LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976

```
                        3         COPY  LOG7813                ** MAP EC HISTORY **
                        4  ************************************************************************
                        5  *                                                                      *
                        6  *                     ***       PREREQUISITES        ***               *
                        7  *                                                                      *
                        8  *                                  NONE                                *
                        9  *                                                                      *
                       10  ************************************************************************
                       11  *                                                                      *
                       12  *                     ***       MODIFICATIONS        ***               *
                       13  *                                                                      *
                       14  *                CHANGES MADE TO MEET PROGRAM REQUIREMENTS              *
                       15  *                                                                      *
                       16  ************************************************************************
                       17  *                                                                      *
                       18  *                     ***     PEA'S INCORPORATED     ***               *
                       19  *                                                                      *
                       20  *                                  NONE                                *
                       21  *                                                                      *
                       22  ************************************************************************
                       23  *                                                                      *
                       24  *                     ***    SPECIAL INSTRUCTIONS    ***               *
                       25  *                                                                      *
                       26  *                                  NONE                                *
                       27  *                                                                      *
                       28  ************************************************************************
                       29  *                                                                      *
                       30  *                     ***       E. C. HISTORY        ***               *
                       31  *                                                                      *
                       32  *       DATE 17DEC76  DATE 18JAN77  DATE 04MAR77  DATE 10JUN77         *
                       33  *       E.C. 578486   E.C. 578573   E.C. 578638   E.C. 578625          *
                       34  *                                                                      *
                       35  *       DATE 01MAR78  DATE          DATE          DATE                *
                       36  *       E.C. 755285   E.C.          E.C.          E.C.                *
                       37  *                                                                      *
                       38  ************************************************************************
002500                 40  I7813    START X'2500'           START ADDRESS OF ALL 'I' TYPE PROG
000100                 41  @QUES    EQU   X'0100'           EQUATED VALUE FOR MDI STATEMENT
000101                 42  @FIXT    EQU   X'0101'           EQUATED VALUE FOR MDI STATEMENT
000102                 43  @STOP    EQU   X'0102'           EQUATED VALUE FOR MDI STATEMENT
000200                 44  @GOTO    EQU   X'0200'           EQUATED VALUE FOR MDI STATEMENT
000201                 45  @CALL    EQU   X'0201'           EQUATED VALUE FOR MDI STATEMENT
000300                 46  @INPT    EQU   X'0300'           EQUATED VALUE FOR MDI STATEMENT
000400                 47  @QUXX    EQU   X'0400'           EQUATED VALUE FOR MDI STATEMENT
000500                 48  @TUXX    EQU   X'0500'           EQUATED VALUE FOR MDI STATEMENT
000600                 49  @NVLD    EQU   X'0600'           EQUATED VALUE FOR MDI STATEMENT
000000                 50  EQ       EQU   X'0000'           EQUATE FOR EQUAL
000004                 51  NE       EQU   X'0004'           EQUATE FOR NOT EQUAL
000008                 52  HI       EQU   X'0008'           EQUATE FOR HIGH
00000C                 53  NH       EQU   X'000C'           EQUATE FOR NOT HIGH
000010                 54  LO       EQU   X'0010'           EQUATE FOR LOW
000014                 55  NL       EQU   X'0014'           EQUATE FOR NOT LOW
000010                 56  LT       EQU   X'0010'           EQUATE FOR LESS THAN
00000C                 57  LE       EQU   X'000C'           EQUATE FOR LESS THAN OR EQUAL TO
000008                 58  GT       EQU   X'0008'           EQUATE FOR GREATER THAN
000014                 59  GE       EQU   X'0014'           EQUATE FOR GREATER THAN OR EQUAL TO
000200                 60  ON       EQU   X'0200'           EQUATE FOR ON
000202                 61  OF       EQU   X'0202'           EQUATE FOR OFF
000204                 62  MX       EQU   X'0204'           EQUATE FOR MIXED
000000                 63  EBC      EQU   X'0000'           EQUATE FOR EBCDIC DATA TRANSFER
000001                 64  HEX      EQU   X'0001'           EQUATE FOR HEX DATA TRANSFER
000001                 65  XTRNL    EQU   X'0001'           EQUATE FOR EXTERNAL REFERENCE
000000                 66  INTRNL   EQU   X'0000'           EQUATE FOR INTERNAL REFERENCE
000000                 67  PARM     EQU   X'0000'           EQUATE INDICATING PARAMETER
000001                 68  DA       EQU   X'0001'           EQUATE FOR DEVICE ADDRESS
000002                 69  UA       EQU   X'0002'           EQUATE FOR UNIT ADDRESS
000000                 70  DUMMY    EQU   X'0000'           DUMMY EQUATE
001800                 72  PID      EQU   *-X'0D00'         ADDRESS OF MDI HEADER
000232                 73  PTYPE    EQU   *-X'22CE'         ADDRESS OF PROCESSOR TYPE FIELD
00180C                 74  STEPNUM  EQU   PID+X'000C'       ADDRESS OF DECIMAL STEP NUMBER
00180E                 75  OPWD1    EQU   PID+X'000E'       ADDRESS OF OPTION WORD ONE
001810                 76  OPWD2    EQU   PID+X'0010'       ADDRESS OF OPTION WORD TWO
001818                 77  TUSTATUS EQU   PID+X'0018'       ADDRESS OF TU STATUS WORD
00181A                 78  TUWORK   EQU   PID+X'001A'       ADDRESS OF TU WORK AREA
00189A                 79  TUPARM1  EQU   PID+X'009A'       ADDRESS OF PARM 1 POINTER
00189C                 80  TUPARM2  EQU   PID+X'009C'       ADDRESS OF PARM 2 POINTER
00189E                 81  TUPARM3  EQU   PID+X'009E'       ADDRESS OF PARM 3 POINTER
0018A0                 82  TUPARM4  EQU   PID+X'00A0'       ADDRESS OF PARM 4 POINTER
0018A2                 83  TUPARM5  EQU   PID+X'00A2'       ADDRESS OF PARM 5 POINTER
0018A4                 84  TUPARM6  EQU   PID+X'00A4'       ADDRESS OF PARM 6 POINTER
0018A6                 85  TUPARM7  EQU   PID+X'00A6'       ADDRESS OF PARM 7 POINTER
0018A8                 86  TUPARM8  EQU   PID+X'00A8'       ADDRESS OF PARM 8 POINTER
0018AA                 87  TUPARM9  EQU   PID+X'00AA'       ADDRESS OF PARM 9 POINTER
0018AC                 88  TUPARM10 EQU   PID+X'00AC'       ADDRESS OF PARM 10 POINTER
0018AE                 89  TUPARM11 EQU   PID+X'00AE'       ADDRESS OF PARM 11 POINTER
0018B0                 90  TUPARM12 EQU   PID+X'00B0'       ADDRESS OF PARM 12 POINTER
0018B2                 91  TUPARM13 EQU   PID+X'00B2'       ADDRESS OF PARM 13 POINTER
0018B4                 92  TUPARM14 EQU   PID+X'00B4'       ADDRESS OF PARM 14 POINTER
0018B6                 93  TUPARM15 EQU   PID+X'00B6'       ADDRESS OF PARM 15 POINTER
0018B8                 94  TUPARM16 EQU   PID+X'00B8'       ADDRESS OF PARM 16 POINTER
0018BA                 95  TUMSGWTR EQU   PID+X'00BA'       ADDRESS OF -> TO COMMON MSG WRITER
0018BE                 96  TUUA     EQU   PID+X'00BE'       ADDRESS OF UNIT ADDRESS IN EBC
0018C0                 97  TUDA     EQU   PID+X'00C0'       ADDRESS OF DEVICE ADDRESS IN EBC
0018C2                 98  TUBUFF   EQU   PID+X'00C2'       ADDRESS OF LAST USED WORD IN MAP
0018C4                 99  TULAST   EQU   PID+X'00C4'       ADDRESS OF LAST ADDRESSABLE WORD
0018C6                100  TURESULN EQU   PID+X'00C6'       ADDRESS OF LENGTH OF TU RESULTS
0018C8                101  TURESUL  EQU   PID+X'00C8'       ADDRESS OF TU RESULTS FIELD
0018FC                102  MAPNAME  EQU   PID+X'00FC'       ADDRESS OF MAP NAME FIELD IN HEX
001948                103  TUINPT   EQU   PID+X'0148'       ADDRESS OF $INPT DATA
00196E                104  PARMARA  EQU   PID+X'016E'       ADDRESS OF $INPT INPUT AREA
0019B8                105  @DCADD1  EQU   PID+X'01B8'       MDI POINTER
0019BA                106  @DCADD2  EQU   PID+X'01BA'       MDI POINTER
0019C4                107  SUPSTAT  EQU   PID+X'01C4'       ADDRESS OF MDI STATUS
0019D0                108  DEVADD   EQU   PID+X'01D0'       ADDRESS OF DEVICE ADDRESS TABLE 0
0019DA                109  DEVADD1  EQU   PID+X'01DA'       ADDRESS OF DEVICE ADDRESS TABLE 1
0019E4                110  DEVADD2  EQU   PID+X'01E4'       ADDRESS OF DEVICE ADDRESS TABLE 2
0019EE                111  DEVADD3  EQU   PID+X'01EE'       ADDRESS OF DEVICE ADDRESS TABLE 3
0019F8                112  DEVADD4  EQU   PID+X'01F8'       ADDRESS OF DEVICE ADDRESS TABLE 4
001A02                113  DEVADD5  EQU   PID+X'0202'       ADDRESS OF DEVICE ADDRESS TABLE 5
001A0C                114  DEVADD6  EQU   PID+X'020C'       ADDRESS IF DEVICE ADDRESS TABLE 6
001A16                115  DEVADD7  EQU   PID+X'0216'       ADDRESS OF DEVICE ADDRESS TABLE 7
                      116           PRINT OFF
```


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```
002500 2558           201         DC    A(ENTPT)          POINT TO MAP ENTRY POINT TABLE
                      202  ************************************************************************
                      203  ************************************************************************
                      204  **                                                                    **
                      205  **    THE FOLLOWING TABLES ARE USED BY THE MDI SUPERVISOR (D3C00)     **
                      206  **    TO LOCATE THE CORRECT RULE TO INVOKE, TO OBTAIN THE PROPER      **
                      207  **    PARAMETERS TO PASS TO THE TU'S AND TO PASS TO THE OPERATOR      **
                      208  **    THE INDICATED MESSAGE(S). THERE ARE FOUR TABLES USED FOR THIS   **
                      209  **    PURPOSE THEY ARE:                                               **
                      210  **                                                                    **
                      211  **    STEP AND RULE ADDRESS TABLE                                     **
                      212  **         THIS TABLE GIVES THE ADDRESS OF THE RULE TO INVOKE AND     **
                      213  **         THE ASSOCIATED STEP DECIMAL STEP NUMBER OF THAT RULE.      **
                      214  **         ENTRIES ARE AS FOLLOWES                                    **
                      215  **                   A)  AN ADDRESS OF THE RULE DC START AREA         **
                      216  **                   B)  THE STEP NUMBER IN DECIMAL                   **
                      217  **                   C)  AN EQUATE FOR THE STEP NUMBER                **
                      218  **                                                                    **
                      219  **    RULE INFORMATION TABLE                                          **
                      220  **         THIS TABLE CONTAINES THE REQUIRED INFORMATION TO EXECUTE    **
                      221  **         THE APPROPRIATE RULE UNDER MDI. EACH RULE HAS ITS OWN      **
                      222  **         UNIQUELY DEFINED AREA INDICATED BELOW. END OF TABLE IS     **
                      223  **         INDICATED WITH A X'0000' FOR THE RULE EQUATE.              **
                      224  **                                                                    **
                      225  **         $QUES                                                      **
                      226  **               A) RULE EQUATE X'0100'                               **
                      227  **               B) ADDRESS OF THE YES LEG RULE                       **
                      228  **                                                                    **
                      229  **         $FIXT                                                      **
                      230  **               A) RULE EQUATE X'0101'                               **
                      231  **               B) ADDRESS OF MESSAGE TO PRINT                       **
                      232  **                                                                    **
                      233  **         $STOP                                                      **
                      234  **               A) RULE EQUATE X'0102'                               **
                      235  **               B) ADDRESS OF MESSAGE                                **
                      236  **                                                                    **
                      237  **         $GOTO                                                      **
                      238  **               A) RULE EQUATE X'0200'                               **
                      239  **               B) ADDRESS OF MESSAGE                                **
                      240  **               C) NAME OF MAP TO GO TO                              **
                      241  **               D) ENTRY POINT WITHIN GO TO MAP TO USE               **
                      242  **               E) INDICATOR FOR EXTERNAL OR INTERNAL REFERENCE      **
                      244  **                                                                    **
                      245  **         $CALL                                                      **
                      246  **               A) RULE EQUATE X'0201'                               **
                      247  **               B) ADDRESS OF MESSAGE                                **
                      248  **               C) NAME OF MAP TO CALL                               **
                      249  **               D) ENTRY POINT WITHIN CALLED MAP TO USE              **
                      250  **               E) INDICATOR FOR EXTERNAL OR INTERNAL REFERENCE      **
                      251  **                                                                    **
                      252  **         $INPT                                                      **
                      253  **               A) RULE EQUATE X'0300'                               **
                      254  **               B) INPUT TYPE (EBCDIC OR HEX)                        **
                      255  **               C) ADDRESS OF YES LEG RULE                           **
                      256  **               D) DESTINATION LOCATION OF INPUT DATA                **
                      257  **               E) LENGTH OF INPUT DATA                              **
                      258  **               F) LOWER LIMIT OF GOOD DATA                          **
                      259  **               G) HIGHER LIMIT OF GOOD DATA                         **
                      260  **                                                                    **
                      261  **         $QUXX                                                      **
                      262  **               A) RULE EQUATE X'0400'                               **
                      263  **               B) ADDRESS OF YES LEG RULE                           **
                      264  **               C) TU BRANCH TO ADDRESS (INITIAL)                    **
                      265  **               D) TU BRANCH TO ADDRESS (SECONDARY)                  **
                      266  **               E) LENGTH OF PARAMETER IN BYTES                      **
                      267  **               F) PARAMETER TO PASS TO TU                           **
                      268  **               G) STORE ADDRESS FOR FIRST 8 WORDS OF PARAMETER      **
                      269  **                                                                    **
                      270  **         $TUXX                                                      **
                      271  **               A) RULE EQUATE X'0500'                               **
                      272  **               B) ADDRESS OF YES LEG RULE                           **
                      273  **               C) TU BRANCH TO ADDRESS                              **
                      274  **               D) TYPE OF COMPARE TO MAKE ON RESULTS                **
                      275  **               E) LENGTH OF COMPARED RESULTS                        **
                      276  **               F) MASK FIELD FOR COMPARE                            **
                      277  **               G) LENGTH OF PARAMETER IN BYTES                      **
                      278  **               H) PARAMETER TO PASS TO THE TU                       **
                      279  **               I) STORE ADDRESS FOR FIRST 8 WORDS OF PARAMETER      **
                      280  **                                                                    **
                      281  **         $NVLD                                                      **
                      282  **               A) RULE EQUATE X'0600'                               **
                      284  **                                                                    **
                      285  **    ENTRY POINT TABLE                                               **
                      286  **         THIS TABLE CONTAINS THE ENTRY POINTS WITHIN THE MAP THAT    **
                      287  **         THE MAP CAN BE ENTERED FROM THESE ENTRY POINTS ARE         **
                      288  **         REFERENCED BY NAME AND ADDRESS. ENTRIES ARE AS FOLLOWES:   **
                      289  **                                                                    **
                      290  **             A) NAME OF ENTRY POINT                                 **
                      291  **             B) ADDRESS OF ENTRY POINT RULE TABLE                   **
                      292  **                                                                    **
                      293  **         THE ENTRY POINT TABLE END IS INDICATED BY A X'0000'        **
                      294  **                                                                    **
                      295  **    MESSAGE TABLE                                                   **
                      296  **         THIS TABLE CONTAINES THE MESSAGE PASSED TO THE OPERATOR     **
                      297  **         VIA THE MDI SUPERVISOR. THE TABLE IS AS FOLLOWES:          **
                      298  **                                                                    **
                      299  **             A) EQUATE FOR START OF MESSAGE BLOCK                   **
                      300  **             B) NUMBER OF LINES OF MESSAGE                          **
                      301  **             C) LENGTH OF FOLLOWING LINE                            **
                      302  **             D) FIRST LINE OF MESSAGE                               **
                      303  **             E) LENGTH OF FOLLOWING LINE                            **
                      304  **             F) SECOND LINE OF MESSAGE                              **
                      305  **             G) ETC.                                                **
                      306  **                                                                    **
                      307  ************************************************************************
                      308  ************************************************************************
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                           311 ********************************************************************************
                           312 ********************************************************************************
                           313 **                                                                            **
                           314 **                        STEP AND RULE ADDRESS TABLE                         **
                           315 **                                                                            **
                           316 ********************************************************************************
                           317 ********************************************************************************
002502  2518               318          DC    AL2(N00001)
002504  0001               319          DC    XL2'0001'
000001                     320 EQN00001 EQU       0001
002506  2532               321          DC    AL2(N00002)
002508  0002               322          DC    XL2'0002'
000002                     323 EQN00002 EQU       0002
00250A  2536               324          DC    AL2(N00003)
00250C  0003               325          DC    XL2'0003'
000003                     326 EQN00003 EQU       0003
00250E  254E               327          DC    AL2(N00004)
002510  0004               328          DC    XL2'0004'
000004                     329 EQN00004 EQU       0004
002512  2552               330          DC    AL2(N00005)
002514  0005               331          DC    XL2'0005'
000005                     332 EQN00005 EQU       0005
002516  0000               333          DC    AL2(DUMMY)
                           334 ********************************************************************************
                           335 ********************************************************************************
                           336 **                                                                            **
                           337 **                          RULE INFORMATION TABLE                            **
                           338 **                                                                            **
                           339 ********************************************************************************
                           340 ********************************************************************************
                           341 N00001   $TUXX T7802,10,00000000000000000000,EQ,QT= (Q00004),YES=N00003,X
002518  0500               342+N00001   DC    A(@TUXX)
00251A  2536               343+         DC    AL2(N00003)
00251C  264C               344+         DC    A(T7802)
00251E  0000               345+         DC    AL2(EQ)
002520  000A               346+         DC    AL2(10)
002522  00000000000000000000 347+       DC    X'00000000000000000000'
                           348+         ALIGN WORD
00252C  0000               349+         DC    AL2(0)
00252E  C1C1               350+         DC    C'AA'
                           351+         ALIGN WORD
002530  196E               352+         DC     AL2(PARMARA)
                           353 N00002   $FIXT FT=(F00016),GTO=((7878,XX))
002532  0101               354+N00002   DC    A(@FIXT)
002534  255E               355+         DC    A(F00016)
                           356 N00003   $TUXX T7850,04,00000000,EQ,PLNG=05,PARM=00/01,QT= (Q00020),    X
002536  0500               357+N00003   DC    A(@TUXX)
002538  2552               358+         DC    AL2(N00005)
00253A  2800               359+         DC    A(T7850)
00253C  0000               360+         DC    AL2(EQ)
00253E  0004               361+         DC    AL2(04)
002540  00000000           362+         DC    X'00000000'
                           363+         ALIGN WORD
002544  0005               364+         DC    AL2(05)
002546  F0F061F0F1         365+         DC    C'00/01'
00254B  00                 366+         ALIGN WORD
00254C  196E               367+         DC     AL2(PARMARA)
                           368 N00004   $FIXT FT=(F00023),GTO=((7878,XX))
00254E  0101               369+N00004   DC    A(@FIXT)
002550  2596               370+         DC    A(F00023)
                           371 N00005   $FIXT FT=(F00027),GTO=((7878,XX))
002552  0101               372+N00005   DC    A(@FIXT)
002554  25CE               373+         DC    A(F00027)
002556  0000               374          DC    AL2(DUMMY)
002558                     375 ENTPT    EQU   *
                           376 ********************************************************************************
                           377 ********************************************************************************
                           378 **                                                                            **
                           379 **                           ENTRY POINT TABLE                                **
                           380 **                                                                            **
                           381 ********************************************************************************
                           382 ********************************************************************************
                           383          ENTPT EP=A,STEP=00001
002558  C140               384+         DC    CL2'A'
00255A  2518               385+         DC    A(N00001)
00255C  0000               386          DC    AL2(DUMMY)
                           387 ********************************************************************************
                           388 ********************************************************************************
                           389 **                                                                            **
                           390 **                             MESSAGE TABLE                                  **
                           391 **                                                                            **
                           392 ********************************************************************************
                           393 ********************************************************************************
00255E                     394 F00016   EQU   *
00255E  0002               395          DC    AL2(0002)
002560  001E               396          DC    A(0030)
002562  E3C5E2E340C6C1C9D  397          DC    CL0030'TEST FAILED TO RUN CORRECTLY. '
002580  0014               398          DC    A(0020)
002582  D9C5E3E4D9D540E3D  399          DC    CL0020'RETURN TO MAP 7878. '
002596                     400 F00023   EQU   *
002596  0002               401          DC    AL2(0002)
002598  001E               402          DC    A(0030)
00259A  E3C5E2E340C6C1C9D  403          DC    CL0030'TEST FAILED TO RUN CORRECTLY. '
0025B8  0014               404          DC    A(0020)
0025BA  D9C5E3E4D9D540E3D  405          DC    CL0020'RETURN TO MAP 7878. '
0025CE                     406 F00027   EQU   *
0025CE  0002               407          DC    AL2(0002)
0025D0  0016               408          DC    A(0022)
0025D2  D4C1D740D9C1D540E  409          DC    CL0022'MAP RAN WITHOUT ERROP.'
