/O   PARAMETER LIST
                          2463+*
003CC4  19D0              2464+IOBLK  DC    A(DEVADD)           ADRS OF DEVICE ADRS
003CC6  3C2C              2465+       DC    A(XIOER)            ERROR ROUTINE ADRS
003CC8  0000              2466+IODCB  DC    A(*-*)              DCB ADRS OR LEVEL & INTR
003CCA  0000              2467+IOMOD  DC    A(*-*)              MODIFIER
003CCC  0000              2468+       DC    A(*-*)              ADRS OF LAST SVC CALL
003CCE  0000              2469+IORSP  DC    A(*-*)              SECOND WORD OF LAST IDCB
                          2470+*
                          2471+*           INTERRUPT CONTROL BLOCK FOR I/O COMMANDS
                          2472+*
003CD0  19D0              2473+INTBL  DC    A(DEVADD)           ADRS OF DEVICE ADRS
003CD2  3C5C              2474+       DC    A(INTOK)            INTERRUPT OK RETURN ADRS
003CD4  3C38              2475+       DC    A(INTER)            INTERRUPT ERROR ADRS
003CD6  0003              2476+INTCC  DC    X'0003'             INTERRUPT CODE EXPECTED
                          2478+*****************************************************************11MAY76**
                          2479+*
                          2480+* SUBROUTINE
                          2481+*
                          2482+*      CONNECT INTERRUPT CONTROL BLOCK & PREPARE DEVICE
                          2483+*
                          2484+* PURPOSE
                          2485+*
                          2486+*      TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND
                          2487+*      PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE
                          2488+*      TO INTERRUPT.
                          2489+*
                          2490+* CALLING SEQUENCE
                          2491+*
                          2492+*      THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:
                          2493+*
                          2494+* --> BAL   $CONC,R6              CLEAR DEV DEP STG AND CONNECT I/O BLK
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

                          2495+* --> BAL   $CONP,R6              PREPARE DEVICE ONLY, ALREADY CONNECT
                          2496+*
                          2497+* RETURN CONTROL
                          2498+*
                          2499+*      BXS   (R6,2)              RETURN TO USER VIA REG 6 IF OKAY
                          2500+* OR  B     (R6)*               IF THE DEVICE COULD NOT BE CONNECTED
                          2501+*
                          2502+*****************************************************************
003CD8  0F06              2503+$CONC  MVBI  6,R7                NUMBER OF BYTE TO CLEAR
003CDA  0B00              2504+       MVBI  0,R3                * AND THE DATA TO USE
003CDC  4524  26E0        2505+       MVA   DEV1,R5             * ALONG WITH THE ADRS TO USE
003CE0  2BAC              2506+       FFN   R3,(R5)             *
003CE2  CB25  26D6        2507+       MVWZ  OPTN3,R3            CLEAR OLD CONTROLS FOR NEW ROUTINE
003CE6  4724  3CD0        2508+       MVA   INTBL,R7            SET R7 TO CONTROL BLOCK AND
003CEA  6014              2509+       SVC   CICB                * CONNECT IT TO THIS DEVICE
003CEC  6AD0  0000        2510+       BN    (R6)*               ERROR RETURN TO USER
                          2511+*
003CF0  8828  270E 3CC8   2512+$CONP  MVW   $INTL,IODCB         PUT IN LEVEL & INTR PARAMETER
003CF6  4724  3CC4        2513+       MVA   IOBLK,R7            SET R7 TO CONTROL BLOCK TO PREPARE
003CFA  4020  26DA 0708   2514+       MVBI  X'0708',$IOIN       INITIALIZE CONDITION CODE STORAGE
003D00  CB25  26DC        2515+       MVWZ  $ISB,R3             * AND CLEAR OLD ISB VALUE
003D04  6E0D  26DE        2516+       MVW   R6,LSTIO            SET UP ADDRESS THAT STARTED LAST I/O
003D08  600C              2517+       SVC   PREP                * AND CALL ON SUPVR
003D0A  5601              2518+       BXS   (R6,2)              RETURN TO USER
                          2520+*****************************************************************06APR76**
                          2521+*
                          2522+* SUBROUTINE
                          2523+*
                          2524+*      DISCONNECT THE INTERRUPT CONTROL BLOCK AND LOG ERRORS
                          2525+*
                          2526+* PURPOSE
                          2527+*
                          2528+*      DISCONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND
                          2529+*      SET THE 'NO GOOD' CONTROL BIT, THEN LOG THE DATA THAT HAS
                          2530+*      BEEN FOUND TO HELP THE OPERATOR DEFINE THE ERROR CONDITION.
                          2531+*
                          2532+* CALLING SEQUENCE
                          2533+*
                          2534+*      THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:
                          2535+*
                          2536+* --> B     $ERR$               SET 'NG' BIT AND CONVERT DATA TO LOG
                          2537+* --> B     $CONX               RETURN TO MDI SUPERVISOR TO TEST STS
                          2538+*
                          2539+* RETURN CONTROL
                          2540+*
                          2541+*      B     TURTN*              RETURN TO MDI
                          2542+* OR  B     (R6)*               IF THE DEVICE COULD NOT BE CONNECTED
                          2543+*
                          2544+*****************************************************************
003D0C  4020  1818 8000   2545+$ERR$  MVWI  X'8000',TUSTATUS     SET ON 'NO GOOD' STATUS BIT
003D12  4724  3E76        2546+       MVA   HEBLK,R7            GET ADRS OF CONTROL BLOCK
003D16  601A              2547+       SVC   HTOE                CONVERT HEX TO EBC VIS DCP
003D18  0D03              2548+$PRNT  MVBI  3,R5
003D1A  4324  181A        2549+       MVA   TUWORK,R3           SET UP BUFFER STORAGE
003D1E  6B0D  3E6E        2550+       MVW   R3,BUFPT
003D22  4124  3D9E        2551+       MVA   LINE1,R1
003D26  0F04              2552+       MVBI  4,R7
003D28  0E08              2553+       MVBI  8,R6
003D2A  2B24              2554+MVBUF  MVFN  (R3),(R1)
003D2C  0F04              2555+       MVBI  4,R7