0025E8  0014               410          DC    A(0020)
0025EA  D9C5E3E4D9D540E3D  411          DC    CL0020'RETURN TO MAP 7878. '
                           412       HDIT  00B2
0025FE  0000               414+OPTN1 DC    X'0000'                 PROGRAM OPTION CONTFOL WORD 1
                           415+*
002600  0000               416+OPTN2 DC    X'0000'                 PROGRAM OPTION CONTROL WORD 2
                           417+*                      BIT     HEX
000010                     418+B48   EQU   16      0       8       PROBLEM PROGRAM CONTROL BITS
000011                     419+B49   EQU   17      1       4       *
000012                     420+B50   EQU   18      2       2       * THESE BITS ARE USED WITH THE
000013                     421+B51   EQU   19      3       1       * SECOND OPTION WD   AND ARE TO
000014                     422+B52   EQU   20      4       8       * BE ASSIGNED BY EACH PROGRAMMER
000015                     423+B53   EQU   21      5       4       *
000016                     424+B54   EQU   22      6       2       *
000017                     425+B55   EQU   23      7       1       *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
000018                     426+B56   EQU   24      8       8       *
000019                     427+B57   EQU   25      9       4       *
00001A                     428+B58   EQU   26      10      2       *
00001B                     429+B59   EQU   27      11      1       *
00001C                     430+B60   EQU   28      12      8       *
00001D                     431+B61   EQU   29      13      4       *
00001E                     432+B62   EQU   30      14      2       *
00001F                     433+B63   EQU   31      15      1       *
00001E                     434+CH    EQU   30      14      2       CHARACTER SUPPLIED
00001P                     435+CMP   EQU   31      15      1       COMPARE OPERATION
002602  0000               437+OPTN3 DC    X'0000'                 PROGRAM OPTION CONTFOL WOPD 3
                           438+*
                           439+*  0  MYSTEPY INTEPRUPT     MI        8  CS STATUS IN PROGPESS    CS
                           440+*  1  EPROR INTEPPUPT       ER        9  CS AVAILABLE             CSA
                           441+*  2  EXPECTED INTEPRUPT    XI       10  CS STATUS INTERRUPT ERR  CE
                           442+*  3  INTERRUPT PECEIVED    IN       11  ISB BITS ON (1-7)        ISPON
                           443+*
                           444+*  4  EXPECTFD EPR/ATTENT   XE       12  TEST UNIT RESULTS VOID   NG
                           445+*  5  HARD EPROP FOUND      HE       13  OIO CC EPROP             IOCC
                           446+*  6  WRONG INTR LEVEL      $LE      14  NO INTEPRUPT             NOIN
                           447+*  7  NO INTP EXPECTED      NI       15  INTERRUPT CC ERROR       INCC
                           448+*                      BIT     HEX
000020                     449+MI    EQU   32      0       8       MYSTERY INTEPRUPT HAPPENED
000021                     450+ER    EQU   33      1       4       EPROR RECEIVED ON INTERRUPT
000022                     451+XI    EQU   34      2       2       EXPECTED INTEPRUPT CONTPOL BIT
000023                     452+IN    EQU   35      3       1       INTEPRUPT RECEIVED CONTPOL BIT
000024                     453+XE    EQU   36      4       8       EXPECTED ERROR RESPONSE
000025                     454+HE    EQU   37      5       4       HARD ERROR, 8 RETRIES
000026                     455+$LE   EQU   38      6       2       INTEPRUPT ON WRONG LEVEL EPPOR
000027                     456+NI    EQU   39      7       1       NO INTERRUPT EXPECTED E
000028                     457+CS    EQU   40      8       8       CYCLE STATUS IN PROGRESS
000029                     458+CSA   EQU   41      9       4       CYCLE STBAL AVAILABLE
00002A                     459+CE    EQU   42      10      2       CYCLE STEAL STATUS INEPPRUPT EPROP
00002B                     460+ISBON EQU   43      11      1       ISB BITS ON (1-7)
00002C                     461+NG    EQU   44      12      8       TEST UNIT RESULTS NO GOOD
00002D                     462+IOCC  EQU   45      13      4       OIO CC EPROP
00002E                     463+NOIN  EQU   46      14      2       NO INTERRUPT
00002F                     464+INCC  EQU   47      15      1       INTEPRUPT CC ERROR
                           465+*
                           466+*      COMMON BUFFER FOR PRINTING DATA
                           467+*
002604  0000               469+$TUID DC    A(*-*)                  TEST UNIT IDENTIFICATION
002606  0000               470+$IOIN DC    A(*-*)                  I/O AND INTP CONDITION CODES
002608  0000               471+$ISB  DC    A(*-*)                  R7, INTR STAIUS BYTE & DEV ADPS
00260A  0000               472+ISTIO DC    A(*-*)                  ADRS OF LAST I/O + 4 BYTES
00260C  0000               473+DEV1  DC    A(*-*)                  DEVICE DEPENDENT DATA
00260E  0000               474+DEV2  DC    A(*-*)                  *
002610  0000               475+DEV3  DC    A(*-*)                  *
002612  0000               476+DEV4  DC    A(*-*)                  *
00260C                     477+SCTID EQU   DEV1                    READ ID BUFFER FOR IBIS & TERN
002614                     478+DCBUF EQU   *                       DCB BUFFER FOR LAST DCB USED
002614  0000               479+DCB1  DC    A(*-*)                  LAST DCB TABLE, CONTROL WOPD
002616  0000               480+DCB2  DC    A(*-*)                  LAST DCB TABLE, DEV DEP WORD
002618  0000               481+DCB3  DC    A(*-*)                  LAST DCB TABLE, DEV DEP WORD
00261A  0000               482+DCB4  DC    A(*-*)                  LAST DCB TABLE, DEV DEP WORD
00261C  0000               483+DCB5  DC    A(*-*)                  LAST DCB TABLE, DEV DEP WOPD
00261E  0000               484+DCB6  DC    A(*-*)                  LAST DCB TABLE, CHAIN ADPS
002620  0000               485+DCB7  DC    A(*-*)                  LAST DCB TABLE, BYTE COUNT
002622  0000               486+DCB8  DC    A(*-*)                  LAST DCB TABLE, BUFFER ADDRESS
                           487+*
002624                     488+CSBUF EQU   *                       CYCLE STEAL DATA BUFFEP
002624  0000               489+CSTL1 DC    A(*-*)                  CYCLE STEAL BUFFEP, RESIDUAL ADRS
002626  0000               490+CSTL2 DC    A(*-*)                  CYCLE STEAL WD 2, DEVICE DEPEND
002628  0000               491+CSTL3 DC    A(*-*)                  CYCLE STEAL WD 3, DEVICE DEPEND
00262A  0000               492+CSTL4 DC    A(*-*)                  CYCLF STEAL WD 4, DEVICE DEPEND
00262C  0000               493+CSTL5 DC    A(*-*)                  CYCLE STEAL WD 5, DEVICE DEPEND
00262E  0000               494+CSTL6 DC    A(*-*)                  CYCLE STEAL WD 6, DEVICE DEPEND
002630  0000               495+CSTL7 DC    A(*-*)                  CYCLE STEAL WD 7, DEVICE DEPEND
002632  0000               496+CSTL8 DC    A(*-*)                  CYCLE STEAL WD 8, DEVICE DEPEND
                           497+*
002634  0000               498+$SUBN DC    A(*-*)                  LAST SUBPOUTINE ADDRESS USED
002636  00000000           499+$DATA DC    2A(*-*)                 OPTIONAL DATA
00263A  0021               500+$INTL DC    X'0021'                 INTEFRUPT LEVEL REQUESTED
00263C  0000               501+TURTN DC    A(*-*)                  TEST UNIT RETURN ADRS TO MDI
00263E  00B2               502+$DVID DC    X'00B2'                 DEVICE ID
002640  19D0               503+$VCAL DC    A(DEVADD)               ADPS OF DEVICE ADDRESS
002642  0000               504+      DC    A(*-*)                  IBIS CYLINDEP ADDRESS
                           505+*
                           506+*      THIS TEST UNIT WILL RETURN TO MDI WITHOUT DOING ANY PROGRAM
                           507+*      FUNCTION. THE RESULTS THAT WERE SET UP IN THE RESULTS AREA ARE
                           508+*      STILL VALID BUT A DIFFERENT TEST IS TO BE PERFORMED.
                           509+*
002644  4020 2604 3C02     510+T3C02 MVWI  X'3C02',$TUID             SET UP TEST UNIT ID
00264A  5700               511+      BXS   (R7)                      RETURN TO MDI SUPVR
                           513       COPY  COMEQU
                           514 ********************************************************************************
                           515 *                                                                              *
                           516 *                  EQUATED NAMES FOR SUPPORTED SVC'S                           *
                           517 *                                                                              *
                           518 ********************************************************************************
000000                     519 OUT   EQU   0                       OUT SVC
000001                     520 OUTIN EQU   1                       OUTIN SVC
000002                     521 IDLE  EQU   2                       IDLE SVC
000003                     522 ASCII EQU   3                       HEX TO ASCII SVC
000004                     523 CHNGE EQU   4                       CHANGE LEVEL SVC
000005                     524 PGMCK EQU   5                       ALLOW RETURN ON PROGRAM CHECK SVC
000006                     525 EXIT  EQU   6                       EXIT SVC
000007                     526 TERM  EQU   7                       TERMINATE SVC
000008                     527 RESET EQU   8                       RESET DEVICE SVC
000009                     528 RID   EQU   9                       READ ID SVC
00000A                     529 START EQU   10                      START CYCLE STEAL SVC
00000B                     530 STCSS EQU   11                      START CYCLE STEAL STATUS SVC
00000C                     531 PREP  EQU   12                      PREPARE DEVICE SVC
00000D                     532 READO EQU   13                      READ WITH FUNCTION BIT 3 OFF SVC
00000E                     533 READ1 EQU   14                      READ WITH FUNCTION BIT 3 ON SVC
00000F                     534 RSTAT EQU   15                      READ STATUS SVC
000010                     535 WRITO EQU   16                      WRITE WITH FUNCTION BIT 3 OFF SVC
000011                     536 WRIT1 EQU   17                      WRITE WITH FUNCTION BIT 3 ON SVC
000012                     537 CTRL  EQU   18                      CONTROL SVC
000013                     538 RICB  EQU   19                      RELEASE INTERUPT CONTROL BLOCK SVC
000014                     539 CICB  EQU   20                      CONNECT INTERUPT CONTROL BLOCK SVC
000015                     540 HIO   EQU   21                      HALT ALL I/O
000016                     541 REQSD EQU   22                      REQUEST USE OF DCP DISK SVC
000017                     542 RELSD EQU   23                      RELEASE USE OF DCP DISK SVC
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

000018                      543 HALT   EQU   24                    HALT SVC
000019                      544 BTOH   EQU   25                    EBCDIC TO HEX SVC (STRING)
00001A                      545 HTOE   EQU   26                    HEX TO EBCDIC SVC (STRING)
00001B                      546 ATOH   EQU   27                    ASCII TO HEX SVC (STRING)
00001C                      547 HTOA   EQU   28                    HEX TO ASCII SVC (STRING)
00001D                      548 ETOA   EQU   29                    EBCDIC TO ASCII SVC (STRING)
00001E                      549 ATOE   EQU   30                    ASCII TO EBCDIC SVC (STRING)
00001F                      550 TREADI EQU   31                    TREAD DATA SETS FOR MDI/UTIL
000020                      551 WRITTI EQU   32                    WRITE DATA SETS FOR UTIL
                            553 ********************************************************************************
                            554 *                                                                              *
                            555 *                    EQUATES USED BY TU'S AS CONSTANTS                         *
                            556 *                                                                              *
                            557 ********************************************************************************
00004E                      558 PLUS   EQU   C'+'                   PLUS CHAR
000060                      559 MINUS  EQU   C'-'                   MINUS CHAR
000000                      561 ZERO   EQU   0
000001                      562 ONE    EQU   1
000002                      563 TWO    EQU   2
000003                      564 THREE  EQU   3
000004                      565 FOUR   EQU   4
000005                      566 FIVE   EQU   5
000006                      567 SIX    EQU   6
000007                      568 SEVEN  EQU   7
000008                      569 EIGHT  EQU   8
000009                      570 NINE   EQU   9
00000A                      571 TEN    EQU   10
00000B                      572 ELEVN  EQU   11                                    11
00000C                      573 TWELV  EQU   12                                    12
00000D                      574 THRTN  EQU   13                                    13
00000F                      575 FIVTN  EQU   15                                    15
000010                      576 SIXTN  EQU   16                                    16
000020                      577 THRY2  EQU   32                                    32
000040                      578 SIXT4  EQU   64                                    64
000080                      579 ONE28  EQU   128                                   128
000100                      580 TWO56  EQU   256                                   256
000400                      581 ONEK   EQU   1024                                  1024
000800                      582 TWOK   EQU   2048                                  2048
000C00                      583 THREK  EQU   3072                                  3072
001000                      584 FOURK  EQU   4096                                  4096
FFFFFF                      586 M1     EQU   -1                                    -1
FFFFFE                      587 M2     EQU   -2                                    -2
FFFFFD                      588 M3     EQU   -3                                    -3
FFFFFC                      589 M4     EQU   -4                                    -4
                            591 ********************************************************************************
                            592 *                                                                              *
                            593 *     THE FOLLOWING ARE EQUATES FOR BIT DISPLACEMENTS FROM THE                 *
                            594 *     BEGINNING OF THE BYTE TO EACH BIT IN THE WORD OF SWITCHES.               *
                            595 *                                                                              *
                            596 ********************************************************************************
000000                      597 BS0    EQU   0
000001                      598 BS1    EQU   1
000002                      599 BS2    EQU   2
000003                      600 BS3    EQU   3
000004                      601 BS4    EQU   4
000005                      602 BS5    EQU   5
000006                      603 BS6    EQU   6
000007                      604 BS7    EQU   7
000008                      605 BS8    EQU   8
000009                      606 BS9    EQU   9
00000A                      607 BS10   EQU   10
00000B                      608 BS11   EQU   11
00000C                      609 BS12   EQU   12
00000D                      610 BS13   EQU   13
00000E                      611 BS14   EQU   14
00000F                      612 BS15   EQU   15
                            614       COPY  T7802                  01DEC76
                            615 T7802 TUIT T02R
                            616+*************************************************************06FEB76**
                            617+*
                            618+* TEST UNIT
                            619+*
                            620+*     SEEK AND CHAINING TEST                                        5/18/77
                            621+*
                            622+* PURPOSE
                            623+*
                            624+*     VERIFY THE FOLLOWING:
                            625+*     1. SEEK AND VERIFY SECTOR ID FOR ALL TRACKS.
                            626+*
                            627+* CALLING SEQUENCE
                            628+*
                            629+*     PERFORM THE FOLLOWING:
                            630+*     .
                            631+*     1. SEEK RECALIBRATE AND VERIFY TRACK EQUALS ZERO0.
                            632+*     2. SEEK TO ALL CYLINDERS ALTERNATELY (302,1,301,2,300,3,ETC).
                            633+*     3. READ SECTOR ID AND VERIFY THAT SEEK WAS PERFORMED CORRECTLY.
                            634+*     PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
                            635+*     .
                            636+*     .      TURESUL BIT 0------------NOT USED
                            637+*     .      TURESUL BIT 1------------NOT USED
                            638+*     .      TURESUL BIT 2------------NOT USED
                            639+*     .      TURESUL BIT 3------------NOT USED
                            640+*     .
                            641+*     .      TURESUL BIT 4------------NOT USED
                            642+*     .      TURESUL BIT 5------------ NOT USED
                            643+*     .      TURESUL BIT 6------------NOT USED
                            644+*     .      TURESUL BIT 7------------ NOT USED
                            645+*     .
                            646+*     .      TURESUL BIT 8------------NOT USED
                            647+*     .      TURESUL BIT 9------------ NOT USED
                            648+*     .      TURESUL BIT 10----------- RECALIBRATE FAILURE
                            649+*     .      TURESUL BIT 11----------SEEK FAILURE
                            650+*     .
                            651+*     .      TURESUL BIT 12----------READ ID FAILURE
                            652+*     .      TURESUL BIT 13----------SEEK & READ ID FAILURE (CHAINING)
                            653+*     .      TURESUL BIT 14---------- TRACK ZERO0 HAS DEFECTIVE SECTOR
                            654+*     .      TURESUL BIT 15---------- OIO CC EPROP
                            655+*     .
                            656+*     .      TURESUL BIT 16-31 ------ CYCLE STEAL STATUS FOR FAILING OP
                            657+*     .      TURESUL BIT 32-47 ------ CC - 32-39 OIO CC,40-47 INT CC
                            658+*     .      TURESUL BIT 47-63 ------ IBS
                            659+*     .      TURESUL BIT 64-79 ------ OPTION WORD 3 (ERROR INDICATORS)
                            660+*     .
                            661+*
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

                            662+* RETURN CONTPOL
                            663+*
                            664+*      B      TUPTN*                 PETUPN TO MDI SUPERVISOR
                            665+*
                            666+*************************************************************************
002640  6F0D 263C           667+T7802  MVW    P7,TUPTN               SAVE RETURN ADDRESS
002650  4020 2604 7802      668+       MVWI   X'7802',$TUID          SAVE TU ID FOR DISPLAY
002656  4A20 25FE           669+       MVA    OPTN1,R4               SET UP POINTEP ADRS IN R4
00265A  6E03 3130           670+       BAL    $CONC,R6               CLEAP DEV DEP STG AND CONNECT I/O BL
00265E  2736                671+       DC     A(T02EP)               EPROP ADPS FOR INVALID PREP
                            672+*
002660  CA25 18C8           673        MVWZ   TUPESUL,R2             CLEAR PESULTS WOPD
002664  CA25 18CA           674        MVWZ   TURESUL+2,R2           CLEAR RESULTS WORD 2
002668  CA25 18CC           675        MVWZ   TURESUL+4,R2           CLEAR RESULTS WORD 3
00266C  CA25 18CE           676        MVWZ   TURESUL+6,R2           CLEAR RESULTS WORD 4
002670  CA25 18D0           677        MVWZ   TUPESUL+8,R2           CLEAP PESULTS WOPD 5
002674  4124 18C8           678        MVA    TUPESUL,R1             ADDRESS OF RESULTS
002678  6E03 2F56           679 RT210  BAL    $RECL,R6               RECALIBPATE
00267C  274E                680        DC     A(T02ER)               EPROP
00267E  4CA1                681        TBTR   (R4,EP)                INTERRUPT ERROR?
002680  1250                682        JON    T02A                   YES
002682  4020 2D52 0005      683        MVWI   X'0005',SKDCB          SEEK CONTROL WORD- NO CHAINING
002688  4020 2D54 0000      684        MVWI   0,SKDCB+2              DIRECTION, DIFFERENCE
00268E  4020 2D5A 0000      685        MVWI   0,SKDCB+8              HEAD 0
002694  4224 19D4           686        MVA    DEVADD+4,R2            TEST FOR VTL OR DUTCHESS
002698  4A0C                687        TBT    (R2,12)                *
00269A  1204                688        JON    T7888                  JUMP IF DUTCHESS
00269C  4020 2D5C 2D32      689        MVA    RSDCB,SKDCB+10         RD SECT ID CHAINING ADDPESS
0026A2  5003                690        J      T7777
0026A4  4020 2D5C 2D42      691 T7888  MVA    PIDCB,SKDCB+10         PD SECT ID IMMEDIATE CHAINING ADDPESS
0026AA  4020 2D32 200A      692 T7777  MVWI   X'200A',RSDCB          PD SECTOP ID CONTPOL WORD
0026B0  4020 2D36 3B00      693        MVWI   X'3B00',RSDCB+4        PHYSICAL SECTOR 0,LOG#0
0026B6  6E03 2F4E           694        BAL    $SEEK,R6               SEEK NOOP,SELECT HEAD 0
0026BA  274E                695        DC     A(T02ER)               EPROP
0026BC  4CA1                696        TBTP   (R4,EP)                INTEPRUPT EPPOP?
0026BE  1233                697        JON    T02B                   YES
0026C0  6E03 2F5E           698        BAL    $RDID,R6               READ SECTOR ID
0026C4  274E                699        DC     A(T02EP)               EPROP
0026C6  4CA1                700        TBTP   (R4,EP)                INTERRUPT EPROP?