003D2E  0A40              2556+       MVBI  X'40',R2
003D30  C258              2557+       MVB   R2,(R1)+
003D32  BEFE              2558+       JCT   MVBUF,R6
003D34  0E08              2559+       MVBI  8,R6
003D36  7921  002C        2560+       AWI   44,R1
003D3A  BDF7              2561+       JCT   MVBUF,R5
003D3C  4020  1802 F1F0   2562+       MVWI  PIDMSG10,PID+2
003D42  4020  19B8 3E74   2563+       MVA   FAKETU,@DCADD1
003D48  4020  19BA 3E70   2564+       MVA   DC2PT,@DCADD2
003D4E  4020  19C4 0080   2565+       ORWI  BIT0080,SUPSTAT
003D54  4324  26D8        2566+       MVA   $TUID,R3            SET UP BUFFER STORAGE
003D58  6F13  18BA        2567+       BAL   TUMSG#TP*,R7        GO TO MESSAGE WRITER
                          2568+*
003D5C                    2569+$CONX  EQU   *
003D5C  C720  19D0        2570+       MVB   DEVADD,R7           GET DEVICE ADDRESS FROM MDI
003D60  6013              2571+       SVC   RICB                RELEASE INTERRUPT CONTROL BLOCK
003D62  6812  2710        2572+       B     TURTN*              RETURN TO MDI SUPERVISOR
                          2573+*
003D66  0007              2574+BEGIN  DC    A(0007)             NUMBER OF LINES TO PRINT
003D68  0008              2575+       DC    A(0008)             LINE LENGTH = 8 CHAR
003D6A  5C5C40C1C2D6D9E3  2576+       DC    C'** ABORT'
003D72  0028              2577+       DC    A(0040)             LINE LENGTH = 40 CHAR
003D74  E3E4C9C440C9D6C9D 2578+       DC    C'TUID IOIN ISB  INST DEV1 DEV2 DEV3 DEV4 '
003D9C  0028              2579+       DC    A(0040)             LINE LENGTH = 40 CHAR
003D9E  4040404040404040  2580+LINE1  DC    C'                  '
003DC6  0028              2581+       DC    A(0040)             LINE LENGTH = 40 CHAR
003DC8  C3D5E3D340C4C3C2F 2582+       DC    C'CNTL DCB2 DCB3 DCB4 DCB5 CHAD BYCT ADRS '
003DF0  0028              2583+       DC    A(0040)             LINE LENGTH = 40 CHAR
003DF2  4040404040404040  2584+LINE2  DC    C'                  '
003E1A  0028              2585+       DC    A(0040)             LINE LENGTH = 40 CHAR
003E1C  D9E2C9C440C3E260F 2586+       DC    C'RSID CS-2 CS-3 CS-4 CS-5 CS-6 CS-7 CS-8 '
003E44  0028              2587+       DC    A(0040)             LINE LENGTH = 40 CHAR
003E46  4040404040404040  2588+LINE3  DC    C'                  '
                          2589+*
003E6E  0000              2590+BUFPT  DC    A(*-*)
003E70  3D66              2591+       DC    A(BEGIN)
003E72  0101              2592+FIXTU  DC    X'0101'
003E74  0101              2593+FAKETU     DC  X'0101'
00F1F0                    2594+PIDMSG10 EQU   X'F1F0'
000080                    2595+BIT0080  EQU   X'0080'
                          2596+*
                          2597+*      DATA CONTROL BLOCK FOR CONVERTING HEX TO EBCDIC
                          2598+*
003E76  0030              2599+HEBLK  DC    A(48)               NUMBER OF BYTES TO CONVERT
003E78  26D8              2600+       DC    A($TUID)            FROM ADRS
003E7A  181A              2601+       DC    A(TUWORK)           AND THE TO ADRS
                          2603+*****************************************************************11SEP75**
                          2604+*
                          2605+* SUBROUTINE
                          2606+*
                          2607+*      SPECIAL ERROR CHECKING OF THE DCB
                          2608+*
                          2609+* PURPOSE
                          2610+*
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

                           2611+**      TO SET THE CONTROL BITS BEFORE ISSUEING THE I/O COMMAND,
                           2612+**      TESTING TO VERIFY THAT THE ERROR DID OCCUR, AND VERIFYING
                           2613+**      THAT THE RESIDUAL ADDRESS IS WHAT IT SHOULD BE.
                           2614+**
                           2615+** CALLING SEQUENCE
                           2616+**
                           2617+** -->  BAL   ERTST,R2              USE COMMOM ERROR TEST SUBRTN
                           2618+**      DC    A(1)                  DISPLACEMENT FOR RESIDUAL ADRS
                           2619+**      DC    A(*-*)                ERROR ADDRESS
                           2620+**
                           2621+** RETURN CONTROL
                           2622+**
                           2623+**      BXS   (R2,6)                RETURN TO USER VIA REG 2
                           2624+**
                           2625+*****************************************************************************
003E7C  4C64               2626+ERTST   TBTS  (R4,XE)              SET EXPECTED ERROR FOR EACH FAULT
003E7E  6E03  0000         2627+        BAL   *-*,R6               GO XEQ I/O COMMAND
003E82  3D0C               2628+        DC    A($ERR$)             RETRY
003E84  4C21               2629+        TBT   (R4,ER)              DID ERROR CONTROL BIT GET SET
003E86  1202               2630+        JON   ERTSX                * YES,GO CKECK RESIDUAL ADDRESS
003E88  6852  0002         2631+        B     (R2,2)*              ERROR
                           2632+*
003E8C  AA08  3CC8         2633+ERTSV   AW    (R2),IODCB           DEVELOP DCB ERROR ADDRESS
003E90  5000               2634+        NOP   ,                    FOR ALL ARCH ADD (SWI 1,IODCB)
003E92  5000               2635+        NOP   ,                    * (402E (ADD OF IODCB) 0001
003E94  5000               2636+        NOP   ,                    *
003E96  8828  3CC8 3EBA    2637+        MVW   IODCB,ERTSZ          SAVE DCB ADDRESS
003E9C  4CA1               2638+        TBTR  (R4,ER)              RESET ERROR BIT
003E9E  6E03  3BCC         2639+        BAL   XIOCS-4,R6           REQUEST START CYCLE STEAL STAUTS
003EA2  3D0C               2640+        DC    A($ERR$)             RETRY
003EA4  4C21               2641+        TBT   (R4,ER)              DID ERROR CONTROL BIT GET SET
003EA6  6A00  3D0C         2642+        BON   $ERR$                YES-ERROR
003EAA  882E  26F8 3EBA    2643+        CW    CSTL1,ERTSZ          TEST FOR CORRECT RESIDUAL ADDRS
003EB0  1002               2644+        JE    ERTSX                RESIDUAL ADDRESS OK
003EB2  6852  0002         2645+        B     (R2,2)*              ERROR