0026C8  1230                701        JON    T02C                   YES
0026CA  802B 2DC2 260D      702        CB     ZEP00,SCTID+1          CK IF FLAG IS ZERO0
0026D0  6801 27D4           703        BNE    PT201                  BCH IF FLAG NOT ZEP00 (TPK 0 DEFECT)
0026D4  402F 260E 0000      704        CWI    0,SCTID+2              CK FOP TRACK ZEP00
0026DA  187B                705        JNE    RTY22                  RECAL FAILURE - TRACK NOT ZERO0
0026DC  4020 2DD0 012E      706        MVWI   302,DIFF               MAX DIFFEPNCE
0026E2  4020 2DD2 0000      707        MVWI   0,XXX                  INIT 'XXX'=TRACK NUM IN PEVEP DIR
0026E8  4C9F                708        TBTR   (P4,B63)               CLEAR INDICATORS
0026EA  4020 2D52 8005      709        MVWI   X'8005',SKDCP          SEEK CONTROL WORD- CHANING
0026F0  4CDF                710 LOOP1  TBTV   (P4,B63)               TEST AND INVEPT DIRECTION PIT
0026F2  120B                711        JN     SKPV                   BCH NEG - BCH IF PEV BIT ON
0026F4  6A08 2DD2           712        MVW    XXX,R2                 MOVE CONTENTS OF 'XXX' IN R2
0026F8  6A0E 2DD0           713        AW     DIFF,R2                SEEK DIFFERENCE PLUS 'XXX'
0026FC  4020 2D5A 0000      714        MVWI   0,SKDCB+8              SELECT HEAD ZEP00
002702  A828 2DC4 2DD2      715        AW     ONE1,XXX               ONE   PLUS 'XXX'
002708  5024                716        J      GO1
00270A                      717 SKPV   EQU    *
00270A  6A08 2DD2           718        MVW    XXX,R2
00270E  8828 2DD0 2D54      719        MVW    DIFF,SKDCB+2           LOAD DIFFERENCE IN DCB
002714  402C 2D54 0800      720        OWI    X'0800',SKDCB+2        TUPN ON PEVERSE BIT
00271A  4020 2D5A 0100      721        MVWI   X'0100',SKDCB+8        SELECT HEAD ONE
002720  501E                722        J      RT205
                            723 *
002722  494A                724 T02A   TBTS   (R1,10)                RECALIBRATE FAILURE
002724  5058                725        J      FINS
002726  494B                726 T02B   TBTS   (R1,11)                SEEK FAILURE
002728  5056                727        J      FINS
00272A  494C                728 T02C   TBTS   (R1,12)                READ ID FAILURE
00272C  5054                729        J      FINS
00272E  494D                730 T02D   TBTS   (R1,13)                SEEK & READ ID FAILUPE -CHAINING
002730  5052                731        J      FINS
002732  494E                732 $EP$   TBTS   (R1,14)                 TRACK ZERO  DEFECTIVE
002734  5050                733        J      FINS
002736  CA25 18C8           734 T02R   MVWZ   TURESUL,R2              CLEAR RESULTS WORD
00273A  CA25 18CA           735        MVWZ   TURESUL+2,R2           CLEAR RESULTS WORD 2
00273E  CA25 18CC           736        MVWZ   TURESUL+4,R2           CLEAR RESULTS WORD 3
002742  CA25 18CE           737        MVWZ   TURESUL+6,R2           CLEAR RESULTS WORD 4
002746  CA25 18D0           738        MVWZ   TUPESUL+8,R2           CLEAR RESULTS WORD 5
00274A  4124 18C8           739        MVA    TURESUL,P1             ADDRESS OF RESULTS
00274E  494F                740 T02ER  TBTS   (R1,15)                OIO CC ERROR
002750  5042                741        J      FINS
                            742 *
002752                      743 GO1    EQU    *
002752  8828 2DD0 2D54      744        MVW    DIFF,SKDCB+2           SETUP SEEK DIFFERENCE
002758  402D 2D54 0800      745        RBTWI  X'0800',SKDCB+2        TURN ON FOR DIRECTION BIT
00275E                      746 RT205  EQU    *
00275E  4020 2DE0 001E      747        MVWI   30,LGSEC               SETUP LOG SECT EQUAL 1E
002764  6E03 2EFC           748        BAL    CONVT,R6               CONVERT TO PHYSICAL - 1
002768  8028 2DE3 2D36      749        MVB    PHYSC+1,RSDCB+4        LOAD PHY SECT IN RD SEC DCB
00276E                      750 RT209  EQU    *
00276E  6E03 2F4E           751        BAL    $SEEK,R6               SEEK & READ SECTOR ID
002772  274E                752        DC     A(T02ER)               EPROP
002774  4CA1                753        TBTR   (R4,EP)                INTEPRUPT EPPOP?
002776  12DB                754        JON    T02D                   YES
002778  802B 2DC2 260D      755        CB     ZERO0,SCTID+1          CK IF FLAG BYTE IS ZERO0
00277E  101D                756        JE     RT204
002780                      757 RT207  EQU    *
002780  802B 2DC5 260D      758        CB     ONE1+1,SCTID+1         CK FOR GOOD ALTER SECTOR (CYL 1)
002786  1804                759        JNE    RT203                  BCH IF GOOD ALT. SECT NOT FOUND
002788                      760 RT206  EQU    *
002788  CA24 2DC4           761        CW     ONE1,R2                CHECK FOR CYLINDEP ONE1
00278C  1019                762        JE     RT208
00278E  50CD                763        J      T02C                   READ ID ERROR-INVALID FLAG
002790                      764 RT203  EQU    *
002790  402F 2DE0 003A      765        CWI    58,LGSEC               CK FOR PHYSICAL SECTOP #59
002796  10C9                766        JE     T02C                   ALL TRACKS DEFECTIVE (SIDE 0)
002798  4029 2DE0 0001      767        AWI    1,LGSEC                UPDATE LOG SECT#
00279E  6E03 2EFC           768        BAL    CONVT,R6               CONVERT TO PHYSICAL SECT# - 1
0027A2  8028 2DE3 2D36      769        MVB    PHYSC+1,RSDCB+4        LOAD DCB
0027A8  6E03 2F5E           770        BAL    $RDID,R6               READ SECTOR ID
0027AC  274E                771        DC     A(T02ER)               EPROP
0027AE  4CA1                772        TBTR   (R4,EP)                INTERRUPT ERROR?
0027B0  12BC                773        JON    T02C                   YES
0027B2  802B 2DC2 260D      774        CB     ZERO0,SCTID+1          CK FOR FLAG BYTE EQUAL ZERO0
0027B8  18EB                775        JNE    RT203                  FLAG IS NON-ZERO0
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

0027BA                     776 RT204 EQU  *
0027BA  CA24 260E          777       CW   SCTID+2,R2          COMPARE CYL # TO CALCULATED #
0027BE  18B7               778       JNE  T02D                SECTOR ID DOES NOT MATCH,SEEK ERROR
0027C0                     779 RT208 EQU  *
0027C0  A829 2DC4 2DD0     780       SW   ONE1,DIFF           SEEK DIFFERENCE - ONE1
0027C6  402F 2DD0 0000     781       CWI  0,DIFF              CHECK FOR END OF TEST
0027CC  1012               782       JE   T2END               CKECK LOOP ROUTINE
0027CE  6802 26F0          783       B    LOOP1
0027D2  50A7               784 RTY22 J    T02A
0027D4  50AE               785 RT201 J    $ER$
                           786 *
                           787 *
0027D6  8828 2626 18CA     788 FINS  MVW  CSTL2,TURESUL+2     CYCLE STEAL STATUS FOR FAILING OP
0027DC  8828 2606 18CC     789       MVW  $IOIN,TURESUL+4     CONDITION CODES
0027E2  8828 2608 18CE     790       MVW  $ISB,TURESUL+6      ISB
0027E8  8828 2602 18D0     791       MVW  OPTN3,TURESUL+8     OPTION WORD 3 (ERROR INDICATORS)
                           792       TXIT
0027EE  6802 31B4          793+       B    $CONX               RETURN TO MDI CONTROLLER
                           794+*************************************************************************
0027F2  6E03 2F56          795 T2END BAL  $RECL,R6            RECALIBRATE
0027F6  274E               796       DC   A(T02ER)            ERROR
0027F8  4CA1               797       TBTR (R4,ER)             INTERRUPT ERROR?
0027FA  1293               798       JON  T02A                YES
                           799       TXIT
0027FC  6802 31B4          800+       B    $CONX               RETURN TO MDI CONTROLLER
                           801+*************************************************************************
                           802 *
                           803       COPY T7850               01DEC76
                           804 T7850 TUIT $ERR$
                           805+*************************************************************06FEB76**
                           806+*
                           807+* TEST UNIT
                           808+*
                           809+*     TU50  READ ID TEST                                          1/07/77
                           810+*
                           811+* PURPOSE
                           812+*
                           813+*     FUNCTION:
                           814+*     .
                           815+*     .   PROGRAM INITIALIZES ATTACHMENT.
                           816+*     .   RECALIBRATE
                           817+*     .   READ ID'S ON CYL 2 AND CYL 3 PER PARM 1&2 (PARM1 MUST BE ZERO)
                           818+*     .   COMPARE ID'S READ WITH EXPECTED ID'S
                           819+*     .   STORE ID COMPARE RESULTS FOR PASS 1
                           820+*     .   REREAD ALL ID'S ON TRACK 2 AND TRACK 3
                           821+*     .   COMPARE ID'S READ WITH EXPECTED ID-COMPARE ERROR CTN RESULTS
                           822+*     .   FROM PASS 1 FOR CONSISTENCY
                           823+*     .   STORE THREE INFO BYTES FOR MDI
                           824+*     .
                           825+*
                           826+* CALLING SEQUENCE
                           827+*
                           828+*     PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
                           829+*     .      TURESUL BIT 0----NOT USED
                           830+*     .      TURESUL BIT 1----UNSAFE
                           831+*     .      TURESUL BIT 2----NOT USED
                           832+*     .      TURESUL BIT 3----NOT USED
                           833+*     .
                           834+*     .      TURESUL BIT 4----NOT USED
                           835+*     .      TURESUL BIT 5----NOT USED
                           836+*     .      TURESUL BIT 6----NO RECORD FOUND
                           837+*     .      TURESUL BIT 7----SYNC CHECK OR FILE DATA CHECK
                           838+*     .
                           839+*     .      TURESUL BIT 8----ATTACHMENT BUFFER PARITY CHECK
                           840+*     .      TURESUL BIT 9----NOT USED
                           841+*     .      TURESUL BIT 10---ERROR OTHER THAN SYNC OR FILE DATA CHECK
                           842+*     .      TURESUL BIT 11---FAILURES NOT CONSISTENT
                           843+*     .
                           844+*     .      TURESUL BIT 12---ERRORS ON READ ID - HEAD 0
                           845+*     .      TURESUL BIT 13---SOLID FAILURE HEAD 0 - READ ID
                           846+*     .      TURESUL BIT 14---ERRORS ON READ ID - HEAD 1
                           847+*     .      TURESUL BIT 15---SOLID FAILURE HEAD 1 - READ ID
                           848+*     .
                           849+*     .      TURESUL BIT 16---SOLID FAILURE HEAD 0 (ID MISCOMPARE)
                           850+*     .      TURESUL BIT 17---SOLID FAILURE HEAD 1 (ID MISCOMPARE)
                           851+*     .      TURESUL BIT 18---MISCOMPARES ON HEAD 0
                           852+*     .      TURESUL BIT 19---MISCOMPARES ON HEAD 1
                           853+*     .
                           854+*     .      TURESUL BIT 20---INTERRUPT
                           855+*     .      TURESUL BIT 21---RECAL
                           856+*     .      TURESUL BIT 22---SEEK
                           857+*     .      TURESUL BIT 23---NOT USED
                           858+*     .
                           859+*     .      TURESUL BITS 24-31 NOT USED
                           860+*     .      TURESUL BITS 32-47 CS STATS FOR FAILING OP
                           861+*
                           862+*    EXITS NORMAL
                           863+*     .      RETURNS TO MDI SUPERVISOR WHEN DONE.
                           864+*     .
                           865+*    EXITS ERROR
                           866+*     .      RETURNS TO MDI SUPERVISOR.
                           867+*
                           868+* RETURN CONTROL
                           869+*
                           870+*       B     TURTN*                 RETURN TO MDI SUPERVISOR
                           871+*
                           872+*************************************************************************
002800  6E0D 263C          873+T7850  MVW   R7,TURTN               SAVE RETURN ADDRESS
002804  4020 2604 7850     874        MVWI  X'7850',STUID         SAVE TU ID FOR DISPLAY
00280A  4424 25FE          875+       MVA   OPTN1,R4              SET UP POINTER ADRS IN R4
00280E  6E03 3130          876+       BAL   $CONC,R6              CLEAR DEV DEP STG AND CONNECT I/O BL
002812  3164               877+       DC    A($EPF$)              ERROR ADRS FOR INVALID PREP
                           878+*
002814  C020 0232          879        MVB   CPUID,P0              DETERMINE TYPE OF PROCESSOR
002818  F025               880        CBI   37,R0                 *
00281A  1807               881        JNE   T50TC                 JUMP IF NOT 4955
00281C  4020 2892 254C     882        MVWI  X'254C',T50T1+2       LOAD TIME CONSTANT FOR 2 SEC
002822  4020 296A 254C     883        MVWI  X'254C',T50T3+2       LOAD TIME CONSTANT FOR 2 SEC
002828  5006               884        J     T50T2
00282A  4020 2892 0C0E     885 T50TC  MVWI  X'0C0E',T50T1+2       (4953) LOAD TIME CONS FOR 2 SEC
002830  4020 296A 0C0E     886        MVWI  X'0C0E',T50T3+2       LOAD TIME CONSTANT FOR 2 SEC
002836  4020 2E36 0000     887 T50T2  MVWI  0,PASS1               INIT PASS COUNTER
00283C  4C9C               888        TBTP  (P4,B60)              INIT CYL 2 FLAG
00283E  4020 2E44 0000     889        MVWI  0,HD0SV               INIT HEAD 0 SAVE COMP ERR CTR
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

002844  4020 2E46 0000     890        MVWI  0,HD1SV               INIT HEAD 1 SAVE COMP ERR CTR
00284A  4020 2E48 0000     891        MVWI  0,ER0SV               INIT HEAD 0 SAVE ERR COUNTER
002850  4020 2E4A 0000     892        MVWI  0,ER1SV               INIT HEAD 1 SAVE ERR COUNTER
002856  CA25 18C8          893        MVWZ  TURESUL,R2            CLEAR RESULTS WORD
00285A  CA25 18CA          894        MVWZ  TURESUL+2,R2          CLEAR RESULTS WORD
00285E  CA25 18CC          895        MVWZ  TURESUL+4,R2          CLEAR RESULTS WORD 2
002862  4224 18C8          896        MVA   TURESUL,R2            ADDRESS OF RESULTS
002866  4020 2E38 0000     897 T50U   MVWI  0,HEAD0               INIT HEAD ZERO MISCOMPARE COUNTER
00286C  4020 2E3A 0000     898        MVWI  0,HEAD1               INIT HEAD ONE MISCOMPARE COUNTER
002872  4020 2E3C 0078     899        MVWI  120,GDSE0             INIT GOOD SECTOR EQUAL 120
002878  4020 2E3E 0078     900        MVWI  120,GDSE1             INIT GOOD SECTOR EQUAL 120
00287E  4020 2E40 0000     901        MVWI  0,ER00                INIT HEAD 0 ERROR COUNTER
002884  4020 2E42 0000     902        MVWI  0,ER01                INIT HEAD 1 ERROR CUNTER
00288A  4724 311C          903        MVA   IOBLK,R7              SETUP IOBLK
00288E  6008               904        SVC   RESET                 ISSUE IO RESET
002890  4024 0000          905 T50T1  MVWI  X'0000',R0            TIME OUT 2 SEC
002894  6002               906 T750   SVC   IDLE                  *
002896  B8FE               907        JCT   T750,R0               *
002898  6E03 2F56          908        BAL   $RECL,R6              RECALIBRATE
00289C  3164               909        DC    A($EPF$)              ERROR
00289E  4CA1               910        TBTR  (R4,ER)               INTERRUPT ERROR?
0028A0  6A00 2AC0          911        BON   T50AA                 YES
0028A4  4020 2D52 0005     912        MVWI  5,SKDCB               SEEK CONTROL WORD
0028AA  4020 2D54 0002     913        MVWI  2,SKDCB+2             SEEK TO CYL 2
0028B0  8038 189A 2D5A     914        MVB   TUPARM1*,SKDCB+8      SELECT HEAD (PARM1)
0028B6  6E03 2F4E          915        BAL   $SEEK,R6              *
0028BA  3164               916        DC    A($ERR$)
0028BC  4CA1               917        TBTR  (R4,ER)               INTERRUPT ERROR?
0028BE  6A00 2ACC          918        BON   T50BB                 YES
0028C2  4020 2D32 200A     919        MVWI  X'200A',RSDCB         RD SECT ID CONTROL WORD
0028C8  4020 2DE0 0000     920 T50G   MVWI  0,LGSEC              SET UP LOG SECT# TO ZERO
0028CE  6E03 1EFC          921 T50E   BAL   CONVT,R6              CONVERT SECT # FROM LOGICAL TO PHYSC
0028D2  8028 2DE3 2D36     922        MVB   PHYSC+1,RSDCB+4       LOAD DCB
0028D8  6E03 2A46          923        BAL   RDID,R6               READ ID SUBROUTINE
0028DC  402F 260C FFFF     924        CWI   X'FFFF',SCTID         DID WE READ AN ID INTO STORAGE?
0028E2  1012               925        JE    T50J                  NO-FORCE MISCOMPARE COUNT
0028E4  802B 2DC2 260D     926        CB    ZERO0,SCTID+1          FLAG ZERO ?
0028EA  6801 2AA4          927        BNE   T50A                  FLAG NOT ZERO
0028EE  802B 2DE1 2611     928        CB    LGSEC+1,SCTID+5       COMPARE SECT # TO EXPECTED #
0028F4  1909               929        JNE   T50J                  NO - MISCOMPARE
0028F6  882B 2D54 260E     930        CW    SKDCB+2,SCTID+2       CYL# COMPARE
0028FC  1805               931        JNE   T50J                  NO
0028FE  802B 2D5A 2610     932        CB    SKDCB+8,SCTID+4       HEAD# COMPARE
002904  1801               933        JNE   T50J
002906  500B               934        J     T50B
002908  802B 2DC2 2D5A     935 T50J   CB    ZERO0,SKDCB+8          HEAD 0 ?
002908  1004               936        JE    T50C                  YES
002910  4029 2E3A 0001     937        AWI   1,HEAD1                INC HEAD 1 COUNTER
002916  5003               938        J     T50B
002918  4029 2E38 0001     939 T50C   AWI   1,HEAD0                INC HEAD 0 COUNTER
00291E  402F 2DE0 003B     940 T50B   CWI   59,LGSEC               60 SECTORS READ ?
002924  6800 2930          941        BE    T50D                  YES
002928  4029 2DE0 0001     942        AWI   1,LGSEC               INC SECT #
00292E  500F               943        J     T50E
002930  802B 2DC2 2D5A     944 T50D   CB    ZERO0,SKDCB+8          HEAD 0
002936  1813               945        JNE   T50F                  NO
002938  8028 2D55 2D5B     946        MVB   SKDCB+3,SKDCB+9       SAVE DIFFERENCE
00293E  4020 2D54 0000     947        MVWI  0,SKDCB+2             NO-OP
002944  8038 189C 2D5A     948        MVB   TUPARM2*,SKDCB+8      SELECT HEAD (PARM2)
00294A  6E03 2F4E          949        BAL   $SEEK,R6              SELECT HEAD
00294E  3164               950        DC    A($ERR$)
002950  4CA1               951        TBTP  (P4,ER)               INTERRUPT ERROR?
002952  6A00 2ACC          952        BON   T50BB                 ERROR
002956  8028 2D5F 2D55     953        MVB   SKDCB+9,SKDCB+3       RESTORE DIFFERENCE IN SEEK DCB
00295C  50B5               954        J     T50G                  READ ID WITH HEAD ONE
00295E  4C9C               955 T50F   TBTP  (P4,B60)              CYL 2 & 3 READ?
002960  1218               956        JON   T50H                  YES
002962  4724 311C          957        MVA   IOBLK,R7              DEVICE RESET
002966  6008               958        SVC   RESET                 *
002968  4024 0000          959 T50T3  MVWI  X'0000',R0            TIME OUT 2 SEC
00296C  6002               960 TTT5   SVC   IDLE                  *
00296E  B8FE               961        JCT   TTT5,P0               *
002970  4C5C               962        TBTS  (R4,B60)              SET CYL 3 FLAG ON
002972  4020 2D54 0001     963        MVWI  1,SKDCB+2             FWD SEEK TO TRACK 3
002978  8038 189A 2D5A     964        MVB   TUPARM1*,SKDCB+8      SELECT HEAD 0 (PARM1)
00297E  6E03 2F4E          965        BAL   $SEEK,R6              SEEK TO CYL 3
002982  3164               966        DC    A($ERR$)
002984  4CA1               967        TBTR  (R4,ER)               ANY ERRORS
002986  6A00 2ACC          968        BON   T50BB                 ERROR
00298A  4020 2D54 0003     969        MVWI  3,SKDCB+2             SET UP FOR CYL 3
002990  509B               970        J     T50G                  LOOP
002992  402F 2E36 0001     971 T50H   CWI   1,PASS1               PASS - TWO ?