003EB6  4CA8               2646+ERTSX   TBTR  (R4,CS)              RESET CS IN PPOGRESS CNTL BIT
003EB8  5202               2647+        BXS   (R2,4)               OK, RETURN TO CALLER
                           2648+*
003EBA  0000               2649+ERTSZ   DC    A(*-*)               DCB SAVE LOCATION
000000                     2650         END
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DECLARED  NAME      ATTRIBUTES AND REFERENCES
     995  $CKSK      ADDRESS. HEX LOCATION(000029B8) IN CSECT(I7805   ) LENGTH(6)
                     876
    2503  $CONC      ADDRESS. HEX LOCATION(00003CD8) IN CSECT(I7805   ) LENGTH(2)
                     806  1058  1215  1332
    2512  $CONP      ADDRESS. HEX LOCATION(00003CF0) IN CSECT(I7805   ) LENGTH(6)
                     841
    2569  $CONX      ADDRESS. HEX LOCATION(00003D5C) IN CSECT(I7805   ) LENGTH(1)
                     959  1140  1275  1563
    2205  $DIAG      ADDRESS. HEX LOCATION(00003BBE) IN CSECT(I7805   ) LENGTH(6)
                    1092  1119
    2545  $ERR$      ADDRESS. HEX LOCATION(00003D0C) IN CSECT(I7805   ) LENGTH(6)
                    1059  2628  2640  2642
     634  $INTL      ADDRESS. HEX LOCATION(0000270E) IN CSECT(I7805   ) LENGTH(2)
                     805   821   840   859  2422  2512
     604  $IOIN      ADDRESS. HEX LOCATION(000026DA) IN CSECT(I7805   ) LENGTH(2)
                     908   929   944   950  1266  1554  1966  2278  2336
                    2416  2453  2514
     605  $ISB       ADDRESS. HEX LOCATION(000026DC) IN CSECT(I7805   ) LENGTH(2)
                     851   853   873   910   931   946   951  1267  1555
                    2279  2417  2456  2515
     589  $LE        ABSOLUTE. HEX VALUE(00000026)
                    2284  2424
    2157  $RD        ADDRESS. HEX LOCATION(00003B20) IN CSECT(I7805   ) LENGTH(2)
                    1354  1362  1370  1535
    2161  $RD$       ADDRESS. HEX LOCATION(00003B2C) IN CSECT(I7805   ) LENGTH(6)
                    1068  1077  1101  1129
    2149  $RDID      ADDRESS. HEX LOCATION(00003B06) IN CSECT(I7805   ) LENGTH(6)
                    1084  1110
    2143  $SEEK      ADDRESS. HEX LOCATION(00003AF6) IN CSECT(I7805   ) LENGTH(6)
                     869
     603  $TUID      ADDRESS. HEX LOCATION(000026D8) IN CSECT(I7805   ) LENGTH(2)
                     644   802  1056  1213  1330  2566  2600
    2167  $WRT       ADDRESS. HEX LOCATION(00003B3C) IN CSECT(I7805   ) LENGTH(6)
                    1503
     102  @DCADD1    ADDRESS. HEX LOCATION(000019B8) IN CSECT(I7805   ) LENGTH(1)
                    2563
     103  @DCADD2    ADDRESS. HEX LOCATION(000019BA) IN CSECT(I7805   ) LENGTH(1)
                    2564
      39  @FIXT      ABSOLUTE. HEX VALUE(00000101)
                     402   417   432   447   462   477   492   507   510
      41  @GOTO      ABSOLUTE. HEX VALUE(00000200)
                     384
      38  @QUES      ABSOLUTE. HEX VALUE(00000100)
                     381
      45  @TUXX      ABSOLUTE. HEX VALUE(00000500)
                     390   405   420   435   450   465   480   495
    1826  BCNT       ADDRESS. HEX LOCATION(0000397C) IN CSECT(I7805   ) LENGTH(2)
                    1494  1500  1529  1579  1585  1614
    2574  BEGIN      ADDRESS. HEX LOCATION(00003D66) IN CSECT(I7805   ) LENGTH(2)
                    2591
    2595  BIT0080    ABSOLUTE. HEX VALUE(00000080)
                    2565
    2590  BUFPT      ADDRESS. HEX LOCATION(00003E6E) IN CSECT(I7805   ) LENGTH(2)
                    2550
     563  B59        ABSOLUTE. HEX VALUE(0000001B)
                    1364  1372  1513
     564  B60        ABSOLUTE. HEX VALUE(0000001C)
                    1353  1383  1482
     565  B61        ABSOLUTE. HEX VALUE(0000001D)
                    1493  1611
    1834  CB29       ADDRESS. HEX LOCATION(0000398C) IN CSECT(I7805   ) LENGTH(2)
                    2057
    1964  CCERR      ADDRESS. HEX LOCATION(00003A5E) IN CSECT(I7805   ) LENGTH(2)
                    1936  1942  1948  1955  1961
     593  CE         ABSOLUTE. HEX VALUE(0000002A)
                    2263  2375  2445
    1975  CEDAT      ADDRESS. HEX LOCATION(00003A76) IN CSECT(I7805   ) LENGTH(2)
                     843   865  1061  1227  1236  1238  1243  1246  1251
                    1487  1520  1523
    1977  CEDAT2     ADDRESS. HEX LOCATION(00003A7A) IN CSECT(I7805   ) LENGTH(2)
                    1269  1490  1508  1526  1541  1557  1570  1616
    1939  CEOP1      ADDRESS. HEX LOCATION(00003A0E) IN CSECT(I7805   ) LENGTH(4)
                     844   866  1062  1228  1239  1247  1488  1521  1524
    1945  CEOP2      ADDRESS. HEX LOCATION(00003A22) IN CSECT(I7805   ) LENGTH(4)
                    1270  1491  1509  1527  1542  1558  1571  1617
     998  CHSK       ADDRESS. HEX LOCATION(000029C2) IN CSECT(I7805   ) LENGTH(2)
                     995
     673  CICB       ABSOLUTE. HEX VALUE(00000014)
                    2509
    1703  CLDCB      ADDRESS. HEX LOCATION(000038BA) IN CSECT(I7805   ) LENGTH(2)
                    2146
    1980  CPUID      ABSOLUTE. HEX VALUE(00000232)
                     815   913  1341
     591  CS         ABSOLUTE. HEX VALUE(00000028)
                    2264  2267  2373  2414  2443  2646
     592  CSA        ABSOLUTE. HEX VALUE(00000029)
                    2448
     622  CSBUF      ADDRESS. HEX LOCATION(000026F8) IN CSECT(I7805   ) LENGTH(1)
                     912   937   955  1760  2275
    1753  CSDCB      ADDRESS. HEX LOCATION(0000390A) IN CSECT(I7805   ) LENGTH(2)
                     864   888   894   896   898   902   912   916   923
                     933   936   937   938   954   955  2265
     623  CSTL1      ADDRESS. HEX LOCATION(000026F8) IN CSECT(I7805   ) LENGTH(2)
                     884  2643
     624  CSTL2      ADDRESS. HEX LOCATION(000026FA) IN CSECT(I7805   ) LENGTH(2)
                     855   949  1265  1474  1553
     626  CSTL4      ADDRESS. HEX LOCATION(000026FE) IN CSECT(I7805   ) LENGTH(2)
                     857
     630  CSTL8      ADDRESS. HEX LOCATION(00002706) IN CSECT(I7805   ) LENGTH(2)
                    2376  2377
     612  DCBUF      ADDRESS. HEX LOCATION(000026E8) IN CSECT(I7805   ) LENGTH(1)
                    2270
    2591  DC2PT      ADDRESS. HEX LOCATION(00003E70) IN CSECT(I7805   ) LENGTH(2)
                    2564