002998  1045               972        JE    T50I                  YES
00299A  402F 2E40 0000     973        CWI   0,ER00                HEAD 0 READ ERROR CTR 0 ?
0029A0  1006               974        JE    T50L
0029A2  4A4C               975        TBTS  (R2,12)               SET ERRORS ON RD ID HEAD 0
0029A4  882B 2E3C 2E40     976        CW    GDSE0,ER00            HEAD 0 RD ERRORS = GOOD SECT CTR ?
0029AA  1801               977        JNE   T50L                  NO
0029AC  4A4D               978        TBTS  (R2,13)               SOLID FAILURE HEAD 0
0029AE  402F 2E38 0000     979 T50L   CWI   0,HEAD0               HEAD 0 MISCOMPARE CTR = 0
0029B4  1006               980        JE    T50M
0029B6  4A52               981        TBTS  (R2,18)               MISCOMPARES ON HEAD 0
0029B8  882B 2E3C 2E38     982        CW    GDSE0,HEAD0           MISCOMPARES ON HD 0 = GOOD SECT CTR
0029BE  1801               983        JNE   T50M
0029C0  4A50               984        TBTS  (R2,16)               SOLID FAILURES ON HEAD 0
0029C2  8828 2E38 2E44     985 T50M   MVW   HEAD0,HD0SV           SAVE MISCOMPARE
0029C8  8828 2E40 2E48     986        MVW   ER00,ER0SV             SAVE PD ERRORS
0029CE  402F 2E42 0000     987        CWI   0,ER01                HEAD 1 RD ERRORS = 0
0029D4  1006               988        JE    T50N
0029D6  4A4E               989        TBTS  (R2,14)               EPFOPS ON RD ID HEAD 1
0029D8  882B 2E3E 2E42     990        CW    GDSE1,ER01            HD 1 PD EPFORS = GOOD SECT CTR
0029DE  1801               991        JNE   T50N                  NO
0029E0  4A4F               992        TBTS  (P2,15)               SOLID FAILURES HEAD 1
0029E2  402F 2E3A 0000     993 T50N   CWI   0,HEAD1               HEAD 1 MISCOMPARE CTP = 0
0029E8  1006               994        JE    T50R                  YES
0029EA  4A53               995        TBTS  (P2,19)               MISCOMPARE ON HEAD 1
0029EC  882B 2E3E 2E3A     996        CW    GDSE1,HEAD1           MISCOMPARES ON HD1 = GOOD SECT CTP
0029F2  1801               997        JNE   T50R                  NO
0029F4  4A51               998        TBTS  (R2,17)               SOLID FAILURES HD1 (ID MISCOMPARES)
0029F6  8828 2E3A 2E46     999 T50P   MVW   HEAD1,HD1SV           SAVE MISCOMPARE CTR
0029FC  8828 2E42 2E4A    1000        MVW   ER01,ER1SV
002A02  402F 2E38 0000    1001        CWI   0,HEAD0               MISCOMPARE CTR FOR HD0 = 0
002A08  1808              1002        JNE   T50S                  NO
002A0A  402F 2E3A 0000    1003        CWI   0,HEAD1               MISCOMPARE CTR FOR HD1 = 0
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

002A10  1804                1004         JNE   T50S                NO
002A12  802B 2DC2 18C9      1005         CB    ZER00,TURESUL+1     MDI BYTE 2 = 0
002A18  105B                1006         JE    T50T                EXIT
002A1A  4029 2E36 0001      1007 T50S    AWI   1,PASS1             INC PASS CTP
002A20  6802 2866           1008         B     T50U                GO EXECUTE PASS 2
                            1009 *
                            1010 *
002A24  882B 2E48 2E40      1011 T50I    CW    ER0SV,ER00          HD 0 CTR PASS1 = HD0 CTR PASS2 ?
002A2A  1001                1012         JE    T50W                YES
002A2C  4A4B                1013         TBTS  (R2,11)             FAILURES NOT CONSISTENT
002A2E  882B 2E44 2E38      1014 T50W    CW    HD0SV,HEAD0         HD0 CTR PASS1 = HD0 CTR PASS2 ?
002A34  1001                1015         JE    T50X                YES
002A36  4A4B                1016         TBTS  (R2,11)             FAILURES NOT CONSISTENT
002A38  882B 2E4A 2E42      1017 T50X    CW    ER1SV,ER01          HD1 CTRS PASS1 = HD0 CTRS PASS 2 ?
002A3E  1001                1018         JE    T50Y                YES
002A40  4A4B                1019         TBTS  (R2,11)             FAILURES NOT CONSISTENT
002A42  6802 2AD0           1020 T50Y    B     T50T                EXIT
                            1021 *
002A46  6E0D 2A9C           1022 RDID    MVW   R6,T500+2           SETUP RETURN ADDRESS
002A4A  6E03 2F5E           1023         BAL   $RDID,R6            READ ID
002A4E  3164                1024         DC    A($ERR$)            ERROP
002A50  4CA1                1025         TBTR  (R4,ER)
002A52  1023                1026         JOFF  T500
002A54  4CA9                1027         TBTR  (R4,CSA)            CYCLE STEAL STATS ?
002A56  6800 3164           1028         BOFF  $ERR$               ERROR
002A5A  8828 2626 2E50      1029         MVW   CSBUF+2,STATS       GET CS STATS
002A60  4524 2E50           1030         MVA   STATS,R5
002A64  4D83                1031         TBTR  (R5,3)              NO RECOFD FOUND
002A66  1218                1032         JON   T501                YES
002A68  4D87                1033         TBTR  (R5,7)              UNSAFE
002A6A  1219                1034         JON   T502                YES
002A6C  4D81                1035         TBTR  (R5,1)              SYNC CHECK
002A6E  1207                1036         JON   T503                YES
002A70  4D88                1037         TBTR  (R5,8)              FILE DATA OK ?
002A72  1205                1038         JON   T503                YES
002A74  4D8E                1039         TBTR  (R5,14)             BUFFER PARITY OK
002A76  1001                1040         JOFF  T504                NO
002A78  4A48                1041         TBTS  (R2,8)              ATTACH BUFFER PARITY
002A7A  4A4A                1042 T504    TBTS  (R2,10)             EPROP OTHEP THAN SYNC ON FILE D CK
002A7C  5001                1043         J     T505
002A7E  4A47                1044 T503    TBTS  (R2,7)              SYNC OR FILE DATA CHECK
002A80  402F 2D5A 0000      1045 T505    CWI   0,SKDCB+8           HEAD 0
002A86  1004                1046         JE    T506                YES
002A88  4029 2E42 0001      1047         AWI   1,ER01              INC HD1 READ ERROR CTR
002A8E  5005                1048         J     T500                RETURN
002A90  4029 2E40 0001      1049 T506    AWI   1,ER00              INC HD0 READ ERROR CTP
002A96  5001                1050         J     T500
002A98  4A46                1051 T501    TBTS  (R2,6)              NO RECORD FOUND
002A9A  6802 0000           1052 T500    B     *-*                 RETURN TO CALLEP
                            1053 *
                            1054 *
002A9E  4A41                1055 T502    TBTS  (R2,1)              UNSAFE
002AA0  6802 2AD0           1056         B     T504                EXIT
002AA4  402F 2D5A 0000      1057 T50A    CWI   0,SKDCB+8           USING HEAD 0
002AAA  1805                1058         JNE   T507                NO
002AAC  402E 2E3C 0001      1059         SWI   1,GDSE0             DEC GOOD SECT CTR (HEAD0)
002AB2  6802 291E           1060         B     T50B
002AB6  402E 2E3E 0001      1061 T507    SWI   1,GDSE1             DEC GOOD SECT CTR (HEAD1)
002ABC  6802 291E           1062         B     T50B
002AC0  4A55                1063 T50AA   TBTS  (R2,21)             RECAL
002AC2  4A54                1064 T50CC   TBTS  (P2,20)             INTERPUPT
002AC4  8828 2626 18CC      1065         MVW   CSBUF+2,TURESUL+4
002ACA  5002                1066         J     T50T
002ACC  4A56                1067 T50BB   TBTS  (R2,22)             SEEK
002ACE  50F9                1068         J     T50CC
                            1069 T50T    TXIT                      EXIT
002AD0  6802 31B4           1070+T50T    B     $CONX               RETURN TO MDI CONTPOLLER
                            1071+*************************************************************************
                            1072 *
                            1074         COPY  T7884               01DEC76
                            1075 T7884   TUIT  $ERR$
                            1076+*************************************************************************06FEB76**
                            1077+*
                            1078+* TEST UNIT
                            1079+*
                            1080+*     TU84  WRITE AND READ ID TEST                                12/01/76
                            1081+*
                            1082+* PUPPOSE
                            1083+*
                            1084+*     FUNCTION:
                            1085+*     .
                            1086+*     .   PROGRAM INITIALIZES ATTACHMENT.
                            1087+*     .   RECALIFRATE
                            1088+*     .   SEEK TO CE TRACK
                            1089+*     .   SELECT HEAD FROM CE INPUT (0-1 OR 0-7 FIXED)
                            1090+*     .   WPITE ID ON SECTOR #0 OF NEXT GOOD SECTOR (55)
                            1091+*     .   READ AND COMPARE ID BYTES
                            1092+*     .   WRITE ID ON SECTOR #0 OF NEXT GOOD SECTOR (AA)
                            1093+*     .   READ AND COMPARE ID BYTES
                            1094+*     .   RESTORE CE TRACK WITH ORGINAL ID BYTES
                            1095+*     .
                            1096+*
                            1097+* CALLING SEQUENCE
                            1098+*
                            1099+*     PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
                            1100+*     .     TURESUL BIT 0----NOT USED
                            1101+*     .     TURESUL BIT 1----NOT USED
                            1102+*     .     TURESUL BIT 2----NOT USED
                            1103+*     .     TURESUL BIT 3----NOT USED
                            1104+*     .
                            1105+*     .     TURESUL BIT 4----NOT USED
                            1106+*     .     TURESUL BIT 5----NOT USED
                            1107+*     .     TURESUL BIT 6----READ ID
                            1108+*     .     TURESUL BIT 7----INTERRUPT
                            1109+*     .
                            1110+*     .     TURESUL BIT 8----RECAL
                            1111+*     .     TURESUL BIT 9----SEEK
                            1112+*     .     TUPESUL BIT 10---ALL SECTORS ARE BAD(FLAG NOT 0 OR ERR'S)
                            1113+*     .     TURESUL BIT 11---NOT READY
                            1114+*     .
                            1115+*     .     TURESUL BIT 12---EXCEPTION END OTHER THAN (11,14 OP 15)
                            1116+*     .     TURESUL BIT 13---ID TEST PATTERN WRT/RD ERPOR
                            1117+*     .     TURESUL BIT 14---UNSAFE
                            1118+*     .     TURESUL BIT 15---ECHO CHECK
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

                            1119+*     .     TURESUL BITS 16-32 CS STATUS
                            1120+*     .
                            1121+*   EXITS NORMAL
                            1122+*     .     RETURNS TO MDI SUPERVISOR WHEN DONE.
                            1123+*
                            1124+*   EXITS ERROR
                            1125+*     .     RETURNS TO MDI SUPERVISOR.
                            1126+*
                            1127+* RETURN CONTROL
                            1128+*
                            1129+*     B     TURTN*                RETURN TO MDI SUPERVISOR
                            1130+*
                            1131+*************************************************************************
002AD4  6F0D 263C           1132+T7884   MVW   P7,TURTN             SAVE RETURN ADDRESS
002AD8  4020 2604 7884      1133+        MVWI  X'7884',$TUID       SAVE TU ID FOR DISPLAY
002ADE  4424 25FE           1134+        MVA   OPTN1,R4            SET UP POINTER ADRS IN R4
002AE2  6E03 3130           1135+        BAL   $CONC,R6            CLEAR DEV DEP STG AND CONNECT I/O BL
002AE6  3164                1136+        DC    A($ERR$)            ERROR ADRS FOR INVALID PREP
                            1137+*
                            1138         MVB   CPUID,R0            DETERMINE TYPE OF PROCESSOR
002AEC  F025                1139         CBI   37,R0               *
002AEE  1804                1140         JNE   T84TC               JUMP IF NOT 4955
002AF0  4020 2B06 254C      1141         MVWI  X'254C',T84T1+2     LOAD TIME CONSTANT FOR 2 SEC
002AF6  5003                1142         J     T84T2
002AF8  4020 2B06 0C0E      1143 T84TC   MVWI  X'0C0E',T84T1+2     (4953) LOAD TIME CONS FOR 2 SEC
002AFE  4724 311C           1144 T84T2   MVA   IOBLK,R7            SETUP IOBLK
002B02  6008                1145         SVC   RESET               ISSUE IO RESET
002B04  4024 0000           1146 T84T1   MVWI  X'0000',R0          TIMEOUT 2 SEC
002B08  6002                1147 T784    SVC   IDLE                *
002B0A  B8FE                1148         JCT   T784,R0             *
002B0C  C225 18C8           1149         MVWZ  TURESUL,R2          CLEAR RESULTS WORD
002B10  CA25 18CA           1150         MVWZ  TURESUL+2,R2        CLEAR RESULTS WORD
002B14  4224 18C8           1151         MVA   TURESUL,R2          ADDRESS OF RESULTS
002B18  6E03 2F56           1152         BAL   $RECL,R6            RECALIBPATE
002B1C  2B26                1153         DC    A(T84FF)             ERROR
002B1E  4CA1                1154         TBTR  (R4,ER)             INTERRUPT ERROR?
002B20  6A00 2CEC           1155         BON   T84AA               YES
002B24  5012                1156         J     T84JC
002B26  7B06 0003           1157 T84FF   CWI   X'0003',R3          CHECK FOR COMMAND REJECT
002B2A  6801 3164           1158         BNE   $ERP$               ERROR-TU NG
002B2E  6E03 3028           1159         BAL   XIOCS,R6            START CYCLE STEAL STATS
002B32  3164                1160         DC    A($ERR$)            ERROR
002B34  4CA1                1161         TBTR  (R4,ER)             INTERRUPT ERROR?
002B36  6A00 3164           1162         BON   $ERR$               YES
002B3A  402B 2626 0001      1163         AWI   X'0001',CSBUF+2     NOT READY?
002B40  6804                1164         BOFF  T84AA               NO-ERROR
002B42  4A4E                1165         TBTS  (R2,14)             SET NOT READY
002B46  6802 2CEC           1166         B     T84AA               EXIT
002B4A  4020 2D54 012E      1167 T84Z    MVWI  302,SKDCB+2         SEEK TO CE TRACK
002B50  4020 2D52 0005      1168         MVWI  5,SKDCB             SEEK CONTROL WORD
002B56  4020 2D5A 0000      1169         MVWI  0,SKDCB+8           SELECT HEAD ZERO
002B5C  6E03 2F4E           1170         BAL   $SEEK,R6            SEEK TO CE TRACK
002B60  3164                1171         DC    A($ERR$)            ERROR
002B62  4CA1                1172         TBTR  (R4,ER)             TEST FOP EPROR
002B64  6A00 2CFA           1173         BON   T84EE               ERROR - TU RESULTS NG
002B68  4020 2D32 200A      1174         MVWI  X'200A',RSDCB       READ SECTOR ID CONTROL WORD
002B6E  4020 2DE0 0000      1175         MVWI  0,LGSEC             INIT LOG SECT  LOC
002B74  6E03 2EFC           1176 T844    BAL   CONVT,R6            CONVERT LOG SECT TO PHYS-1
002B78  8028 2DE3 2D36      1177         MVB   PHYSC+1,PSDCB+4     LOAD PHYSC SECT -1 IN RDSEC DCB
002B7E  6E03 2F5E           1178         BAL   $RDID,R6            READ SECTOR ID
002B82  3164                1179         DC    A($ERR$)            ERROR
002B84  4CA1                1180         TBTR  (R4,ER)             TEST FOR ERROR
002B86  1208                1181         JON   T842
002B88  802B 2DC2 260D      1182         CB    ZER00,SCTID+1        FLAG ZERO?
002B8E  1804                1183         JNE   T842                NO
002B90  4020 260E 012E      1184         CWI   302,SCTID+2         CE TRACK?
002B96  1009                1185         JE    T843                YES
002B98  402F 2DE0 003B      1186 T842    CWI   59,LGSEC            END OF TRACK?
002B9E  6800 2C90           1187         BE    T84JJ               YES-BAD TRACK
002BA2  4029 2DE0 0001      1188         AWI   1,LGSEC             INCREMENT LOG SECT NUM
002BA8  50E5                1189         J     T844                LOOP
002BAA  4020 2D54 0000      1190 T843    MVWI  0,SKDCB+2           SETUP SEEK NO-OP (HEAD SELECT)
002BB0  8038 189A 2D5A      1191         MVB   TUPARM1*,SKDCB+8    SELECT HEAD FROM MDI PARM
002BB6  6E03 2F4E           1192         BAL   $SEEK,R6            SEEK
002BBA  3164                1193         DC    A($ERR$)            ERROR
002BBC  4CA1                1194         TBTR  (R4,ER)             CHECK CC
002BBE  6A00 2CFA           1195         BON   T84EE               EPROP
002BC2  6E03 2EFC           1196 T84K    BAL   CONVT,R6            CONVERT FROM LOG TO PHY
002BC6  8028 2DE3 2D36      1197         MVB   PHYSC+1,RSDCB+4     LOAD DCB WITH PHY SEC #
002BCC  8028 2DE3 2D26      1198         MVB   PHYSC+1,WSDCB+4      LOAD DCB WITH PHY SEC#
002BD2  8028 2DE3 2DA6      1199         MVB   PHYSC+1,WKDCB+4      LOAD DCB WITH PHY SEC#
002BD8  8028 2DE3 2DB6      1200         MVB   PHYSC+1,RKDCB+4      LOAD DCB WITH PHY SEC #
002BDE  4C64                1201         TBTS  (R4,XE)             POSSIBLE ERROP EXPECTED
002BE0  6E03 2F5E           1202         BAL   $RDID,R6            READ SECTOR ID
002BE4  3164                1203         DC    A($ERR$)            *
002BE6  4CA1                1204         TBTR  (R4,EF)             TEST FOP ERROR
002BE8  124C                1205         JON   T84A                SYNC OR DATA CK
002BEA  802B 2DC2 260D      1206         CB    ZER00,SCTID+1        CHECK FOR ZERO FLAG
002BF0  1848                1207         JNE   T84A                FLAG NOT ZERO
002BF2  4020 2DF0 5555      1208         MVWI  X'5555',WSIDT       SETUP DATA '55' FOR WP ID
002BF8  4020 2DF2 5555      1209         MVWI  X'5555',WSIDT+2     *
002BFE  4020 2DF4 5555      1210         MVWI  X'5555',WSIDT+4     *
002C04  6E03 2C94           1211         BAL   T84WP,R6            GO TO WRITE SECTOR ID ROUTINE
002C08  4020 2DF0 AAAA      1212         MVWI  X'AAAA',WSIDT       WRITF ID DATA PATTERN 'AA'
002C0E  4020 2DF2 AAAA      1213         MVWI  X'AAAA',WSIDT+2     *
002C14  4020 2DF4 AAAA      1214         MVWI  X'AAAA',WSIDT+4     *
002C1A  6E03 2C94           1215         BAL   T84WE,R6            GO TO WPITE SECTOP ID ROUTINE
002C1E  6E03 2F3E           1216         BAL   LWSID,R6            RESTORE ORGINAL SECTOP ID
002C22  6E03 2FFA           1217         BAL   $WSEC,R6            * WRITE SECTOR ID
002C26  3164                1218         DC    A($ERR$)            ERPOR-
002C28  4CA9                1219         TBTR  (R4,CSA)            CS STATS AVAILBLE?
002C2A  1014                1220         JOFF  T84F                OK-NO ERROR
002C2C  8828 2626 2E50      1221         MVW   CSBUF+2,STATS       CS STATS
002C32  4524 2E50           1222         MVA   STATS,R5            ADDPESS OF CS STATS
002C36  4D8F                1223         TBTR  (R5,15)             NOT READY?
002C38  1001                1224         JOFF  T84CC               NO
002C3A  4A4B                1225         TBTS  (R2,11)             NOT READY
002C3C  4D82                1226 T84CC   TBTR  (R5,2)              ECHO CHECK?
002C3E  1001                1227         JOFF  T84DD               NO
002C40  4A4F                1228         TBTS  (R2,15)             ECHO CHECK
002C42  4D8B                1229 T84DD   TBTR  (R5,11)             WRITE UNSAFE
002C44  1001                1230         JOFF  T84C                NO
002C46  4A4E                1231         TBTS  (R2,14)             WRITE UNSAFE
002C48  4D87                1232 T84C    TBTR  (R5,7)              RESET UNSAFE FILE
```

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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
002C4A  402F 2E50 0000   1233        CWI   0,STATS               OTHER ERROR BITS ON?
002C50  1001             1234        JE    T84F                  NO
002C52  4A4C             1235        TBTS  (R2,12)               EXCEPTION END
002C54  6E03 2F5E        1236 T84F   BAL   $RDID,R6              READ SECTOR ID
002C58  3164             1237        DC    A($ERR$)              ERROR-RETRY IO OP
002C5A  4CA1             1238        TBTR  (R4,ER)               CHECK CC
002C5C  6A00 3164        1239        BON   $ERR$                 ERROR TU RESULTS NG
002C60  6E03 2EE6        1240        BAL   CMPRW,R6              COMPARE SECTOR ID DATA
002C64  2C7E             1241        DC    A(T84H)               COMPARE ERROR
002C66  8038 189A 2D5A   1242 T84S   MVB   TUPARM1*,SKDCB+8      SELECT HEAD FROM MDI PARM
002C6C  4020 2D54 0000   1243        MVWI  0,SKDCB+2             SET UP SEEK NO-OP (HD SELECT)
002C72  6E03 2F4E        1244        BAL   $SEEK,R6              SEEK
002C76  2C78             1245        DC    A(*+2)                BYPASS ERROPS
002C78  5000             1246        J     T84J                  EXIT
                         1247 T84J   TXIT                        RETURN
002C7A  6802 31B4        1248+T84J   B     $CONX                 RETURN TO MDI CONTROLLER
                         1249+*************************************************************************
                         1250 *
                         1251 *
                         1252 *
002C7E  4A4D             1253 T84H   TBTS  (R2,13)               COMPARE ERROR
002C80  50FC             1254        J     T84J                  RETURN
002C82  4029 2DE0 0001   1255 T84A   AWI   1,LGSEC              INCREMENT LOG SECT
002C88  402F 2DE0 003C   1256        CWI   60,LGSEC              CHECK FOR END OF TRACK
002C8E  1899             1257        JNE   T84K                  NO
002C90  4A4A             1258 T84JJ  TBTS  (R2,10)               ALL SECTORS BAD,FLAG NOT 0 OR ERR'S
002C92  50F3             1259        J     T84J                  EXIT
                         1260 *
002C94  6E0D 2CE6        1261 T84WR  MVW   R6,T84E+2             SET UP RETURN ADDRESS
002C98  6E03 3008        1262        BAL   $WSTS,R6              WRITE SECTOR ID (TEST)
002C9C  3164             1263        DC    A($ERR$)              ERROR-RETRY IO OP
002C9E  4CA1             1264        TBTR  (R4,ER)               INTERRUPT ERROR?
002CA0  1018             1265        JOFF  T84KK                 NO
002CA2  4CA9             1266        TBTR  (R4,CSA)              CS STATS AVAILBLE?
002CA4  6800 3164        1267        BOFF  $ERR$                 OK-NO ERROR
002CA8  8828 2626 2E50   1268        MVW   CSBUF+2,STATS         CS STATS
002CAE  4524 2B50        1269        MVA   STATS,R5              ADDRESS OF CS STATS
002CB2  4D8F             1270        TBTR  (R5,15)               NOT READY?
002CB4  1001             1271        JOFF  T84HH                 NO
002CB6  4A4B             1272        TBTS  (R2,11)               NOT READY
002CB8  4D82             1273 T84HH  TBTR  (R5,2)                ECHO CHECK?
002CBA  1001             1274        JOFF  T84GG                 NO
002CBC  4A4F             1275        TBTS  (R2,15)               ECHO CHECK
002CBE  4D8B             1276 T84GG  TBTR  (R5,11)               WRITE UNSAFE
002CC0  1001             1277        JOFF  T84L                  NO
002CC2  4A4E             1278        TBTS  (R2,14)               WRITE UNSAFE
002CC4  4D87             1279 T84L   TBTR  (R5,7)                RESET UNSAFE FILE
002CC6  402F 2E50 0000   1280        CWI   0,STATS               OTHER ERROR BITS ON?
002CCC  1001             1281        JE    T84B                  NO
002CCE  4A4C             1282        TBTS  (R2,12)               EXCEPTION END
002CD0  50D4             1283 T84B   J     T84J                  ERRORS-EXIT
002CD2  6E03 2FD2        1284 T84KK  BAL   $RIDS,R6              READ SECTOR ID (TEST)
002CD6  3164             1285        DC    A($ERR$)              ERROR-RETRY IO OP
002CD8  4CA1             1286        TBTR  (R4,ER)               CHECK CC
002CDA  6A00 2CFE        1287        BON   T84T                  ERROR TU RESULTS NG
002CDE  6E03 2ED8        1288        BAL   CMPRT,R6              COMPARE TEST ID DATA
002CE2  2CE8             1289        DC    A(T84E)               COMPARE ERROR
002CE4  6802 0000        1290 T84P   B     *-*                   RETURN TO CALLER
002CE8  4A4D             1291 T84E   TBTS  (R2,13)               COMPARE ERROR
002CEA  50FC             1292        J     T84R                  RETURN
002CEC  4A48             1293 T84AA  TBTS  (R2,8)                RECAL
002CEE  4A47             1294 T84BB  TBTS  (R2,7)                INTERRUPT
002CF0  8828 2626 18CA   1295        MVW   CSBUF+2,TURESUL+2
002CF6  6802 2C7A        1296        B     T84J
002CFA  4A49             1297 T84EE  TBTS  (R2,9)                SEEK
002CFC  50F8             1298        J     T84BB
002CFE  4A46             1299 T84T   TBTS  (R2,6)                READ ID
002D00  50F6             1300        J     T84BB
                         1301 *
                         1303        COPY  T78DCB                01DEC76
                         1304 ** (T78DCB)
                         1305 ***************************************************12/1/76**********
                         1306 *
                         1307 *      DCB TABLES AND DC'S
                         1308 *
                         1309 *************************************************************************
                         1310 *
                         1311 ***** DIAGNOSTIC DCB   ********
                         1312 *
002D02  2008             1313 DGDCB  DC    X'2008'               DIAGNOSTIC DCB
002D04  0000             1314        DC    X'0000'               NOT USED
002D06  0000             1315        DC    A(*-*)                0-7 = PHYSICAL SECTOR # MINUS ONE
002D08  0000             1316        DC    X'0000'               NOT USED
002D0A  0000             1317        DC    X'0000'               NOT USED
002D0C  0000             1318        DC    A(*-*)                CHAINING ADDRESS
002D0E  0100             1319        DC    X'0100'               BYTE COUNT
002D10  0000             1320        DC    A(*-*)                DATA ADDRESS
                         1321 *
                         1322 *
                         1323 ***** RECALIBRATE DCB  ********
                         1324 *
002D12  0007             1325 CLDCB  DC    X'0007'               RECALIBRATE DCB
002D14  00000000000000000 1326       DC    7A(*-*)
                         1327 *
                         1328 ***** WRITE SECTOR ID  **
                         1329 *
002D22  0002             1330 WSDCB   DC    X'0002'               WRITE SECTOR ID CONTROL WORD
002D24  0000             1331        DC    X'0000'               NOT USED
002D26  0000             1332        DC    A(*-*)                0-7 = PHYSICAL SECTOR # MINUS ONE
002D28  0000             1333        DC    A(*-*)                NOT USED
002D2A  0000             1334        DC    A(*-*)                NOT USED
002D2C  0000             1335        DC    A(*-*)                CHAIN ADDRESS
002D2E  0006             1336        DC    X'0006'               BYTE COUNT
002D30  2DE8             1337        DC    A(WRSID)              ADDR OF SECTOR ID DATA
                         1338 ***** READ SECTOR ID DCB  *******
                         1339 *
002D32  200A             1340 RSDCB  DC    X'200A'               READ SECTOR ID
002D34  0000             1341        DC    X'0000'               NOT USED
002D36  0000             1342        DC    X'0000'               0-7 = PHYSICAL SECTOR # MINUS ONE
002D38  0000             1343        DC    X'0000'               NOT USED
002D3A  0000             1344        DC    X'0000'               NOT USED
002D3C  0000             1345        DC    X'0000'               CHAIN ADDRESS
002D3E  0006             1346        DC    X'0006'               BYTE COUNT FOR READ SECTOR ID
002D40  260C             1347        DC    A(SCTID)              SECTOR ID DATA ADDRESS
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                         1348 *
                         1349 *
                         1350 ***** READ SECTOR ID IMMEDIATE DCB  *******
                         1351 *
002D42  200E             1352 RIDCB  DC    X'200E'               READ SECTOR ID
002D44  0000             1353        DC    X'0000'               NOT USED
002D46  0000             1354        DC    X'0000'               NOT USED
002D48  0000             1355        DC    X'0000'               NOT USED
002D4A  0000             1356        DC    X'0000'               NOT USED
002D4C  0000             1357        DC    A(*-*)                CHAIN ADDRESS
002D4E  0006             1358        DC    X'0006'               BYTE COUNT FOR READ SECTOR ID
002D50  260C             1359        DC    A(SCTID)              SECTOR ID DATA ADDRESS
                         1360 *
                         1361 *
                         1362 ***** SEEK DCB  ********
                         1363 *
002D52  0005             1364 SKDCB  DC    X'0005'               SEEK DCB
002D54  0000             1365        DC    X'0000'               BIT 0-3=0;BIT4=DIRECTION;5-15=DIFFER
002D56  0000             1366        DC    F'0'
002D58  0000             1367        DC    F'0'
002D5A  0000             1368        DC    X'0000'               0-7 = HEAD;8-15 NOT USED
002D5C  0000             1369        DC    A(*-*)                CHAIN ADDRESS
002D5E  0000             1370        DC    F'0'                  NOT USED
002D60  0000             1371        DC    F'0'                  NOT USED
                         1372 *
                         1373 ***** CYCLE STEAL STATUS DCB  ********
                         1374 *
002D62  2000             1375 CSDCB  DC    X'2000'               CONTROL WORD
002D64  0000             1376        DC    F'0'                  NOT USED
002D66  0000             1377        DC    F'0'                  NOT USED
002D68  0000             1378        DC    F'0'                  NOT USED
002D6A  0000             1379        DC    F'0'                  NOT USED
002D6C  0000             1380        DC    F'0'                  NOT USED
002D6E  0008             1381        DC    X'0008'               4 WORDS OF STATS
002D70  2624             1382        DC    A(CSEUF)              ADDRESS OF CYCLE STEAL STATUS DATA
                         1383 *
                         1384 ***** WRITE DCB  **********
                         1385 *
002D72  0001             1386 WRDCB  DC    X'0001'               WRITE CONTROL WORD
002D74  0000             1387        DC    F'0'                  NOT USED
002D76  0000             1388        DC    X'0000'               0-7=0;8-15 = FLAG BYTE
002D78  0000             1389        DC    X'0000'               SERCH ARGUMENT CYLINDER
002D7A  0000             1390        DC    X'0000'               SEARCH ARGUMENT HEAD-SECTOR
002D7C  0000             1391        DC    A(*-*)                CHAIN ADDRESS
002D7E  0000             1392        DC    F'0'                  BYTE COUNT
002D80  0000             1393        DC    A(*-*)                WRITE DATA ADDRESS
                         1394 *
                         1395 ***** VERIFY DCB   *******
                         1396 *
002D82  200C             1397 VRDCB  DC    X'200C'               CONTROL WORD
002D84  0000             1398        DC    F'0'                  NOT USED
002D86  0000             1399        DC    X'0000'               0-7=0;8-15 = FLAG BYTE
002D88  0000             1400        DC    X'0000'               CYLINDER
002D8A  0000             1401        DC    X'0000'               HEAD - SECTOR
002D8C  0000             1402        DC    A(*-*)                CHAIN ADDRESS
002D8E  0000             1403        DC    F'0'                  BYTE COUNT
002D90  0000             1404        DC    A(*-*)                VERIFY DATA ADDRESS
                         1405 *
                         1406 ***** READ DCB   *******
                         1407 *
002D92  2009             1408 RDDCB  DC    X'2009'               READ DCB CONTROL WORD
002D94  0000             1409        DC    F'0'                  NOT USED
002D96  0000             1410        DC    X'0000'               0-7=0,8-15 = FLAG BYTE
002D98  0000             1411        DC    X'0000'               SEARCH ARGUMENT CYLINDER
002D9A  0001             1412        DC    X'0001'               SEARCH ARGUMENT H-R
002D9C  0000             1413        DC    A(*-*)                CHAIN ADDRESS
002D9E  0000             1414        DC    F'0'                  BYTE COUNT
002DA0  0000             1415        DC    A(*-*)                READ DATA ADDRESS
                         1416 *
                         1417 ****  WRITE SECTOR ID SKEWED   ****
                         1418 *
002DA2  0003             1419 WKDCB  DC    X'0003'               CONTROL WORD
002DA4  0000             1420        DC    X'0000'               NOT USED
002DA6  0000             1421        DC    A(*-*)                0-7 = PHYSICAL SECTOR # MINUS ONE
002DA8  0000             1422        DC    A(*-*)                NOT USED
002DAA  0000             1423        DC    A(*-*)                NOT USED
002DAC  0000             1424        DC    A(*-*)                CHAIN ADDRESS
002DAE  0006             1425        DC    X'0006'               BYTE COUNT
002DB0  2DE8             1426        DC    A(WRSID)              ADDR OF SECTOR ID DATA
                         1427 *
                         1428 ****  READ SECTOR ID SKEWED    ****
                         1429 *
002DB2  200B             1430 RKDCB  DC    X'200B'               CONTROL WORD
002DB4  0000             1431        DC    X'0000'               NOT USED
002DB6  0000             1432        DC    X'0000'               0-7 = PHYSICAL SECTOR # MINUS ONE
002DB8  0000             1433        DC    X'0000'               NOT USED
002DBA  0000             1434        DC    X'0000'               NOT USED
002DBC  0000             1435        DC    A(*-*)                CHAIN ADDRESS
002DBE  0006             1436        DC    X'0006'               BYTE COUNT FOR READ SECTOR ID
002DC0  260C             1437        DC    A(SCTID)              SECTOR ID DATA ADDRESS
                         1438 *
                         1439 *     CONSTANTS AND DEFINED STORAGE  LOCATIONS
002DC2  0000             1440 ZERO0  DC    X'0000'               CONSTANT ZERO
002DC4  0001             1441 ONE1   DC    X'0001'               CONSTANT ONE
002DC6  00000000         1442 TIMEOUT DC   2A(*-*)               TIMEOUT COUNTER
002DCA  0000             1443 TONE   DC    X'0000'               CONSTANT FOR ADD DOUBLE
002DCC  0001             1444        DC    X'0001'               *
002DCE  0500             1445 COUNT  DC    F'1280'               BYTE COUNT (1280)
002DD0  0000             1446 DIFF   DC    A(*-*)                SEEK DIFFERENCE
002DD2  0000             1447 XXX    DC    A(*-*)                WORK WORD INT TO ZERO
002DD4  0000             1448 BCNT   DC    X'0000'               BYTE COUNT
002DD6  0000             1449 JOE    DC    A(*-*)                WRITE PARAMETER POINTER
002DD8  0000             1450 JOE1   DC    A(*-*)                SAVE LOC FOR PARM LIST ADDRESS
002DDA  DEB6             1451 WDATA  DC    X'DEB6'               WRITE DATA
002DDC  6BED             1452        DC    X'6BED'               *
002DDE  0000             1453 TABLE  DC    A(*-*)                ADDR OF WRT PAR LIST FOR FORMAT RTNS
002DE0  0000             1454 LGSEC  DC    X'0000'               LOGICAL SECTOR #
002DE2  0000             1455 PHYSC  DC    X'0000'               CONVERTED PHYSICAL SEC #
002DE4  1D00             1456 CB29   DC    X'1D00'               CONSTANT BYTE 29
002DE6  3B00             1457 FIVE9  DC    X'3B00'               CONSTANT BYTE 59
002DE8  0000             1458 WRSID  DC    X'0000'               FLAG,CYLINDER (WRT SECTOR ID DATA)
002DEA  0000             1459        DC    X'0000'               CYLINDER,HEAD
002DEC  0000             1460        DC    X'0000'               LOG SECTOR,NOT USED
002DEE  00FF             1461 CDAT   DC    X'00FF'               INVALID DATA CONSTANT
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
002DF0  FF34            1462 WSIDT DC    X'FF34'          WRITE SECTOR ID TEST DATA
002DF2  5678            1463       DC    X'5678'          *
002DF4  9A00            1464       DC    X'9A00'          *
002DF6  0000            1465 SCTST DC    X'0000'          READ SECTOR ID TEST DATA BUFFER
002DF8  0000            1466       DC    X'0000'          *
002DFA  0000            1467       DC    X'0000'          *
002DFC  0000            1468 CTR01 DC    X'0000'          COUNTER
002DFE  0000            1469 CTR02 DC    X'0000'          COUNTER
002E00  0000            1470 CTR03 DC    X'0000'          COUNTER
002E02  0000            1471 CTR04 DC    X'0000'          COUNTER
002E04  0000            1472 CTR05 DC    X'0000'          COUNTER
002E06  0000            1473 CTR06 DC    X'0000'          COUNTER
002F08  0000            1474 SAVR3 DC    X'0000'          SAVE AREA
002E0A  0000            1475 SAVR5 DC    X'0000'          SAVE AREA
002E0C  0000            1476 WR2   DC    X'0000'
002E0E  0000            1477 SVSEK DC    X'0000'
002E10  0000            1478 LCT   DC    X'0000'
002E12  0000            1479 T56AA DC    X'0000'
002E14  0000            1480 T56BB DC    X'0000'
002E16  0000            1481 T56CC DC    X'0000'
002E18  0000            1482 T56DD DC    X'0000'
002E1A  0000            1483 T56EE DC    X'0000'
002E1C  0000            1484 T56FF DC    X'0000'
002E1E  0000            1485 T56GG DC    X'0000'
002E20  0000            1486 T86AA DC    X'0000'
002E22  0000            1487 T86BB DC    X'0000'
002E24  0000            1488 T86CC DC    X'0000'
002E26  0000            1489 T86DD DC    X'0000'
002E28  0000            1490 T86EE DC    X'0000'
002E2A  0000            1491 T86FF DC    X'0000'
002E2C  0000            1492 T86GG DC    X'0000'
002E2E  0000            1493 T41D  DC    X'0000'
002E30  0000            1494 T41LP DC    X'0000'
002E32  0000            1495 WRLCT DC    X'0000'
002E34  0000            1496 CYLOC DC    X'0000'
002E36  0000            1497 PASS1 DC    A(*-*)
002E38  0000            1498 HEAD0 DC    A(*-*)
002E3A  0000            1499 HEAD1 DC    A(*-*)
002E3C  0000            1500 GDSE0 DC    A(*-*)
002E3E  0000            1501 GDSE1 DC    A(*-*)
002E40  0000            1502 ER00  DC    A(*-*)
002E42  0000            1503 ER01  DC    A(*-*)
002E44  0000            1504 HD0SV DC    A(*-*)
002E46  0000            1505 HD1SV DC    A(*-*)
002E48  0000            1506 ER0SV DC    A(*-*)
002E4A  0000            1507 ER1SV DC    A(*-*)
002E4C  0000            1508 PATTR DC    A(*-*)
002E4E  0000            1509 CECYL DC    A(*-*)
002E50  0000            1510 STATS DC    A(*-*)
                        1511 *
                        1513       COPY  T78DPCIO           01DEC76
                        1514 ** (T78DPCIO)
                        1515 *                                                    2/07/77
                        1516 *     EXECUTE DPC INPUT/OUTPUT COMMANDS
                        1517 *     THIS ROUTINE HAS THE FOLLOWING ENTRIES:
                        1518 *
                        1519 * 1   BAL   CEOP1,R6           CE DIAGNOSTIC OP1(TURN ON DIAG MODE)
                        1520 *
                        1521 * 2   BAL   CEOP2,R6           WRITE DIAG CLOCK STEP DATA
                        1522 *
                        1523 * 3   BAL   SENS0,R6           CE READ SENSE WORD ZERO
                        1524 *
                        1525 * 4   BAL   SENS1,R6           CE READ SENSE WORD ONE
                        1526 *
                        1527 * 5   BAL   WRAP,P6            READ DIAGNOSTIC WRAP
                        1528 *
                        1529 *     BXS   (R6,2)             RETURN
                        1530 *
                        1531 ************************************************************************
                        1532 *
                        1533 *     CE DIAGNOSTIC OP2 DATA WORD  (CLOCK STEP)
                        1534 *
                        1535 *     BIT 00  - SET READY
                        1536 *     BIT 01  - RESET READY
                        1537 *     BIT 02  - SET WRITE CLOCK
                        1538 *     BIT 03  - SET READ CLOCK
                        1539 *     BIT 04  - INDEX PULSE
                        1540 *     BIT 05  - SECTOR PULSE
                        1541 *     BIT 06  - STANDARD READ DATA
                        1542 *     BIT 07  - SPEED PULSE
                        1543 *     BIT 08  - BEHIND HOME
                        1544 *     BIT 09  - SET SEEK COMPLETE
                        1545 *     BIT 10  - RESET SEEK COMPLETE
                        1546 *     BIT 11  - PLO OUT OF SYNC
                        1547 *     BIT 12  - PST RD/WRT CLOCK
                        1548 *     BIT 13  -
                        1549 *     BIT 14  -
                        1550 *     BIT 15  - RESET DIAGNOSTIC MODE
                        1551 *
                        1552 ************************************************************************
                        1553 *
                        1554 *
002E52  6E0D 260A       1555 WRAP  MVW   R6,LSTIO           SAVE ADDRESS OF LAST IO
002E56  8028 19D0 2ED5  1556       MVB   DEVADD,IDCBRAP+1   LOAD DEVICE ADDRESS IN IDCB
002E5C  680C 2ED4       1557       IO    IDCBRAP            READ SENSE WORD 1
002E60  6F05 2EB6       1558       BNCC  7,CCERR            CHECK COND CODE
002E64  5601            1559       BXS   (R6,2)             RETURN TO CALLER
                        1560 *
002E66  6E0D 260A       1561 CEOP1 MVW   R6,LSTIO           SAVE ADDRESS OF LAST IO
002E6A  8028 19D0 2ECD  1562       MVB   DEVADD,IDCBCE1+1   LOAD DEVICE ADDRESS IN IDCB
002E70  680C 2ECC       1563       IO    IDCBCE1            SET DIAGNOSTIC MODE
002E74  6F05 2EB6       1564       BNCC  7,CCERR            CHECK COND CODE
002E78  5601            1565       BXS   (R6,2)             RETURN TO CALLER
                        1566 *
002E7A  6E0D 260A       1567 CEOP2 MVW   R6,LSTIO           SAVE ADDRESS OF LAST IO
002E7E  8028 19D0 2ED1  1568       MVB   DEVADD,IDCBCE2+1   LOAD DEVICE ADDRESS IN IDCB
002E84  680C 2ED0       1569       IO    IDCBCE2            WRITE DIAG CLOCK STEP
002E88  6F05 2EB6       1570       BNCC  7,CCERR            CHECK COND CODE
002E8C  5601            1571       BXS   (R6,2)             RETURN TO CALLER
                        1572 *
                        1573 *
002E8E  6E0D 260A       1574 SENS1 MVW   R6,LSTIO           SAVE ADDRESS OF LAST IO
002E92  8028 19D0 2EC9  1575       MVB   DEVADD,IDCB1+1     LOAD DEVICE ADDRESS IN IDCB
002E98  680C 2EC8       1576       IO    IDCB1              READ SENSE WORD 2
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
002E9C  6F05 2EB6       1577       BNCC  7,CCERR            CHECK COND CODE
002EA0  5601            1578       BXS   (R6,2)             RETURN TO CALLER
                        1579 *
002EA2  6E0D 260A       1580 SENS0 MVW   R6,LSTIO           SAVE ADDRESS OF LAST IO
002EA6  8028 19D0 2EC5  1581       MVB   DEVADD,IDCB0+1     LOAD DEVICE ADDRESS IN IDCB
002EAC  680C 2EC4       1582       IO    IDCB0              READ SENSE WORD 1
002EB0  6F05 2EB6       1583       BNCC  7,CCERR            CHECK COND CODE
002EB4  5601            1584       BXS   (R6,2)             RETURN TO CALLER
                        1585 *
002EB6  706E            1586 CCERR DC    X'706E'          COPY STATUS ANY LEVEL INTO R3
002EB8  336A            1587       SRL   13,R3            POSITION CC CODE TO BITS 13-15
002EBA  C328 2606       1588       MVB   R3,$IOIN         * PUT IN LOG AREA
002EBE  68D2 0000       1589       B     (R6)*            RETURN TO USER
                        1590 *
002EC2  6F05            1591 IORST DC    X'6F05'          RESET IO
002EC4  2205            1592 IDCB0 DC    X'2205'          SENSE WORD ZERO
002EC6  0000            1593 RDATA0 DC   A(*-*)           DATA WORD
002EC8  2105            1594 IDCB1 DC    X'2105'          SENSE WORD ONE
002ECA  0000            1595 RDATA DC    A(*-*)
002ECC  4005            1596 IDCBCE1 DC  X'4005'          CE DIAG OP1
002ECE  0000            1597 CEDAT DC    A(*-*)           SENSE DATA
002ED0  4105            1598 IDCBCE2 DC  X'4105'          CE DIAG OP2
002ED2  0000            1599 CEDAT2 DC   A(*-*)           SENSE DATA
002ED4  2F05            1600 IDCBRAP DC  X'2F05'          READ DIAG WRAP
002ED6  0000            1601 RAPDAT DC   A(*-*)           SENSE DATA
000232                  1602 CPUID  EQU  X'0232'          CPU ID
                        1603 *
                        1605       COPY  T78IO              01DEC76
                        1606 ** (T78IO)
                        1607 ****************************12/01/76**********************************
                        1608 *
                        1609 *  SUBROUTINE
                        1610 *
                        1611 *     PURPOSE
                        1612 *
                        1613 *          COMPARE READ SECTOR ID DATA TO WRITE SECTOR ID DATA
                        1614 *          NORMAL AND TEST DATA.