     105  DEVADD     ADDRESS. HEX LOCATION(000019D0) IN CSECT(I7805   ) LENGTH(1)
                     637   853  1340  1934  1940  1946  1953  1959  2464
                    2473  2570
     607  DEV1       ADDRESS. HEX LOCATION(000026E0) IN CSECT(I7805   ) LENGTH(2)
                     611  2505
    1691  DGDCB      ADDRESS. HEX LOCATION(000038AA) IN CSECT(I7805   ) LENGTH(2)
                    1089  1090  1116  1117  1123  1133  2205
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CROSS-REFERENCE LISTING

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
      67  DUMMY       ABSOLUTE. HEX VALUE(00000000)
                      372   512   524
     513  ENTPT       ADDRESS. HEX LOCATION(0000264E) IN CSECT(I7805   ) LENGTH(1)
                      198
      47  EQ          ABSOLUTE. HEX VALUE(00000000)
                      393   408   423   438   453   468   483   498
     584  ER          ABSOLUTE. HEX VALUE(00000021)
                      849   871   882   892   906   921   927   942  1472
                     2281  2300  2383  2425  2450  2629  2638  2641
    2626  ERTST       ADDRESS. HEX LOCATION(00003E7C) IN CSECT(I7805   ) LENGTH(2)
                     1068  1069  1077  1078  1084  1085  1092  1093  1101
                     1102  1110  1111  1119  1120  1129  1130
    2633  ERTSV       ADDRESS. HEX LOCATION(00003E8C) IN CSECT(I7805   ) LENGTH(4)
                     2630
    2646  ERTSX       ADDRESS. HEX LOCATION(00003EB6) IN CSECT(I7805   ) LENGTH(2)
                     2644
    2649  ERTSZ       ADDRESS. HEX LOCATION(00003EBA) IN CSECT(I7805   ) LENGTH(2)
                     2637  2643
     659  EXIT        ABSOLUTE. HEX VALUE(00000006)
                     2432
    2593  FAKETU      ADDRESS. HEX LOCATION(00003E74) IN CSECT(I7805   ) LENGTH(2)
                     2563
    1835  FIVE9       ADDRESS. HEX LOCATION(0000398E) IN CSECT(I7805   ) LENGTH(2)
                     2064
     536  F00005      ADDRESS. HEX LOCATION(00002668) IN CSECT(I7805   ) LENGTH(1)
                      403   418   433   448   463   478   493   508
     532  F00011      ADDRESS. HEX LOCATION(00002654) IN CSECT(I7805   ) LENGTH(1)
                      385
     540  F00060      ADDRESS. HEX LOCATION(00002688) IN CSECT(I7805   ) LENGTH(1)
                      511
    2599  HEBLK       ADDRESS. HEX LOCATION(00003E76) IN CSECT(I7805   ) LENGTH(2)
                     2546
     679  HTOE        ABSOLUTE. HEX VALUE(0000001A)
                     2547
    1974  IDCBCE1     ADDRESS. HEX LOCATION(00003A74) IN CSECT(I7805   ) LENGTH(2)
                     1940  1941
    1976  IDCBCE2     ADDRESS. HEX LOCATION(00003A78) IN CSECT(I7805   ) LENGTH(2)
                     1946  1947
    1978  IDCBRAP     ADDRESS. HEX LOCATION(00003A7C) IN CSECT(I7805   ) LENGTH(2)
                     1934  1935
    1970  IDCB0       ADDRESS. HEX LOCATION(00003A6C) IN CSECT(I7805   ) LENGTH(2)
                     1959  1960
    1972  IDCB1       ADDRESS. HEX LOCATION(00003A70) IN CSECT(I7805   ) LENGTH(2)
                     1340  1953  1954
     655  IDLE        ABSOLUTE. HEX VALUE(00000002)
                      826  1516  2296
     586  IN          ABSOLUTE. HEX VALUE(00000023)
                     1505  1546  1574  2282  2294  2413
    2473  INTBL       ADDRESS. HEX LOCATION(00003CD0) IN CSECT(I7805   ) LENGTH(2)
                     2508
    2370  INTER       ADDRESS. HEX LOCATION(00003C38) IN CSECT(I7805   ) LENGTH(2)
                     2475
    2379  INTES       ADDRESS. HEX LOCATION(00003C50) IN CSECT(I7805   ) LENGTH(2)
                     2374
    2383  INTET       ADDRESS. HEX LOCATION(00003C58) IN CSECT(I7805   ) LENGTH(2)
                     2380
    2410  INTOK       ADDRESS. HEX LOCATION(00003C5C) IN CSECT(I7805   ) LENGTH(2)
                     2474
      63  INTRNL      ABSOLUTE. HEX VALUE(00000000)
                      388
    2432  INTRX       ADDRESS. HEX LOCATION(00003C8C) IN CSECT(I7805   ) LENGTH(2)
                     2427  2430
    2413  INTR1       ADDRESS. HEX LOCATION(00003C64) IN CSECT(I7805   ) LENGTH(2)
                     2378  2382  2384
    2418  INTR2       ADDRESS. HEX LOCATION(00003C72) IN CSECT(I7805   ) LENGTH(1)
                     2415
    2426  INTR3       ADDRESS. HEX LOCATION(00003C80) IN CSECT(I7805   ) LENGTH(2)
                     2423
    2464  IOBLK       ADDRESS. HEX LOCATION(00003CC4) IN CSECT(I7805   ) LENGTH(2)
                      822   828   830   956  1137  1225  1272  1358  1511
                     1560  1619  2283  2513
    2466  IODCB       ADDRESS. HEX LOCATION(00003CC8) IN CSECT(I7805   ) LENGTH(2)
                      995  2143  2146  2149  2161  2164  2167  2170  2178
                     2182  2186  2194  2198  2201  2205  2265  2271  2512
                     2633  2637
    2467  IOMOD       ADDRESS. HEX LOCATION(00003CCA) IN CSECT(I7805   ) LENGTH(2)
                      833   835   837  2260  2266
     840  ITST1       ADDRESS. HEX LOCATION(000027B0) IN CSECT(I7805   ) LENGTH(6)
                      823   831   834   836   838   860
     826  ITST5       ADDRESS. HEX LOCATION(00002780) IN CSECT(I7805   ) LENGTH(2)
                      827
      37  I7805       CSECT. START(00002500) LENGTH(6588) ESDID(1)
                       37
    1827  JOE         ADDRESS. HEX LOCATION(0000397E) IN CSECT(I7805   ) LENGTH(2)
                     1484  1486  1494  1495  1539  1589  1590  1591  1592
                     1610  1613  1614  1621  1624  1625  1626  1627
    1832  LGSEC       ADDRESS. HEX LOCATION(00003988) IN CSECT(I7805   ) LENGTH(2)
                     2055  2057  2060  2067
    2580  LINE1       ADDRESS. HEX LOCATION(00003D9E) IN CSECT(I7805   ) LENGTH(40)
                     2551
     606  LSTIO       ADDRESS. HEX LOCATION(000026DE) IN CSECT(I7805   ) LENGTH(2)
                     1933  1939  1945  1952  1958  2269  2516
     583  MI          ABSOLUTE. HEX VALUE(00000020)
                     2428
    2554  MVBUF       ADDRESS. HEX LOCATION(00003D2A) IN CSECT(I7805   ) LENGTH(2)
                     2558  2561
     595  NG          ABSOLUTE. HEX VALUE(0000002C)
                     2431
     590  NI          ABSOLUTE. HEX VALUE(00000027)
                     1224  1502  1534  2288
     381  N00001      ADDRESS. HEX LOCATION(00002550) IN CSECT(I7805   ) LENGTH(2)