                        1615 *
                        1616 *     CALLING SEQUENCE
                        1617 *
                        1618 *          BAL  CMPRW,R6       (NORMAL)
                        1619 *          BAL  CMPRT,R6       (TEST)
                        1620 *
                        1621 *     RETURN
                        1622 *
                        1623 *          BXS (R6,2)     -    NORMAL
                        1624 *
                        1625 *
                        1626 ************************************************************************
                        1627 *
002ED8  4724 0005       1628 CMPRT MVWI  5,R7              BYTE COUNT
002EDC  4324 2DF7       1629       MVA   SCTST+1,R3        ADDR OF RD SECT ID DATA (TEST)
002EE0  4524 2DF0       1630       MVA   WSIDT,R5          ADDR OF WR SECT ID DATA (TEST)
002EE4  5006            1631       J     TT4Y
002EE6  4724 0005       1632 CMPRW MVWI  5,R7              COMPARE BYTE COUNT
002EEA  4324 260D       1633       MVA   SCTID+1,R3        ADDR OF RD SEC ID DATA
002EEE  4524 2DE8       1634       MVA   WRSID,R5          ADDR OF WR SEC ID DATA
002EF2  2BA6            1635 TT4Y  CPWEN  (R3),(R5)        COMPARE ID DATA
002EF4  68C0 0002       1636       BE    (R6,2)           BCH IF WRITE ID DATA OK
002EF8  68D2 0000       1637       B     (R6)*            COMPARE ERROR
                        1638 *
                        1639 ************************************************************************
                        1640 *
                        1641 *  SUBROUTINE
                        1642 *
                        1643 *     PURPOSE
                        1644 *          CONVERT LOGICAL SECTOR NUMBER TO A PHYSICAL SECTOR MINUS
                        1645 *          ONE.
                        1646 *          SETUP LOGICAL SECTOR # IN LOCATION 'LGSEC'
                        1647 *          PHYSICAL SECTOR # WILL BE LOADED IN LOCATION 'PHYSC'
                        1648 *
                        1649 *     LOGICAL SECTOR# TO PHYSICAL SECTOR# CONVERSION
                        1650 * LOGICAL- X 00, 1E, 01, 1F, 02, 20, 03, 21, 04, 22, 05, 23, 06, 24,
                        1651 * PHYSICAL X 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B, 0C, 0D,
                        1652 *
                        1653 * LOGICAL-   07, 25, 08, 26, 09, 27, 0A, 28, 0B, 29, 0C, 2A, 0D, 2B,
                        1654 * PHYSICAL   0E, 0F, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 1A, 1B,
                        1655 *
                        1656 * LOGICAL-   0E, 2C, 0F, 2D, 10, 2E, 11, 2F, 12, 30, 13, 31, 14, 32,
                        1657 * PHYSICAL   1C, 1D, 1E, 1F, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29,
                        1658 *
                        1659 * LOGICAL-   15, 33, 16, 34, 17, 35, 18, 36, 19, 37, 1A, 38, 1B, 39,
                        1660 * PHYSICAL   2A, 2B, 2C, 2D, 2E, 2F, 30, 31, 32, 33, 34, 35, 36, 37,
                        1661 *
                        1662 * LOGICAL-   1C, 3A, 1D, 3B, X
                        1663 * PHYSICAL   38, 39, 3A, 3B, X
                        1664 *
                        1665 *
                        1666 *     CALLING SEQUENCE
                        1667 *
                        1668 *          BAL  CONVT,R6
                        1669 *
                        1670 *     RETURN
                        1671 *
                        1672 *          B    (TT304+2)
                        1673 *
                        1674 ************************************************************************
                        1675 *
002EFC  6E0D 2F3C       1676 CONVT MVW   R6,TT304+2        SETUP RETURN ADDR
002F00  802B 2DC2 2DE1  1677       CB    ZERO0,LGSEC+1     CK FOR LOG # ZERO
002F08  802B 2DE1 2DE4  1678       CB    LGSEC+1,CB29      BCH IF LOG # IS ZERO
002F0E  1C0D            1679       JGE   RTT01             COMP LOG TO 29
002F10  4024 0002       1680       MVWI  2,R0              BCH IF LGSEC EQ OR LESS THAN CB29
002F14  E821 2DE1       1681       MB    LGSEC+1,R0        SETUP MULTIPLIER
002F18  7802 003C       1682       SWI   60,R0             LOG SECTOR # TIMES 2
002F1C  C028 2DE3       1683       MVB   R0,PHYSC+1        LOG SEC TIMES 2 MINUS 60
002F20  500C            1684       J     TT303             PHYSICAL SECTOR NUMBER
002F22  8028 2DE6 2DE3  1685       MVB   FIVE9,PHYSC+1     RETURN TO CALLER
002F28  5008            1686 TT303 J     TT304             PHYSICAL SECTOR # 59
002F2A  4024 0002       1687       MVWI  2,R0              RETURN TO CALLER
002F2E  E821 2DE1       1688 RTT01 MB    LGSEC+1,R0        LOAD MULTIPLIER
002F32  7802 0001       1689       SWI   1,R0              LOG SECTOR # TIMES 2
002F36  C028 2DE3       1690       MVB   R0,PHYSC+1        SUBTRACT ONE
                        1691       MVB   R0,PHYSC+1        LOAD PHYSICAL SECTOR #
```

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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
002F3A  6802 0000        1692 TT304 B     *-*                    RETURN TO CALLER
                         1693 *
                         1694 ************************************************************************
                         1695 *
                         1696 *  SUBROUTINE
                         1697 *
                         1698 *     PURPOSE
                         1699 *
                         1700 *          . LOAD WRITE SECTOR ID DATA BUFFER FROM RD SEC ID BUFFER
                         1701 *
                         1702 *     CALLING SEQUENCE
                         1703 *
                         1704 *          BAL  LWSID,R6
                         1705 *
                         1706 *     RETURN
                         1707 *
                         1708 *          BXS    (R6)
                         1709 *
                         1710 ************************************************************************
                         1711 *
                         1712 *
002F3E  4724 0005        1713 LWSID MVWI  5,R7                   BYTE COUNT
002F42  4324 260D        1714       MVA   SCTID+1,R3             ADDR OF RD SECT ID DATA BUFFER
002F46  4524 2DE8        1715       MVA   WRSID,R5               ADDR OF WR SECT ID DATA BUFFER
002F4A  2BA4             1716       MVFN  (R3),(R5)              MOV DATA FROM RD TO WR BUFFER
002F4C  5600             1717       BXS   (R6)                   RETURN TO CALLER
                         1718 *
                         1720 *
                         1721 *     EXECUTE INPUT & OUTPUT COMMANDS
                         1722 *     TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.
                         1723 *     EACH OF THESE ENTRIES SET R7 WITH THE ADRS OF ITS PARAMETER
                         1724 *     LIST AND ANY SPECIAL SWITCHES BEFORE BRANCHING TO THE
                         1725 *     SUPVP CALL.
                         1726 *     .
                         1727 *     THIS SUBROUTINE WILL CHECK FOR THE FOLLOWING:
                         1728 *     .
                         1729 *     1. LOST INTERRUPTS BY TIMING OUT A COUNTING LOOP
                         1730 *     2. ERROR INTERRUPTS RECEIVED FROM SUPVR
                         1731 *     .
                         1732 *     THIS ROUTINE HAS THE FOLLOWING ENTRIES:
                         1733 *     .
                         1734 *  1  BAL   $RKEW,R6               READ SECTOP ID SKEWED
                         1735 *     .
                         1736 *  2  BAL   $WKST,R6               WRITE SECTOR ID SKEWED (TEST)
                         1737 *     .
                         1738 *  3  BAL   $RWST,R6               READ SECTOP ID SKEWED (TEST)
                         1739 *     .
                         1740 *  4  BAL   $RIDS,R6               READ SECTOR ID (TEST)
                         1741 *     .
                         1742 *  5  BAL   $WKEW,R6               WPITE SECTOP ID SKEWED
                         1743 *     .
                         1744 *  6  BAL   $WSEC,R6               WPITE SECTOR ID
                         1745 *     .
                         1746 *  7  BAL   $WSTS,R6               WPITE SECTOR ID (TEST
                         1747 *     .
                         1748 *  8  BAL   $DIAG,R6               DIAGNOSTIC
                         1749 *     .
                         1750 *  9  BAL   XIOCS,R6               CYCLE STEAL STATUS
                         1751 *     .
                         1752 * 10  BAL   $SEEK,R6               SEEK
                         1753 *     .
                         1754 * 11  BAL   $RECL,R6               RECALIBRATE
                         1755 *     .
                         1756 * 12  BAL   $RDID,R6               READ SECTOP ID
                         1757 *     .
                         1758 * 13  BAL   $RD,F6                 READ
                         1759 *     .
                         1760 * 14  BAL   $RDVY,R6               READ VEPIFY
                         1761 *     .
                         1762 * 15  BAL   $WRT,R6                WRITE
                         1763 *
                         1764 *
002F4E  4020 3120 2D52   1765 $SEEK MVA   SKDCB,IODCB            SET UP CONTROL BLOCK FOR SVC CALL
002F54  5064             1766       J     XIO
                         1767 *
002F56  4020 3120 2D12   1768 $RECL MVA   CLDCB,IODCB            SET UP BLOCK FOR SVC CALL
002F5C  5060             1769       J     XIO
                         1770 *
002F5E  4020 3120 2D32   1771 $RDID MVA   RSDCB,IODCB            SET UP BLOCK FOR SVC CALL
002F64  0BFF             1772       MVBI  X'FF',R3               SET BUFFER TO F'S
002F66  4524 260C        1773       MVA   SCTID,R5               SETUP READ SECTOR ID BUFFER ADPS
002F6A  4724 0006        1774       MVWI  6,R7                   SETUP BUFFEP LENGTH
002F6E  2BAC             1775       FFN   R3,(R5)                INIT READ SECTOP ID BUFFEP
002F70  4020 2D40 260C   1776       MVA   SCTID,RSDCB+14         DATA ADDR
002F76  5053             1777       J     XIO
                         1778 *
002F78  0BFF             1779 $RD   MVBI  X'FF',R3               SETRD BUFFEP TO ALL F'S
002F7A  6D08 2DA0        1780       MVW   RDDCB+14,R5            SET UP PEAD BUFFER ADRS
002F7E  4724 0100        1781       MVWI  X'0100',P7             SET UP BUFFER LENGTH
002F82  2BAC             1782       FFN   R3,(R5)                CLEAR READ BUFFER
002F84  4020 3120 2D92   1783 $RD$  MVA   RDDCB,IODCB            SET UP BLOCK FOR SVC CALL
002F8A  5049             1784       J     XIO
                         1785 *
002F8C  4020 3120 2D82   1786 $RDVY MVA   VPDCB,IODCB            SET UP CONTROL BLOCK FOR SVC CALL
002F92  5045             1787       J     XIO
                         1788 *
002F94  4020 3120 2D72   1789 $WRT  MVA   WRDCB,IODCB            SET UP CONTROL BLOCK FOR SVC CALL
002F9A  5041             1790       J     XIO
                         1791 *
002F9C  4020 3120 2DB2   1792 $RKEW MVA   RKDCB,IODCB             SET UP CONTPOL BLOCK FOR SVC CALL
002FA2  0BFF             1793       MVBI  X'FF',R3               SET BUFFEP TO F'S
002FA4  4524 260C        1794       MVA   SCTID,R5               SETUP READ SECTOR ID BUFFER ADPS
002FA8  4724 0006        1795       MVWI  6,R7                   SETUP BUFFER LENGTH
002FAC  2BAC             1796       FFN   R3,(P5)                INIT READ SECTOR ID BUFFEP
002FAE  4020 2DC0 260C   1797       MVA   SCTID,PKDCB+14          DATA ADDP
002FB4  5034             1798       J     XIO
                         1799 *
002FB6  4020 3120 2DA2   1800 $WKST MVA   WKDCB,IODCB            SET UP CONTROL BLOCK FOR SVC CALL
002FBC  4020 2DF0 2DF0   1801       MVA   WSIDT,WKDCB+14         DATA ADDP
002FC2  502D             1802       J     XIO
                         1803 *
002FC4  4020 3120 2DB2   1804 $RWST MVA   PKDCB,IODCB            SET UP CONTROL BLOCK FOR SVC CALL
002FCA  4020 2DC0 2DF6   1805       MVA   SCTST,PKDCB+14         DATA ADDP
002FD0  5026             1806       J     XIO
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                         1807 *
002FD2  4020 3120 2D32   1808 $RIDS MVA   RSDCB,IODCB            SET UP CONTROL BLOCK FOR SVC CALL
002FD8  0BFF             1809       MVBI  X'FF',R3               SET BUFFER TO F'S
002FDA  4524 2DF6        1810       MVA   SCTST,R5               SETUP READ SECTOR ID BUFFER ADRS
002FDE  4724 0006        1811       MVWI  6,R7                   SETUP BUFFEP LENGTH
002FE2  2BAC             1812       FFN   R3,(R5)                INIT READ SECTOR ID BUFFER
002FE4  4020 2D40 2DF6   1813       MVA   SCTST,RSDCB+14         DATA ADDR
002FEA  5019             1814       J     XIO
                         1815 *
002FEC  4020 3120 2DA2   1816 $WKEW MVA   WKDCB,IODCB             SET UP CONTROL BLOCK FOR SVC CALL
002FF2  4020 2DB0 2DE8   1817       MVA   WRSID,WKDCB+14         DATA ADDP
002FF8  5012             1818       J     XIO
                         1819 *
002FFA  4020 3120 2D22   1820 $WSEC MVA   WSDCB,IODCB             SET UP CONTROL BLOCK FOR SVC CALL
003000  4020 2D30 2DE8   1821       MVA   WRSID,WSDCB+14         DATA ADDR
003006  500B             1822       J     XIO
003008  4020 3120 2D22   1823 $WSTS MVA   WSDCB,IODCB             SET UP CONTROL BLOCK FOR SVC CALL
00300E  4020 2D30 2DF0   1824       MVA   WSIDT,WSDCB+14         DATA ADDR
003014  5004             1825       J     XIO
                         1826 *
003016  4020 3120 2D02   1827 $DIAG MVA   DGDCB,IODCB            SET UP CONTROL BLOCK FOR SVC CALL
00301C  5000             1828       J     XIO
                         1829       XEQIT
                         1830*************************************************************29JUL76**
                         1831+*
                         1832+* SUB-ROUTINE
                         1833+*
                         1834+*     EXECUTE INPUT AND OUTPUT COMMANDS
                         1835+*
                         1836+* PURPOSE
                         1837+*
                         1838+*     TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.
                         1839+*     THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:
                         1840+*
                         1841+*     1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED
                         1842+*        THE I/O COMMAND.
                         1843+*     2. SAVES THE DCB BLOCK USED UNLESS IT IS A START CYCLE STATUS
                         1844+*        ISSUED BY THIS SUBROUTINE.
                         1845+*     3. CLEAR OUT THE CYCLE STEAL STATUS STORAGE UNLESS THE
                         1846+*        START CYCLE STATUS WAS ISSUED BY THIS SUBROUTINE.
                         1847+*     4. RESETS THE INTERRUPT INDICATOR AND CHECKS FOP ANY INTERRUPT
                         1848+*        SINCE THE LAST EXPECTED INTERPUPT. IF AN INTERRUPT IS FOUND,
                         1849+*        MYSTEPY INTERRUPT (MI) CONTROL BIT IS SET.
                         1850+*     5. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE
                         1851+*        EXPECTED INTERRUPT CONTROL BIT AND ISSUE THE 'SVC  START'.