                      315   523
     384  N00002      ADDRESS. HEX LOCATION(00002554) IN CSECT(I7805   ) LENGTH(2)
                      318
     390  N00003      ADDRESS. HEX LOCATION(00002560) IN CSECT(I7805   ) LENGTH(2)
                      321   382
     402  N00004      ADDRESS. HEX LOCATION(0000257A) IN CSECT(I7805   ) LENGTH(2)
                      324
     405  N00005      ADDRESS. HEX LOCATION(0000257E) IN CSECT(I7805   ) LENGTH(2)
                      327   391
     417  N00006      ADDRESS. HEX LOCATION(00002590) IN CSECT(I7805   ) LENGTH(2)
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CROSS-REFERENCE LISTING

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
                     330
     420  N00007      ADDRESS. HEX LOCATION(00002594) IN CSECT(I7805   ) LENGTH(2)
                      333   406
     432  N00008      ADDRESS. HEX LOCATION(000025AE) IN CSECT(I7805   ) LENGTH(2)
                      336
     435  N00009      ADDRESS. HEX LOCATION(000025B2) IN CSECT(I7805   ) LENGTH(2)
                      339   421
     447  N00010      ADDRESS. HEX LOCATION(000025CC) IN CSECT(I7805   ) LENGTH(2)
                      342
     450  N00011      ADDRESS. HEX LOCATION(000025D0) IN CSECT(I7805   ) LENGTH(2)
                      345   436
     462  N00012      ADDRESS. HEX LOCATION(000025EA) IN CSECT(I7805   ) LENGTH(2)
                      348
     465  N00013      ADDRESS. HEX LOCATION(000025EE) IN CSECT(I7805   ) LENGTH(2)
                      351   451
     477  N00014      ADDRESS. HEX LOCATION(00002608) IN CSECT(I7805   ) LENGTH(2)
                      354
     480  N00015      ADDRESS. HEX LOCATION(0000260C) IN CSECT(I7805   ) LENGTH(2)
                      357   466
     492  N00016      ADDRESS. HEX LOCATION(00002626) IN CSECT(I7805   ) LENGTH(2)
                      360
     495  N00017      ADDRESS. HEX LOCATION(0000262A) IN CSECT(I7805   ) LENGTH(2)
                      363   481
     507  N00018      ADDRESS. HEX LOCATION(00002644) IN CSECT(I7805   ) LENGTH(2)
                      366
     510  N00019      ADDRESS. HEX LOCATION(00002648) IN CSECT(I7805   ) LENGTH(2)
                      369   496
     548  OPTN1       ADDRESS. HEX LOCATION(000026D2) IN CSECT(I7805   ) LENGTH(2)
                      803  1057  1214  1331  2372  2412
     571  OPTN3       ADDRESS. HEX LOCATION(000026D6) IN CSECT(I7805   ) LENGTH(2)
                      952  1268  1556  2459  2507
     101  PARMARA     ADDRESS. HEX LOCATION(0000196E) IN CSECT(I7805   ) LENGTH(1)
                      400   415   430   445   460   475   490   505
    1833  PHYSC       ADDRESS. HEX LOCATION(0000398A) IN CSECT(I7805   ) LENGTH(2)
                     2062  2064  2069
      69  PID         ADDRESS. HEX LOCATION(00001800) IN CSECT(I7805   ) 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  2562
    2594  PIDMSG10    ABSOLUTE. HEX VALUE(0000F1F0)
                     2562
     665  PREP        ABSOLUTE. HEX VALUE(0000000C)
                     2517
    1979  RAPDAT      ADDRESS. HEX LOCATION(00003A7E) IN CSECT(I7805   ) LENGTH(2)
                     1236  1243  1251
    1971  RDATA0      ADDRESS. HEX LOCATION(00003A6E) IN CSECT(I7805   ) LENGTH(2)
                     1232
    1677  RDBUF       ADDRESS. HEX LOCATION(000034AA) IN CSECT(I7805   ) LENGTH(1)
                     1356  1581  1678
    1786  RDDCB       ADDRESS. HEX LOCATION(0000393A) IN CSECT(I7805   ) LENGTH(2)
                     1066  1073  1074  1075  1097  1098  1099  1125  1126
                     1127  1134  1135  1356  1529  1530  1531  1532  1533
                     1597  1604  2158  2161
     661  RESET       ABSOLUTE. HEX VALUE(00000008)
                      824   829   957  1138  1226  1273  1359  1512  1561
                     1620
     672  RICB        ABSOLUTE. HEX VALUE(00000013)
                     2571
     662  RID         ABSOLUTE. HEX VALUE(00000009)
                      832
    1808  RKDCB       ADDRESS. HEX LOCATION(0000395A) IN CSECT(I7805   ) LENGTH(2)
                     2170  2175  2182  2183
    1718  RSDCB       ADDRESS. HEX LOCATION(000038DA) IN CSECT(I7805   ) LENGTH(2)
                     1082  1106  1107  1108  1114  2149  2154  2186  2191
    2066  RTT01       ADDRESS. HEX LOCATION(00003AD2) IN CSECT(I7805   ) LENGTH(4)
                     2058
       0  R0          REGISTER. HEX VALUE(00000000)
                      815   816   825   827   886   887   896   900   913
                      914  1065  1143  1145  1147  1149  1151  1153  1155
                     1157  1159  1341  1342  1365  1368  1373  1376  1378
                     1381  1501  1507  1515  1517  1537  1538  1573  1576
                     2059  2060  2061  2062  2066  2067  2068  2069
       0  R1          REGISTER. HEX VALUE(00000001)
                      878   884   894  1245  1246  1253  1366  1368  1374
                     1376  1379  1381  1384  1386  1389  1391  1394  1396
                     1399  1401  1404  1406  1409  1411  1414  1416  1419
                     1421  1424  1426  1429  1431  1434  1436  1439  1441
                     1444  1446  1449  1451  1454  1456  1459  1461  1464
                     1466  1585  1593  1599  1606  1624  1628  1630  2551
                     2554  2557  2560
       0  R2          REGISTER. HEX VALUE(00000002)
                      808   809   810   811   812   813   814   962   964
                      966   968   970   972   974   976   978   980   982
                      984   986   987   988   989   990   991   992  1064
                     1069  1078  1085  1093  1102  1111  1120  1130  1218
                     1219  1220  1221  1222  1223  1256  1258  1260  1262
                     1263  1300  1335  1336  1337  1338  1339  1591  1593
                     1596  1598  1605  1626  1628  1636  1637  1638  1639
                     1640  1641  1642  2556  2557  2631  2633  2645  2647
       0  R3          REGISTER. HEX VALUE(00000003)
                     1581  1582  1587  1595  1596  1600  1601  1601  1602
                     1607  1608  1965  1966  2007  2011  2013  2092  2094
                     2150  2153  2157  2160  2171  2174  2187  2190  2260
                     2270  2273  2274  2277  2279  2335  2336  2371  2373
                     2381  2411  2416  2429  2459  2504  2506  2507  2515
                     2549  2550  2554  2566
       0  R4          REGISTER. HEX VALUE(00000004)
                      803   846   849   868   871   879   882   889   892
                      903   906   918   921   924   927   939   942  1057
                     1214  1224  1331  1353  1364  1372  1383  1472  1482
                     1493  1502  1505  1513  1534  1546  1574  1611  2263
                     2264  2267  2281  2282  2284  2285  2288  2294  2300
                     2372  2373  2375  2379  2383  2412  2413  2414  2424
                     2425  2426  2428  2431  2441  2443  2445  2448  2450
                     2626  2629  2638  2641  2646
       0  R5          REGISTER. HEX VALUE(00000005)
                     1580  1582  1587  1597  1598  1602  1604  1605  1608
                     2008  2012  2013  2093  2094  2151  2153  2158  2160
                     2172  2178  2188  2190  2271  2273  2275  2277  2293
                     2298  2420  2421  2422  2453  2454  2456  2505  2506
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CROSS-REFERENCE LISTING

DECLARED NAME ATTRIBUTES AND REFERENCES

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                2548  2561
      0  R6       REGISTER. HEX VALUE(00000006)
                  806   823   831   841   844   847   866   869   876
                  880   890   904   919   925   940  1058  1062  1215
                 1228  1230  1234  1239  1241  1247  1249  1270  1332
                 1369  1377  1382  1388  1393  1398  1403  1408  1413
                 1418  1423  1428  1433  1438  1443  1448  1453  1458
                 1463  1468  1470  1481  1488  1491  1503  1509  1521
                 1524  1527  1535  1542  1551  1558  1571  1617  1933
                 1937  1939  1943  1945  1949  1952  1956  1958  1962
                 1967  2014  2015  2054  2095  2269  2289  2301  2337
                 2442  2447  2449  2455  2458  2460  2510  2516  2518
                 2553  2558  2559  2627  2639
      0  R7       REGISTER. HEX VALUE(00000007)
                  645   801   822   828   830   956  1055  1137  1212
                 1225  1272  1329  1358  1367  1375  1380  1385  1387
                 1390  1392  1395  1397  1400  1402  1405  1407  1410
                 1412  1415  1417  1420  1422  1425  1427  1430  1432
                 1435  1437  1440  1442  1445  1447  1450  1452  1455
                 1457  1460  1462  1465  1467  1511  1539  1540  1544
                 1560  1579  1584  1585  1599  1606  1619  1630  2006
                 2010  2091  2152  2159  2173  2189  2272  2276  2283
                 2376  2417  2503  2508  2513  2546  2552  2555  2567
                 2570
    611  SCTID    ADDRESS. HEX LOCATION(000026E0) IN CSECT(I7805   ) LENGTH(2)
                 1725  1737  1815  2011  2092  2151  2154  2172  2175
   1843  SCTST    ADDRESS. HEX LOCATION(0000399E) IN CSECT(I7805   ) LENGTH(2)
                 2007  2183  2188  2191
   1958  SENSO    ADDRESS. HEX LOCATION(00003A4A) IN CSECT(I7805   ) LENGTH(4)
                 1230
   1742  SKDCB    ADDRESS. HEX LOCATION(000038FA) IN CSECT(I7805   ) LENGTH(2)
                  861   862   863   864   875   878  1003  2143
    663  START    ABSOLUTE. HEX VALUE(0000000A)
                 2286
    104  SUPSTAT  ADDRESS. HEX LOCATION(000019C4) IN CSECT(I7805   ) LENGTH(1)
                 2565
   1645  TEST     ADDRESS. HEX LOCATION(0000307E) IN CSECT(I7805   ) LENGTH(2)
                 1357  1360  1518  1548  1565
   1518  TTTF     ADDRESS. HEX LOCATION(00002EB8) IN CSECT(I7805   ) LENGTF(6)
                 1514
   1516  TTTT     ADDRESS. HEX LOCATION(00002EB4) IN CSECT(I7805   ) LFNGTH(2)
                 1517
   1349  TT07     ADDRESS. HEX LOCATION(00002C4C) IN CSECT(I7805   ) LENGTH(6)
                 1343
   2064  TT303    ADDRESS. HEX LOCATION(00003ACA) IN CSECT(I7805   ) LENGTH(6)
                 2056
   2070  TT304    ADDRESS. HEX LOCATION(00003AE2) IN CSECT(I7805   ) LENGTH(4)
                 2054  2063  2065
   2013  TT4Y     ADDRESS. HEX LOCATION(00003A9A) IN CSECT(I7805   ) LENGTH(2)
                 2009
   1501  TT7A     ADDRESS. HEX LOCATION(00002E86) IN CSECT(I7805   ) LENGTH(4)
                 1344  1349
   1515  TT7B     ADDRESS. HEX LOCATION(00002EB0) IN CSECT(I7805   ) LENGTH(4)
                 1345  1350
   1537  TT7C     ADDRESS. HEX LOCATION(00002F0A) IN CSECT(I7805   ) LENGTH(4)
                 1346  1351
   1573  TT7D     ADDRESS. HEX LOCATION(00002F8C) IN CSECT(I7805   ) LENGTH(4)
                 1347  1352
   1354  TT7E     ADDRESS. HEX LOCATION(00002C66) IN CSECT(I7805   ) LENGTH(6)
                 1348
   1386  TT7G     ADDRESS. HEX LOCATION(00002CE4) IN CSECT(I7805   ) LENGTH(4)
                 1387
   1391  TT7H     ADDRESS. HEX LOCATION(00002CF6) IN CSECT(I7805   ) LENGTH(4)
                 1392
   1396  TT7J     ADDRESS. HEX LOCATION(00002D08) IN CSECT(I7805   ) LENGTH(4)
                 1397
   1401  TT7K     ADDRESS. HEX LOCATION(00002D1A) IN CSECT(I7805   ) LENGTH(4)
                 1402
   1406  TT7L     ADDRESS. HEX LOCATION(00002D2C) IN CSECT(I7805   ) LENGTH(4)
                 1407
   1411  TT7M     ADDRESS. HEX LOCATION(00002D3E) IN CSECT(I7805   ) LENGTH(4)
                 1412
   1416  TT7N     ADDRESS. HEX LOCATION(00002D50) IN CSECT(I7805   ) LENGTH(4)
                 1417
   1421  TT7P     ADDRESS. HEX LOCATION(00002D62) IN CSECT(I7805   ) LENGTH(4)
                 1422
   1426  TT7Q     ADDRESS. HEX LOCATION(00002D74) IN CSECT(I7805   ) LENGTH(4)
                 1427
   1431  TT7R     ADDRESS. HEX LOCATION(00002D86) IN CSECT(I7805   ) LFNGTH(4)
                 1432
   1436  TT7S     ADDRESS. HEX LOCATION(00002D98) IN CSECT(I7805   ) LENGTH(4)
                 1437
   1441  TT7T     ADDRESS. HEX LOCATION(00002DAA) IN CSECT(I7805   ) LENGTH(4)
                 1442
   1446  TT7U     ADDRESS. HEX LOCATION(00002DBC) IN CSECT(I7805   ) LENGTH(4)
                 1447
   1451  TT7V     ADDRESS. HEX LOCATION(00002DCE) IN CSECT(I7805   ) LENGTH(4)
                 1452
   1456  TT7W     ADDRESS. HEX LOCATION(00002DE0) IN CSECT(I7805   ) LENGTH(4)
                 1457