                         1852+*     6. WHEN THE SUPVR RTSPNS AFTER ISSUING THE I/O COMMAND, TIMING
                         1853+*        STARTS TO DETERMINE A LOST INTERPUPT.
                         1854+*     7. EXCEPT THE INTERPUPT AND GATHEP INFORMATION TO DETERMINE IF IT
                         1855+*        WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL.
                         1856+*     8. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.
                         1857+*     9. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETUPN.
                         1858+*    10. CHECK IF THERE WAS AN ERROR CONDITION, IF NOT RETURN.
                         1859+*    11. CHECK TO SEE IF THE EXERCISER IS TO BE TERMINATED.
                         1860+*    12. CHECK IF A CYCLE STEAL OPERATION WAS IN PROGRESS THAT WAS
                         1861+*        ISSUED BY THIS SUBROUTINE.
                         1862+*    13. CHECK THE ISB BITS THAT ARE ON. IF BIT 0 IS ON, ISSUE A
                         1863+*        CYCLE STEAL STATUS COMMAND. CHECK FOP ANY OTHEP BIT BEING ON,
                         1864+*        COUNT IT AND SET UP THE PROPEP ERROR MESSAGE TO BE PPINTED.
                         1865+*
                         1866+* CALLING SEQUENCE
                         1867+*
                         1868+*     THIS POUTINE HAS THE FOLLOWING ENTRIES:
                         1869+*
                         1870+* --> BAL   XIO        OP          XEQ ANY CYCLE STEAL COMMAND, MOD=0
                         1871+* --> BAL   XIO1       OP          MOD PARM PRELOADED IN 'IOMOD'
                         1872+* --> BAL   XIOCS,R6    OP          XEQ START CYCLE STEAL STATUS, MOD=F
                         1873+* --> BAL   XIOCS-4,R6              AUTO CS STATUS (FOLLOWING OTHEP XIO
                         1874+*        .                         AND DOES NOT POST INTERRUPT STATUS)
                         1875+*
                         1876+* RETURN CONTROL
                         1877+*
                         1878+*     BXS   (R6,2)                PETURN TO USER NO EPROP
                         1879+* OR  B     (R6)*                 RETURN AND RETRY ON  ERROR
                         1880+************************************************************************
00301E  CB25 3122        1882+XIO   MVWZ  IOMOD,R3              SET MOF OF 0 FOR CYCLE STEAL OP
003022  500A             1883+      J     XIO1                  CS I/O'S ARE NOT RETRIED
                         1884+*
003024  4CAA             1885+      TBTR  (R4,CE)               RESET CS STATUS INTEP EPROP INDICAT.
003026  4C68             1886+      TBTS  (R4,CS)               SET 'CYCLE STEAL STATUS' IN PROGPESS
003028  4020 3120 2D62   1887+XIOCS MVA   CSDCB,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
00302E  4024 3122 000F   1888+      MVWI  X'000F',IOMOD         SET CYCLE STEAL MODIFIER
003034  4C28             1889+      TBT   (R4,CS)               IS CS IN PPOGRESS, EPROP CONDITION
003036  1213             1890+      JON   XIO2                  * YES, BYPASS SAVING I/O ADRS
003038  6E0D 260A        1891+XIO1  MVW   R6,LSTIO              SAVE IAR FOP RETRY IF PEQUESTED
00303C  4324 2614        1892+      MVA   DCBUF,R3              SET UP TO ADPS TO MOVE DCB TABLE
003040  6D08 3120        1893+      MVW   IODCB,R5              * AND THE FROM ADRS, ALONG WITH
003044  0F10             1894+      MVBI  16,R7                 * THE NUMBER OF MOVES
003046  2D6A             1895+      MVFN  (R5),(R3)             MOVE 1 STATUS WORD AND ADJUST
003048  0BFF             1896+      MVBI  255,R3                CLEAR CYCLE STATUS BUFFER
00304A  4524 2624        1897+      MVA   CSBUF,R5              *  TO ALL ONES  *
00304E  0F10             1898+      MVBI  16,R7                 *
003050  2BAC             1899+      FFN   R3,(R5)               *
003052  4020 2606 0708   1900+      MVWI  X'0708',$IOIN         OVERLAY OLD CONDITION CODES
003058  CB25 2608        1901+      MVWZ  $ISB,R3               ZEPO OUT OLD ISB VALUE
                         1902+*
00305C  4CA1             1903+      TBTR  (R4,EP)               RESET ANY EPROP BEFORE I/O COMMAND
00305E  4CA3             1904+XIO2  TBTR  (R4,IN)               CLEAP INTERRUPT RECEIVED CNTL BIT
003060  4724 311C        1905+      MVA   IOBIK,R7              SET UP CONTROL BLOCK FOR SUPVP
003064  4CA6             1906+      TBTR  (R4,$LE)              RESET LEVEL ERROR INDICATOR
003066  4C62             1907+      TBTS  (R4,XI)               SET EXPECTED INTR CONTROL BIT
003068  600A             1908+      SVC   START                 CALL SUPVR FOR I/O COMMAND
                         1909+*
00306A  4CA7             1910+      TBTR  (R4,NI)               IS AN INTR EXPECTED
00306C  6AC0 0002        1911+      BN    (R6,2)                * NO, PETURN TO USEP
                         1912+*
                         1913+*          THE INTR SHOULD OCCUR WHILE SPINNING IN THE NEXT SECTION
                         1914+*
003070  0D00             1915+      MVBI  X'00',R5              SET UP WORK REG FOR 'LOST INTR'
003072  4CA3             1916+XIO8  TBTR  (R4,IN)               HAS INTERRUPT BEEN RECEIVED
003074  1238             1917+      JON   XIOCK                 * YES, CHECK IF ALL WAS SATISFACTOPY
003076  6002             1918+      SVC   IDLE                  ALLOW ANOTHEP PROGRAM A CHANCE TO RUN
                         1919+*                                 SUPVR WILL RETURN HERE
003078  7DA1 0001        1920+      AWI   1,R5                  ADVANCE TIME OUT COUNT
00307C  18FA             1921+      JNZ   XIO8                  BCH IF TIME OUT NOT REACHED
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

00307E  4C61              1922+       TBTS  (R4,EF)              SET ON ERROR CONTROL BIT
003080  68D2 0000         1923+       B     (R6)*                ERR 'NO INTERRUPT'
                          1925+*****************************************************************03FEB76**
                          1926+*
                          1927+* SUBROUTINE
                          1928+*
                          1929+*      I/O EXECUTE ERROR HANDLING ROUTINE
                          1930+*
                          1931+* PURPOSE
                          1932+*
                          1933+*      THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE
                          1934+*      PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE
                          1935+*      SUPERVISOR AND IT WAS NOT ACCEPTED.
                          1936+*
                          1937+* CALLING SEQUENCE
                          1938+*
                          1939+*      SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O COMMAND
                          1940+*
                          1941+* RETURN CONTROL
                          1942+*
                          1943+*      B     (R6)*                RETURN TO USERS ERROR HANDLER
                          1944+*
                          1945+*************************************************************************
                          1946+*
                          1947+* CC        0= DEVICE NOT ATTACHED
                          1948+* FOR       1= DEVICE BUSY
                          1949+* I/O       2= DEVICE BUSY AFTER RESET
                          1950+*           3= COMMAND REJECT
                          1951+*           4= INTERVENTION REQUIRED
                          1952+*           5= INTERFACE DATA CHECK
                          1953+*           6= CONTROLLER BUSY
                          1954+*           7= I/O COMMAND EXCEPTED
                          1955+*
003084  706E              1956+XIOER DC     X'706E'              COPY STATUS ANY LEVEL INTO R3
003086  336A              1957+      SRL    13,R3                POSITION CC CODE TO BITS 13-15
003088  C328 2606         1958+      MVB    R3,$IOIN             * PUT IN LOG OUT AREA
00308C  68D2 0000         1959+      B      (R6)*                RETURN TO USER ERROR HANDLER
                          1961+*****************************************************************14APR76**IL
                          1962+*                                                                      IL
                          1963+* SUB-ROUTINE                                                         IL
                          1964+*                                                                      IL
                          1965+*      ERROR INTERRUPT           RUNS ON INTERRUPT LEVEL '$INTL'       IL
                          1966+*                                                                      IL
                          1967+* PURPOSE                                                            IL
                          1968+*                                                                      IL
                          1969+*      THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR   IL
                          1970+*      OR THE INTERRUPTING CONDITION CODE DOES NOT AGREE WITH THE     IL
                          1971+*      EXPECTED CODE.                                                 IL
                          1972+*                                                                      IL
                          1973+* CALLING SEQUENCE                                                   IL
                          1974+*                                                                      IL
                          1975+*      SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT      IL
                          1976+*                                                                      IL
                          1977+* RETURN CONTROL                                                     IL
                          1978+*                                                                      IL
                          1979+*      SVC   EXIT                RETURN TO USER VIA SUPVR              IL
                          1980+*                                                                      IL
                          1981+*************************************************************************IL
                          1982+*                                                                      IL
                          1983+* CC        0= CONTROLLER END                 ISR   0= ADD STATUS     IL
                          1984+* FOR       1= PROGRAM CONTROL INTERRUPT      BITS  1= COMD REJECT    IL
                          1985+* INTP      2= EXCEPTION INTERRUPT            FOR   2= INCOR LENGTH   IL
                          1986+*           3= DEVICE END INTERRUPT           INTR  3= DCB SPEC CK    IL
                          1987+*           4= ATTENTION INTERRUPT                  4= STG DATA CK    IL
                          1988+*           5= ATTENTION / PROGRAM CNTL INTP        5= INV STG ADRS   IL
                          1989+*           6= ATTENTION / EXCEPTION INTP           6= PROTECT CK     IL
                          1990+*           7= ATTENTION / DEVICE END INTR          7= I-FACE DATA    IL
                          1991+*                                                                      IL
003090  706E              1992+INTER DC     X'706E'              COPY STATUS ANY LEVEL INTO R3       IL
003092  336A              1993+      SRL    13,R3                POSITION INDICATORS IN R3           IL
003094  4424 25FE         1994+      MVA    OPTN1,R4             SET UP BASE ADRS                    IL
003098  4C28              1995+      TBT    (R4,CS)              IS CS IN PROGRESS                   IL
00309A  1006              1996+      JOFF   INTES                * NO                              IL
00309C  4C6A              1997+      TBTS   (R4,CE)              TURN ON CYCLE STEAL INTER ERROR     IL
00309E  6F0D 2632         1998+      MVW    R7,CSTI8             SAVE CS ERR ISR VALUE, BITS 0-7     IL
0030A2  C328 2633         1999+      MVB    R3,CSTI8+1           * AND THE COND CODE                 IL
0030A6  500A              2000+      J      INTR1                                                    IL
0030A8  4C24              2001+INTES TBT    (R4,XE)              TEST  EXPECTED ATTEN / ERROP IND    IL
0030AA  1002              2002+      JOFF   INTET                BCH IF NOT EXPECTED                 IL
0030AC  F304              2003+      CBI    4,R3                 IS THIS AN 'ATTENTION' INTP         IL
0030AE  1006              2004+      JE     INTR1                * YES, BCH TO END INTP SEQUENCE     IL
0030B0  4C61              2005+INTET TBTS   (R4,EF)              SET ERROR ON I/O COMMAND CNTL BIT   IL
0030B2  5004              2006+      J      INTP1                                                    IL
                          2007+*                                 THE ERROR INTERRUPT USES THE SAME   IL
                          2008+*                                 ENDING SEQUENCE AS THE NORMAL INTR  IL
                          2010+*****************************************************************14APR76IL
                          2011+*                                                                      IL
                          2012+* SOUBROUTINE                                                         IL
                          2013+*                                                                      IL
                          2014+*      OKAY  INTERRUPT           RUNS ON INTERRUPT LEVEL '$INTL'       IL
                          2015+*                                                                      IL
                          2016+* PUPPOSE                                                            IL
                          2017+*                                                                      IL
                          2018+*      TO CHECK THE INTERRUPT AND CONTINUE THE TEST                   IL
                          2019+*                                                                      IL
                          2020+* CALLING SEQUENCE                                                   IL
                          2021+*                                                                      IL
                          2022+*      SUPERVISOR WILL ENTEP HEPE  IF INTP CC IS AS REQUESTED         IL
                          2023+*      THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS POUTINE         IL
                          2024+*      AFTER THE SPECIAL PAPT HAS BEEN COMPLETED  AND THE             IL
                          2025+*      COMMON SECTION IS HANDLED HERE.                                IL
                          2026+*                                                                      IL
                          2027+* RET"RN CONTROI                                                     IL
                          2028+*                                                                      IL
                          2029+*      SVC   EXIT                RETURN TO USEP VIA SUPVP              IL
                          2030+*                                                                      IL
                          2031+*************************************************************************IL
0030B4  706E              2032+INTOK DC     X'706E'              COPY STATUS ANY LEVEL INTO R3       IL
0030B6  336A              2033+      SRL    13,R3                POSITION INDICATORS IN P3           IL
0030B8  4424 25FE         2034+      MVA    OPTN1,R4             SET UP BASE ADRS                    IL
0030BC  4C63              2035+INTR1 TBTS   (R4,IN)              SET  INTEPRUPT PECEIVED             IL
0030BE  4C28              2036+      TBT    (P4,CS)              IS 'CS IN PPOGRESS' ON              IL
0030C0  1204              2037+      JON    INTP2                * YES, PCH AROUND UPDATE            IL
0030C2  C328 2607         2038+      MVB    R3,$IOIN+1           SAVE INTEPRUPTING CC CODE           IL
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

0030C6  6F0D 2608         2039+       MVW    R7,$ISB              SAVE INTR STATUS AND DEV ADRS       IL
0030CA                    2040+INTR2 EQU    *                                                        IL
                          2041+*      CPCL   R5                   CURPENT LEVEL COPIED BY DCP         IL
0030CA  3521              2042+       SLL    4,R5                 POSITION INTR LEVEL AND PUT         IL
0030CC  0501              2043+       ABI    1,R5                 * IN 'I' BIT                        IL
0030CE  CD24 263A         2044+       CW     $INTL,R5             IS THIS THE CORRECT INTR LEVEL      IL
0030D2  1002              2045+       JE     INTR3                * YES, GO EXIT THIS LEVEL           IL
0030D4  4C66              2046+       TBTS   (R4,$LE)             SET INTR LEVEL ERROR CONTPOL BIT    IL
0030D6  4C61              2047+       TBTS   (P4,EE)              SET ERROR ON I/O COMMAND CNTL BIT   IL
0030D8  4CA2              2048+INTR3 TBTR   (R4,XI)              WAS INTERRUPT EXPECTED              IL
0030DA  1204              2049+       JON    INTRX                * YES, EXIT OFF THIS INTR LEVEL     IL
0030DC  4C60              2050+       TBTS   (R4,MI)              * NO, SET MYSTERY INTR CONTPOL BIT  IL
0030DE  F304              2051+       CBI    4,R3                 ATTENTION INTERRUPT?               IL
0030E0  1001              2052+       JE     INTRX                YES                                 IL
0030E2  4C6C              2053+       TBTS   (R4,NG)              ERROR,UNEXPECTED INTERRUPT          IL
0030E4  6006              2054+INTRX SVC    EXIT                 EXIT THIS LEVEL VIA SUPVR TO PGM    IL
                          2056+*****************************************************************03FEB76**
                          2057+*
                          2058+*      THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT
                          2059+*      HAS BEEN SERVICED. THE EXERCISER FINDS AN INTERRUPT HAS BPEN
                          2060+*      RECEIVED AND BPANCHES HERE TO CHECK FOR ANY ERPOP CONDITIONS.
                          2061+*
                          2062+*
0030E6  4CA4              2063+XIOCK TBTR   (R4,XE)              WAS AN ERPOP EXPECTED
0030E8  6AC0 0002         2064+       BN     (R6,2)               * YES, EXIT THIS ROUTINE
0030EC  4CA8              2065+       TBTR   (R4,CS)              WAS AUTO CS IN PROGRESS
0030EE  1006              2066+       JOFF   XIOCV                * NO, CONTINUE CHECKING
0030F0  4C2A              2067+       TBT    (R4,CE)              IS CS IN AN ERR CONDITION
0030F2  1002              2068+       JOFF   XIOCO                * NO, BCH
0030F4  68D2 0000         2069+       B      (R6)*                CS ERROR
0030F8  4C69              2070+XIOCO TBTS   (R4,CSA)             TURN ON CS STATS AVAIL FLAG
0030FA  5601              2071+       BXS    (R6,2)               GO TO USER
0030FC  4C21              2072+XIOCV TBT    (P4,ER)              WAS EPROF INTR CONTROL BIT ON
0030FE  100B              2073+       JOFF   XIOCX                * NO, EXIT THIS ROUTINE
                          2074+*
003100  C520 2607         2075+       MVB    $IOIN+1,R5           GET LAST INTR CC CODE
003104  F502              2076+       CBI    2,R5                 IS THIS CC=2
003106  68D1 0000         2077+       BNE    (R6)*                * NO, BCH TO ERROR HANDLER
00310A  C520 2608         2078+XIOCQ MVB    $ISB,R5              GET LAST ISB DATA BYTE AND IF CS
00310E  6A00 3024         2079+       BN     XIOCS-4              * AVAILABLE, GO AND GET IT
003112  68D2 0000         2080+       B      (R6)*                ERROR
003116  CB25 2602         2081+XIOCX MVWZ   OPTN3,R3             CLEAR OUT OPTION 3 CNTL BITS
00311A  5601              2082+       BXS    (R6,2)               RETUPN TO USER VIA REG 6
                          2083+*
                          2084+*                 I/O   PARAMETER LIST
                          2085+*
00311C  19D0              2086+IOBLK DC     A(DEVADD)            ADRS OF DEVICE ADRS
00311E  3084              2087+       DC     A(XIOER)             ERROR ROUTINE ADRS
003120  0000              2088+IODCB DC     A(*-*)               DCB ADRS OR LEVEL & INTR
003122  0000              2089+IOMOD DC     A(*-*)               MODIFIEP
003124  0000              2090+       DC     A(*-*)               ADRS OF LAST SVC CALL
003126  0000              2091+IORSP DC     A(*-*)               SECOND WORD OF LAST IDCB
                          2092+*
                          2093+*          INTEPRUPT CONTROL PLOCK FOR I/O COMMANDS
                          2094+*
003128  19D0              2095+INTBL DC     A(DEVADD)            ADRS OF DEVICE ADPS
00312A  30B4              2096+       DC     A(INTOK)             INTERRUPT OK RETURN ADRS
00312C  3090              2097+       DC     A(INTER)             INTERRUPT ERROR ADRS
00312E  0003              2098+INTCC DC     X'0003'              INTERPUPT CODE EXPECTED
                          2100+*****************************************************************11MAY76**
                          2101+*
                          2102+* SUBPOUTINE
                          2103+*
                          2104+*      CONNECT INTERRUPT CONTROI BLOCK & PREPARE DEVICE
                          2105+*
                          2106+* PURPOSE
                          2107+*
                          2108+*      TO CONNECT THE INTEPRUPT CONTPOL BLOCK TO THIS DEVICE AND
                          2109+*      PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE
                          2110+*      TO INTEPRUPT.
                          2111+*
                          2112+* CALLING SEQUENCE
                          2113+*
                          2114+*      THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:
                          2115+*
                          2116+* --> BAL    $CONC,R6             CLEAR DEV DEP STG AND CONNECT I/O BLK
                          2117+* --> BAL    $CONP,R6             PPEPARE DEVICE ONLY, ALREADY CONNECT
                          2118+*
                          2119+* RETURN CONTPOL
                          2120+*
                          2121+*      BXS    (R6,2)               RETURN TO USER VIA FEG 6 IF OKAY
                          2122+* OR  B      (R6)*                IF THE DEVICE COULD NOT BE CONNECTED
                          2123+*
                          2124+*************************************************************************
003130  0F06              2125+$CONC MVBI   6,P7                 NUMBER OF BYTE TO CLEAR
003132  0B00              2126+       MVPI   0,R3                 * AND THE DATA TO USE
003134  4524 260C         2127+       MVA    DEV1,R5              * ALONG WITH THE ADPS TO USE
003138  2BAC              2128+       FFN    R3,(R5)              *
00313A  CB25 2602         2129+       MVWZ   OPTN3,R3             CLEAP OLD CONTPOLS FOP NEW ROUTINE
00313E  4724 3128         2130+       MVA    INTL,R7              SET R7 TO CONTPOL BLOCK AND
003142  6014              2131+       SVC    CICB                 * CONNECT IT TO THIS DEVICE
003144  6AD0 0000         2132+       BN     (R6)*                EPROP PETURN TO USEP
                          2133+*
003148  8828 263A 3120    2134+$CONP MVW    $INTL,IODCB          PUT IN LEVEL & INTR PARAMETER
00314E  4724 311C         2135+       MVA    IOBLK,R7             SET R7 TO CONTPOL BLOCK TO PREPARE
003152  4020 2606 0708    2136+       MVWI   X'0708',$IOIN        INITIALIZE CONDITION CODE STOPAGE
003158  CB25 2608         2137+       MVWZ   $ISB,R3              * AND CLEAR OLD ISB VALUE
00315C  6B0D 260A         2138+       MVW    R6,LSTIO             SET UP ADDRESS THAT STARTED LAST I/O
003160  600C              2139+       SVC    PPEP                 * AND CALL ON SUPVR
003162  5601              2140+       BXS    (R6,2)               RETURN TO USER
                          2142+*****************************************************************06APP76**
                          2143+*
                          2144+* SUBPOUTINE
                          2145+*
                          2146+*      DISCONNECT THE INTERRUPT CONTPOL BLOCK AND LOG ERPORS
                          2147+*
                          2148+* PURPOSE
                          2149+*
                          2150+*      DISCONNECT THE INTEPRUPT CONTROL BLOCK TO THIS DEVICE AND
                          2151+*      SET THE 'NO GOOD' CONTROL BIT, THEN LOG THE DATA THAT HAS
                          2152+*      BEEN FOUND TO HELP THE OPERATOP DEFINE THE EPROP CONDITION.