   1461  TT7X     ADDRESS. HEX LOCATION(00002DF2) IN CSECT(I7805   ) LENGTH(4)
                 1462
   1466  TT7Y     ADDRESS. HEX LOCATION(00002E04) IN CSECT(I7805   ) LENGTH(4)
                 1467
     95  TUBUFF   ADDRESS. HEX LOCATION(000018C2) IN CSECT(I7805   ) LENGTH(1)
                  888  1134
     96  TULAST   ADDRESS. HEX LOCATION(000018C4) IN CSECT(I7805   ) LENGTH(1)
                  886
     92  TUMSGWTR ADDRESS. HEX LOCATION(000018BA) IN CSECT(I7805   ) LENGTH(1)
                 2567
     76  TUPARM1  ADDRESS. HEX LOCATION(0000189A) IN CSECT(I7805   ) LENGTH(1)
                 1357
     98  TURESUL  ADDRESS. HEX LOCATION(000018C8) IN CSECT(I7805   ) LENGTH(1)
                  808   809   810   811   812   813   814   949   950
                  951   952   986   987   988   989   990   991  1064
                 1065  1218  1219  1220  1221  1222  1223  1262  1263
                 1265  1266  1267  1268  1335  1336  1337  1338  1339
                 1550  1553  1554  1555  1556  1568  1577  1632  1636
                 1637  1638  1639  1640  1641
    635  TURTN    ADDRESS. HEX LOCATION(00002710) IN CSECT(I7805   ) LENGTH(2)
                  801  1055  1212  1329  2572
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CROSS-REFERENCE LISTING

DECLARED NAME ATTRIBUTES AND REFERENCES

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      74  TUSTATUS ADDRESS. HEX LOCATION(00001818) IN CSECT(I7805   ) LENGTH(1)
                 2545
      75  TUWORK   ADDRESS. HEX LOCATION(0000181A) IN CSECT(I7805   ) LENGTH(1)
                 2549  2601
     962  T01A     ADDRESS. HEX LOCATION(0000296C) IN CSECT(I7805   ) LENGTH(2)
                  839
     964  T01B     ADDRESS. HEX LOCATION(00002970) IN CSECT(I7805   ) LENGTH(2)
                  850   852   854   856   858   867   870   877   883
                  893
     949  T01C     ADDRESS. HEX LOCATION(0000293C) IN CSECT(I7805   ) LENGTH(6)
                  963   965   967   969   971   973   975   977   979
                  981   983   985   993
     992  T01ER    ADDRESS. HEX LOCATION(000029B4) IN CSECT(I7805   ) LENGTH(2)
                  807   842   845   848   881   891   905   920   926
                  941
     900  T01G     ADDRESS. HEX LOCATION(00002896) IN CSECT(I7805   ) LENGTH(4)
                  897
     889  T01H     ADDRESS. HEX LOCATION(00002876) IN CSECT(I7805   ) LENGTH(2)
                  899
     912  T01J     ADDRESS. HEX LOCATION(000028BE) IN CSECT(I7805   ) LENGTH(6)
                  901
     923  T01K     ADDRESS. HEX LOCATION(000028E0) IN CSECT(I7805   ) LENGTH(6)
                  934
     966  T01L     ADDRESS. HEX LOCATION(00002974) IN CSECT(I7805   ) LENGTH(2)
                  885
     968  T01M     ADDRESS. HEX LOCATION(00002978) IN CSECT(I7805   ) LENGTH(2)
                  895
     970  T01N     ADDRESS. HEX LOCATION(0000297C) IN CSECT(I7805   ) LENGTH(2)
                  907
     972  T01P     ADDRESS. HEX LOCATION(00002980) IN CSECT(I7805   ) LENGTH(2)
                  909   930   945
     974  T01Q     ADDRESS. HEX LOCATION(00002984) IN CSECT(I7805   ) LENGTH(2)
                  911
     820  T01T     ADDRESS. HEX LOCATION(00002766) IN CSECT(I7805   ) LENGTH(6)
                  817
     825  T01T1    ADDRESS. HEX LOCATION(0000277C) IN CSECT(I7805   ) LENGTH(4)
                  818   820
     821  T01T2    ADDRESS. HEX LOCATION(0000276C) IN CSECT(I7805   ) LENGTH(6)
                  819
     978  T01U     ADDRESS. HEX LOCATION(0000298C) IN CSECT(I7805   ) LENGTH(2)
                  932
     980  T01V     ADDRESS. HEX LOCATION(00002990) IN CSECT(I7805   ) LENGTH(2)
                  872   943
     982  T01W     ADDRESS. HEX LOCATION(00002994) IN CSECT(I7805   ) LENGTH(2)
                  874   947
     976  T01X     ADDRESS. HEX LOCATION(00002988) IN CSECT(I7805   ) LENGTH(2)
                  928
     984  T01Y     ADDRESS. HEX LOCATION(00002998) IN CSECT(I7805   ) LENGTH(2)
                  922
     938  T01Z     ADDRESS. HEX LOCATION(00002918) IN CSECT(I7805   ) LENGTH(6)
                  915
    1143  T04A     ADDRESS. HEX LOCATION(00002AFC) IN CSECT(I7805   ) LENGTH(2)
                 1071
    1145  T04B     ADDRESS. HEX LOCATION(00002B00) IN CSECT(I7805   ) LENGTH(2)
                 1080
    1147  T04C     ADDRESS. HEX LOCATION(00002B04) IN CSECT(I7805   ) LENGTH(2)
                 1087
    1149  T04D     ADDRESS. HEX LOCATION(00002B08) IN CSECT(I7805   ) LENGTH(2)
                 1095
    1151  T04E     ADDRESS. HEX LOCATION(00002B0C) IN CSECT(I7805   ) LENGTH(2)
                 1104
    1153  T04F     ADDRESS. HEX LOCATION(00002B10) IN CSECT(I7805   ) LENGTH(2)
                 1113
    1155  T04G     ADDRESS. HEX LOCATION(00002B14) IN CSECT(I7805   ) LENGTH(2)
                 1122
    1157  T04H     ADDRESS. HEX LOCATION(00002B18) IN CSECT(I7805   ) LENGTH(2)
                 1132
    1137  T04J     ADDRESS. HEX LOCATION(00002AF2) IN CSECT(I7805   ) LENGTH(4)
                 1144  1146  1148  1150  1152  1154  1156  1158  1160
    1159  T04K     ADDRESS. HEX LOCATION(00002B1C) IN CSECT(I7805   ) LENGTH(2)
                 1063
    1258  T06A     ADDRESS. HEX LOCATION(00002BBC) IN CSECT(I7805   ) LENGTH(2)
                 1237  1244  1252
    1265  T06C     ADDRESS. HEX LOCATION(00002BCE) IN CSECT(I7805   ) LENGTH(6)
                 1257  1259  1261
    1256  T06D     ADDRESS. HEX LOCATION(00002BB8) IN CSECT(I7805   ) LENGTH(2)
                 1233
    1262  T06ER    ADDRESS. HEX LOCATION(00002BC4) IN CSECT(I7805   ) LENGTH(4)
                 1216  1229  1231  1235  1240  1242  1248  1250  1271
    1246  T06L     ADDRESS. HEX LOCATION(00002B9A) IN CSECT(I7805   ) LENGTH(4)
                 1255
    1505  T07A     ADDRESS. HEX LOCATION(00002E92) IN CSECT(I7805   ) LENGTH(2)
                 1507
    1523  T07B     ADDRESS. HEX LOCATION(00002ECC) IN CSECT(I7805   ) LENGTH(6)
                 1519
    1570  T07BB    ADDRESS. HEX LOCATION(00002F80) IN CSECT(I7805   ) LENGTH(6)
                 1566
    1542  T07C     ADDRESS. HEX LOCATION(00002F1C) IN CSECT(I7805   ) LENGTH(4)
                 1545
    1553  T07CD    ADDRESS. HEX LOCATION(00002F40) IN CSECT(I7805   ) LENGTH(6)
                 1569  1578
    1578  T07CE    ADDRESS. HEX LOCATION(00002F9C) IN CSECT(I7805   ) LENGTH(2)
                 1633  1643
    1574  T07E     ADDRESS. HEX LOCATION(00002F90) IN CSECT(I7805   ) LENGTH(2)
                 1576
    1636  T07ER    ADDRESS. HEX LOCATION(00003062) IN CSECT(I7805   ) LENGTH(4)
                 1333  1471  1473  1475  1489  1492  1504  1510  1522
                 1525  1528  1536  1543  1552  1559  1572  1618
    1579  T07G     ADDRESS. HEX LOCATION(00002F9E) IN CSECT(I7805   ) LENGTH(4)
                 1575
    1550  T07J     ADDRESS. HEX LOCATION(00002F34) IN CSECT(I7805   ) LENGTH(6)
                 1506
    1548  T07JJ    ADDRESS. HEX LOCATION(00002F2C) IN CSECT(I7805   ) LENGTH(6)
                 1567
    1589  T07K     ADDRESS. HEX LOCATION(00002FC0) IN CSECT(I7805   ) LENGTH(4)
                 1586
    1624  T07L     ADDRESS. HEX LOCATION(0000303C) IN CSECT(I7805   ) LENGTH(4)
                 1583
    1610  T07M     ADDRESS. HEX LOCATION(00003002) IN CSECT(I7805   ) LFNGTH(6)
                 1594
    1611  T07P     ADDRESS. HEX LOCATION(00003008) IN CSECT(I7805   ) LENGTH(2)
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CROSS-REFERENCE LISTING

DECLARED NAME ATTRIBUTES AND REFERENCES

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                1631
  1568  T07Q      ADDRESS. HEX LOCATION(00002F78) IN CSECT(I7805   ) LENGTH(6)
                1588  1603  1609
  1616  T07RR     ADDRESS. HEX LOCATION(0000301C) IN CSECT(I7805   ) LENGTH(6)
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  1529  T07S      ADDRESS. HEX LOCATION(00002EE4) IN CSECT(I7805   ) LENGTH(6)
                1615
  1486  T07SS     ADDRESS. HEX LOCATION(00002E3C) IN CSECT(I7805   ) LENGTH(6)
                1483
  1487  T07T      ADDRESS. HEX LOCATION(00002E42) IN CSECT(I7805   ) LENGTH(6)
                1485  1622
  1632  T07V      ADDRESS. HEX LOCATION(0000305A) IN CSECT(I7805   ) LENGTH(6)
                1629
  1653  T07W      ADDRESS. HEX LOCATION(00003080) IN CSECT(I7805   ) LENGTH(2)
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  1671  T07WW     ADDRESS. HEX LOCATION(000030A4) IN CSECT(I7805   ) LENGTH(2)
                1486
  1481  T07X      ADDRESS. HEX LOCATION(00002E2C) IN CSECT(I7805   ) LENGTH(4)
                1369  1377  1382  1388  1393  1398  1403  1408  1413
                1418  1423  1428  1433  1438  1443  1448  1453  1458
                1463  1468
  1623  T07Y      ADDRESS. HEX LOCATION(00003038) IN CSECT(I7805   ) LENGTH(4)
                1481
  1565  T07Z      ADDRESS. HEX LOCATION(00002F6E) IN CSECT(I7805   ) LENGTH(6)
                1547
   953  T1END     ADDRESS. HEX LOCATION(00002954) IN CSECT(I7805   ) LENGTH(2)
                948
  1269  T6END     ADDRESS. HEX LOCATION(00002BE6) IN CSECT(I7805   ) LENGTH(6)
                1254
  1607  T7AA      ADDRESS. HEX LOCATION(00002FF8) IN CSECT(I7805   ) LENGTH(4)
                1363  1371
  1557  T7END     ADDRESS. HEX LOCATION(00002F58) IN CSECT(I7805   ) LENGTH(6)
                1469  1476  1549
   801  T7801     ADDRESS. HEX LOCATION(00002720) IN CSECT(I7805   ) LENGTH(4)
                392
  1055  T7804     ADDRESS. HEX LOCATION(000029D0) IN CSECT(I7805   ) LENGTH(4)
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  1212  T7806     ADDRESS. HEX LOCATION(00002B20) IN CSECT(I7805   ) LENGTH(4)
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  1329  T7807     ADDRESS. HEX LOCATION(00002BFC) IN CSECT(I7805   ) LENGTH(4)
                437   452   467   482   497
  1470  T807      ADDRESS. HEX LOCATION(00002E12) IN CSECT(I7805   ) LENGTH(4)
                1361
  1775  VRDCP     ADDRESS. HEX LOCATION(0000392A) IN CSECT(I7805   ) LENGTH(2)
                2164
  1797  WKDCB     ADDRESS. HEX LOCATION(0000394A) IN CSECT(I7805   ) LENGTH(2)
                2178  2179  2194  2195
  1933  WRAP      ADDRESS. HEX LOCATION(000039FA) IN CSECT(I7805   ) LENGTH(4)
                1234  1241  1249
  1675  WRBUF     ADDRESS. HEX LOCATION(000030AA) IN CSECT(I7805   ) LENGTH(1)
                1355  1366  1374  1379  1384  1389  1394  1399  1404
                1409  1414  1419  1424  1429  1434  1439  1444  1449
                1454  1459  1464  1580  1676
  1764  WRDCB     ADDRESS. HEX LOCATION(0000391A) IN CSECT(I7805   ) LENGTH(2)
                1355  1496  1497  1498  1499  1500  1595  2167
  1836  WRSID     ADDRESS. HEX LOCATION(00003990) IN CSECT(I7805   ) LENGTH(2)
                1715  1804  2012  2093  2195  2199
  1708  WSDCB     ADDRESS. HEX LOCATION(000038CA) IN CSECT(I7805   ) LENGTH(2)
                2198  2199  2201  2202
  1840  WSIDT     ADDRESS. HEX LOCATION(00003998) IN CSECT(I7805   ) LENGTH(2)
                2008  2179  2202
   587  XE        ABSOLUTE. HEX VALUE(00000024)
                 846   868   879   889   903   918   924   939  2379
                2441  2626
   585  XI        ABSOLUTE. HEX VALUE(00000022)
                2285  2426
  2260  XIO       ADDRESS. HEX LOCATION(00003BC6) IN CSECT(I7805   ) LENGTH(4)
                 996  2144  2147  2155  2162  2165  2168  2176  2180
                2184  2192  2196  2200  2203  2206
  2441  XIOCK     ADDRESS. HEX LOCATION(00003C8E) IN CSECT(I7805   ) LENGTH(2)
                2295
  2448  XIOCO     ADDRESS. HEX LOCATION(00003CA0) IN CSECT(I7805   ) LENGTH(2)
                2446
  2265  XIOCS     ADDRESS. HEX LOCATION(00003BD0) IN CSECT(I7805   ) LENGTH(6)
                 847   880   890   904   919   925   940  1470  1551
                2457  2639
  2450  XIOCV     ADDRESS. HEX LOCATION(00003CA4) IN CSECT(I7805   ) LENGTH(2)
                2444
  2459  XIOCX     ADDRESS. HEX LOCATION(00003CBE) IN CSECT(I7805   ) LENGTH(4)
                2451
  2334  XIOER     ADDRESS. HEX LOCATION(00003C2C) IN CSECT(I7805   ) LENGTH(2)
                2465
  2269  XIO1      ADDRESS. HEX LOCATION(00003BE0) IN CSECT(I7805   ) LENGTH(4)
                2261
  2282  XIO2      ADDRESS. HEX LOCATION(00003C06) IN CSECT(I7805   ) LENGTH(2)
                2268
  2294  XIO8      ADDRESS. HEX LOCATION(00003C1A) IN CSECT(I7805   ) LENGTH(2)
                2299
  1818  ZERO0     ADDRESS. HEX LOCATION(0000396A) IN CSECT(I7805   ) LENGTH(2)
                 851  2055
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CROSS-REFERENCE LISTING


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