                          2153+*
                          2154+* CALLING SEQUENCE
                          2155+*
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                         2156+*      THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:
                         2157+*
                         2158+* --> B      $ERR$                  SET 'NG' BIT AND CONVEPT DATA TO LOG
                         2159+* --> B      $CONX                  RETURN TO MDI SUPERVISOR TO TEST STS
                         2160+*
                         2161+* RETURN CONTROL
                         2162+*
                         2163+*      B      TUPTN*                 RETURN TO MDI
                         2164+* OR  B      (R6)*                  IF THE DEVICE COULD NOT BE CONNECTED
                         2165+*
                         2166+*************************************************************************
003164  4020 1818 8000   2167+$ERR$  MVWI   X'8000',TUSTATUS       SET ON 'NO GOOD' STATUS BIT
00316A  4724 32CE        2168+        MVA    HEELK,R7               GET ADRS OF CONTROL BLOCK
00316E  601A             2169+        SVC    HTOE                   CONVEPT HEX TO EBC VIS DCP
003170  0D03             2170+$PRNT   MVEI   3,R5
003172  4324 181A        2171+        MVA    TUWORK,R3              SET UP BUFFER STORAGE
003176  6B0D 32C6        2172+        MVW    R3,BUFPT
00317A  4124 31F6        2173+        MVA    LINE1,R1
00317E  0F04             2174+        MVBI   4,R7
003180  0D06             2175+        MVBI   8,R6
003182  2524             2176+MVBUF   MVFN   (R3),(R1)
003184  0F04             2177+        MVBI   4,R7
003186  0A40             2178+        MVBI   X'40',R2
003188  C258             2179+        MVB    R2,(R1)+
00318A  BEFB             2180+        JCT    MVBUF,R6
00318C  0E08             2181+        MVBI   8,R6
00318E  7921 002C        2182+        AWI    44,R1
003192  BDF7             2183+        JCT    MVBUF,R5
003194  4020 1802 F1F0   2184+        MVWI   PIDMSG10,PID+2
00319A  4020 19B8 32CC   2185+        MVA    FAKETU,@DCADD1
0031A0  4020 19BA 32C8   2186+        MVA    DC2PT,@DCADD2
0031A6  402C 19C4 0080   2187+        OWI    BIT0080,SUPSTAT
0031AC  4324 2604        2188+        MVA    $TUID,R3               SET UP BUFFER STORAGE
0031B0  6F13 18BA        2189+        BAL    TUMSGWTR*,P7           GO TO MESSAGE WRITER
                         2190+*
0031B4                   2191+$CONX   EQU    *
0031B4  C720 19D0        2192+        MVB    DEVADD,R7              GET DEVICE ADDRESS FROM MDI
0031B8  6013             2193+        SVC    RICB                   RELEASE INTERRUPT CONTROL BLOCK
0031BA  6812 263C        2194+        B      TUPTN*                 RETURN TO MDI SUPERVISOR
                         2195+*
0031BE  0007             2196+BEGIN   DC     A(0007)                NUMBER OF LINES TO PRINT
0031C0  0008             2197+        DC     A(0008)                LINE LENGTH = 8 CHAR
0031C2  5C5C40C1C2D6D9E3 2198+        DC     C'** ABORT'
0031CA  0028             2199+        DC     A(0040)                LINE LENGTH = 40 CHAR
0031CC  E3E4C9C440C9D6C9D 2200+       DC     C'TUID IOIN ISB  INST DEV1 DEV2 DEV3 DEV4 '
0031F4  0028             2201+        DC     A(0040)                LINE LENGTH = 40 CHAR
0031F6  4040404040404040 2202+LINE1   DC     C'                                       '
00321E  0028             2203+        DC     A(0040)                LINE LENGTH = 40 CHAR
003220  C3D5E3D340C4C3C2F 2204+       DC     C'CNTL DCB2 DCB3 DCB4 DCB5 CHAD BYCT ADRS '
003248  0028             2205+        DC     A(0040)                LINE LENGTH = 40 CHAR
00324A  4040404040404040 2206+LINE2   DC     C'                                       '
003272  0028             2207+        DC     A(0040)                LINE LENGTH = 40 CHAR
003274  D9E2C9C440C3E260F 2208+       DC     C'RSID CS-2 CS-3 CS-4  CS-5 CS-6 CS-7 CS-8 '
00329C  0028             2209+        DC     A(0040)                LINE LENGTH = 40 CHAR
00329E  4040404040404040 2210+LINE3   DC     C'                                       '
                         2211+*
0032C6  0000             2212+BUFPT   DC     A(*-*)
0032C8  31BE             2213+DC2PT   DC     A(BEGIN)
0032CA  0101             2214+FIXTU   DC     X'0101'
0032CC  0101             2215+FAKETU    DC   X'0101'
00F1F0                   2216+PIDMSG10  EQU    X'F1F0'
000080                   2217+BIT0080   EQU    X'0080'
                         2218+*
                         2219+*       DATA CONTPOL BLOCK FOR CONVEPTING HEX TO EBCDIC
                         2220+*
0032CE  0030             2221+HEBLK   DC     A(48)                  NUMBEP OF FYTES TO CONVEFT
0032D0  2604             2222+        DC     A($TUID)               FROM ADRS
0032D2  181A             2223+        DC     A(TUWORK)              AND THE TO ADRS
000000                   2224         END
```


CROSS-REFERENCE LISTING COPYRIGHT IBM CORP 1976

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DECLARED  NAME       ATTPIBUTES AND REFERENCES
       0  .P0.       ABSOLUTE. HEX VALUE(00000000)
                      879   880   905   907   959   961  1138  1139  1146
                     1148  1681  1682  1683  1684  1688  1689  1690  1691
       0  .R1.       ABSOLUTE. HEX VALUE(00000001)
                      678   724   726   728   730   732   739   740  2173
                     2176  2179  2182
       0  .R2.       ABSOLUTE. HEX VALUE(00000002)
                      673   674   675   676   677   686   687   712   713
                      718   734   735   736   737   738   761   777   893
                      894   895   896   975   978   981   984   989   992
                      995   998  1013  1016  1019  1041  1042  1044  1051
                     1055  1063  1064  1067  1149  1150  1151  1165  1225
                     1228  1231  1235  1253  1258  1272  1275  1278  1282
                     1291  1293  1294  1297  1299  2178  2179
       0  .R3.       ABSOLUTE. HEX VALUE(00000003)
                     1157  1587  1588  1629  1633  1635  1714  1716  1772
                     1775  1779  1782  1793  1796  1809  1812  1882  1892
                     1895  1896  1901  1957  1958  1993  1999  2003
                     2033  2038  2051  2081  2126  2128  2129  2137  2171
                     2172  2176  2188
       0  .R4.       ABSOLUTE. HEX VALUE(00000004)
                      669   681   696   700   708   710   753   772   797
                      875   888   910   917   951   955   962   967  1025
                     1027  1134  1154  1161  1172  1180  1194  1201  1204
                     1219  1238  1264  1266  1286  1885  1886  1889  1903
                     1904  1906  1907  1910  1916  1922  1994  1995  1997
                     2001  2005  2034  2035  2036  2046  2047  2048  2050
                     2053  2063  2065  2067  2070  2072
       0  .R5.       ABSOLUTE. HEX VALUE(00000005)
                     1030  1031  1033  1035  1037  1039  1222  1223  1226
                     1229  1232  1269  1270  1273  1276  1279  1630  1634
                     1635  1715  1716  1773  1775  1780  1782  1794  1796
                     1810  1812  1893  1895  1897  1899  1915  1920  2042
                     2043  2044  2075  2076  2078  2127  2128  2170  2183
       0  .R6.       ABSOLUTE. HEX VALUE(00000006)
                      670   679   694   698   748   751   768   770   795
                      876   908   915   921   923   949   965  1022  1023
                     1135  1152  1159  1170  1176  1178  1192  1196  1202
                     1211  1215  1216  1217  1236  1240  1244  1261  1262
                     1264  1288  1555  1559  1561  1565  1567  1571  1574
                     1578  1580  1584  1589  1636  1637  1676  1717  1891
                     1911  1923  1959  2064  2069  2071  2077  2080  2082
                     2132  2138  2140  2175  2180  2181
       0  .R7.       ABSOLUTE. HEX VALUE(00000007)
                      511   667   873   903   957  1132  1144  1628  1632
                     1713  1774  1781  1795  1811  1894  1898  1905  1998
                     2039  2125  2130  2135  2168  2174  2177  2189  2192
    2125  $CONC      ADDRESS. HEX LOCATION(00003130) IN CSECT(I7813   ) LENGTH(2)
                      670   876  1135
    2191  $CONX      ADDRESS. HEX LOCATION(000031B4) IN CSECT(I7813   ) LENGTH(1)
                      793   800  1070  1248
     732  $ER$       ADDRESS. HEX LOCATION(00002732) IN CSECT(I7813   ) LENGTH(2)
                      785
    2167  $ERR$      ADDRESS. HEX LOCATION(00003164) IN CSECT(I7813   ) LENGTH(6)
                      877   909   916   950   966  1024  1028  1136  1158
                     1160  1162  1171  1179  1193  1203  1218  1237  1239
                     1263  1267  1285
     500  $INTL      ADDRESS. HEX LOCATION(0000263A) IN CSECT(I7813   ) LENGTH(2)
                     2044  2134
     470  $IOIN      ADDRESS. HEX LOCATION(00002606) IN CSECT(I7813   ) LENGTH(2)
                      789  1588  1900  1958  2038  2075  2136
     471  $ISB       ADDRESS. HEX LOCATION(00002608) IN CSECT(I7813   ) LENGTH(2)
                      790  1901  2039  2078  2137
     455  $LE        ABSOLUTE. HEX VALUE(00000026)
                     1906  2046
    1771  $RDID      ADDRESS. HEX LOCATION(00002F5E) IN CSECT(I7813   ) LENGTH(6)
                      698   770  1023  1178  1202  1236
    1768  $RECL      ADDRESS. HEX LOCATION(00002F56) IN CSECT(I7813   ) LENGTH(6)
                      679   795   908  1152
    1808  $RIDS      ADDRESS. HEX LOCATION(00002FD2) IN CSECT(I7813   ) LENGTH(6)
                     1284
    1765  $SEEK      ADDRESS. HEX LOCATION(00002F4E) IN CSECT(I7813   ) LENGTH(6)
                      694   751   915   949   965  1170  1192  1244
     469  $TUID      ADDRESS. HEX LOCATION(00002604) IN CSECT(I7813   ) LENGTH(2)
                      510   668   874  1133  2188  2222
    1820  $WSEC      ADDRESS. HEX LOCATION(00002FFA) IN CSECT(I7813   ) LENGTH(6)
                     1217
    1823  $WSTS      ADDRESS. HEX LOCATION(00003008) IN CSECT(I7813   ) LENGTH(6)
                     1262
     105  @DCADD1    ADDRESS. HEX LOCATION(000019B8) IN CSECT(I7813   ) LENGTH(1)
                     2185
     106  @DCADD2    ADDRESS. HEX LOCATION(000019BA) IN CSECT(I7813   ) LENGTH(1)
                     2186
      42  @FIXT      ABSOLUTE. HEX VALUE(00000101)
                      354   369   372
      48  @TUXX      ABSOLUTE. HEX VALUE(00000500)
                      342   357
    2196  BEGIN      ADDRESS. HEX LOCATION(000031BE) IN CSECT(I7813   ) LENGTH(2)
                     2213
    2217  BIT0080    ABSOLUTE. HEX VALUE(00000080)
                     2187
    2212  BUFPT      ADDRESS. HEX LOCATION(000032C6) IN CSECT(I7813   ) LENGTH(2)
                     2172
     430  B60        ABSOLUTE. HEX VALUE(0000001C)
                      888   955   962
     433  B63        ABSOLUTE. HEX VALUE(0000001F)
                      708   710
    1456  CB29       ADDRESS. HEX LOCATION(00002DE4) IN CSECT(I7813   ) LENGTH(2)
                     1679
    1586  CCERR      ADDRESS. HEX LOCATION(00002EB6) IN CSECT(I7813   ) LENGTH(2)
                     1558  1564  1570  1577  1583
     459  CE         ABSOLUTE. HEX VALUE(0000002A)
                     1885  1997  2067
     539  CICB       ABSOLUTE. HEX VALUE(00000014)
                     2131
    1325  CLDCB      ADDRESS. HEX LOCATION(00002D12) IN CSECT(I7813   ) LENGTH(2)
                     1768
    1628  CMPRT      ADDRESS. HEX LOCATION(00002ED8) IN CSECT(I7813   ) LENGTH(4)
                     1288
    1632  CMPRW      ADDRESS. HEX LOCATION(00002EE6) IN CSECT(I7813   ) LENGTH(4)
                     1240
```

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DECLARED	NAME	ATTRIBUTES AND REFERENCES
1676	CONVT	ADDRESS. HEX LOCATION(00002EFC) IN CSECT(I7813) LENGTH(4) 748 768 921 1176 1196
1602	CPUID	ABSOLUTE. HEX VALUE(00000232) 879 1138
457	CS	ABSOLUTE. HEX VALUE(00000028) 1886 1889 1995 2036 2065
458	CSA	ABSOLUTE. HEX VALUE(00000029) 1027 1219 1266 2070
488	CSBUF	ADDRESS. HEX LOCATION(00002624) IN CSECT(I7813) LENGTH(1) 1029 1065 1163 1221 1268 1295 1382 1897
1375	CSDCB	ADDRESS. HEX LOCATION(00002D62) IN CSECT(I7813) LENGTH(2) 1887
490	CSTL2	ADDRESS. HEX LOCATION(00002626) IN CSECT(I7813) LENGTH(2) 788
496	CSTL8	ADDRESS. HEX LOCATION(00002632) IN CSECT(I7813) LENGTH(2) 1998 1999
478	DCBUF	ADDRESS. HEX LOCATION(00002614) IN CSECT(I7813) LFNGTH(1) 1892
2213	DC2PT	ADDRESS. HEX LOCATION(000032C8) IN CSECT(I7813) LENGTH(2) 2186
108	DEVADD	ADDRESS. HEX LOCATION(000019D0) IN CSECT(I7813) LENGTH(1) 503 686 1556 1562 1568 1575 1581 2086 2095 2192
473	DEV1	ADDRESS. HEX LOCATION(0000260C) IN CSECT(I7813) LENGTH(2) 477 2127
1313	DGDCB	ADDRESS. HEX LOCATION(00002D02) IN CSECT(I7813) LENGTH(2) 1827
1446	DIFF	ADDRESS. HEX LOCATION(00002DD0) IN CSECT(I7813) LENGTH(2) 706 713 719 744 780 781
70	DUMMY	ABSOLUTE. HEX VALUE(00000000) 333 374 386
375	ENTPT	ADDRESS. HEX LOCATION(00002558) IN CSECT(I7813) LENGTH(1) 201
50	EQ	ABSOLUTE. HEX VALUE(00000000) 345 360
450	ER	ABSOLUTE. HEX VALUE(00000021) 681 696 700 753 772 797 910 917 951 967 1025 1154 1161 1172 1180 1194 1204 1238 1264 1286 1903 1922 2005 2047 2072
1506	ER0SV	ADDRESS. HEX LOCATION(00002E48) IN CSECT(I7813) LENGTH(2) 891 986 1011
1502	EP00	ADDRESS. HEX LOCATION(00002E40) IN CSECT(I7813) LENGTH(2) 901 973 976 986 1011 1049
1503	ER01	ADDRESS. HEX LOCATION(00002E42) IN CSECT(I7813) LENGTH(2) 902 987 990 1000 1017 1047
1507	EP1SV	ADDRESS. HEX LOCATION(00002E4A) IN CSECT(I7813) LENGTH(2) 892 1000 1017
525	EXIT	ABSOLUTE. HEX VALUE(00000006) 2054
2215	FAKETU	ADDRESS. HEX LOCATION(000032CC) IN CSECT(I7813) LENGTH(2) 2185
788	FINS	ADDRESS. HEX LOCATION(000027D6) IN CSECT(I7813) LENGTH(6) 725 727 729 731 733 741
1457	FIVE9	ADDRESS. HEX LOCATION(00002DE6) IN CSECT(I7813) LENGTH(2) 1686
394	F00016	ADDRESS. HEX LOCATION(0000255E) IN CSECT(I7813) LENGTH(1) 355
400	F00023	ADDRESS. HEX LOCATION(00002596) IN CSECT(I7813) LENGTH(1) 370
406	F00027	ADDRESS. HEX LOCATION(000025CE) IN CSECT(I7813) LENGTH(1) 373
1500	GDSE0	ADDRESS. HEX LOCATION(00002E3C) IN CSECT(I7813) LENGTH(2) 899 976 982 1059
1501	GDSE1	ADDRESS. HEX LOCATION(00002E3E) IN CSECT(I7813) LENGTH(2) 900 990 996 1061
743	GO1	ADDRESS. HEX LOCATION(00002752) IN CSECT(I7813) LENGTH(1) 716
1504	HD0SV	ADDRESS. HEX LOCATION(00002E44) IN CSECT(I7813) LENGTH(2) 889 985 1014
1505	HD1SV	ADDRESS. HEX LOCATION(00002E46) IN CSECT(I7813) LENGTH(2) 890 999
1498	HEAD0	ADDRESS. HEX LOCATION(00002E38) IN CSECT(I7813) LENGTH(2) 897 939 979 982 985 1001 1014
1499	HEAD1	ADDRESS. HEX LOCATION(00002E3A) IN CSECT(I7813) LENGTH(2) 898 937 993 996 999 1003
2221	HEBLK	ADDRESS. HEX LOCATION(000032CE) IN CSECT(I7813) LENGTH(2) 2168
545	HTOE	ABSOLUTE. HEX VALUE(0000001A) 2169
1596	IDCBCE1	ADDRESS. HEX LOCATION(00002FCC) IN CSECT(I7813) LENGTH(2) 1562 1563
1598	IDCBCE2	ADDRESS. HEX LOCATION(00002FD0) IN CSECT(I7813) LENGTH(2) 1568 1569
1600	IDCBRAP	ADDRESS. HEX LOCATION(00002ED4) IN CSECT(I7813) LENGTH(2) 1556 1557
1592	IDCB0	ADDRESS. HEX LOCATION(00002EC4) IN CSECT(I7813) LENGTH(2) 1581 1582
1594	IDCB1	ADDRESS. HEX LOCATION(00002EC8) IN CSECT(I7813) LENGTH(2) 1575 1576
521	IDLE	ABSOLUTE. HEX VALUE(00000002) 906 960 1147 1918
452	IN	ABSOLUTE. HEX VALUE(00000023) 1904 1916 2035
2095	INTBL	ADDRESS. HEX LOCATION(00003128) IN CSECT(I7813) LENGTH(2) 2130
1992	INTEP	ADDRESS. HEX LOCATION(00003090) IN CSECT(I7813) LENGTH(2) 2097
2001	INTES	ADDRESS. HEX LOCATION(000030A8) IN CSECT(I7813) LENGTH(2) 1996
2005	INTET	ADDRESS. HEX LOCATION(000030B0) IN CSECT(I7813) LENGTH(2) 2002
2032	INTOK	ADDRESS. HEX LOCATION(000030B4) IN CSECT(I7813) LENGTH(2) 2096
2054	INTPX	ADDRESS. HEX LOCATION(000030E4) IN CSECT(I7813) LENGTH(2) 2049 2052
2035	INTR1	ADDRESS. HEX LOCATION(000030BC) IN CSECT(I7813) LENGTH(2) 2000 2004 2006
2040	INTP2	ADDRESS. HEX LOCATION(000030CA) IN CSECT(I7813) LENGTH(1) 2037
2048	INTR3	ADDRESS. HEX LOCATION(000030D8) IN CSECT(I7813) LENGTH(2) 2045

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DECLARED	NAME	ATTRIBUTES AND REFERENCES
2086	IOBLK	ADDRESS. HEX LOCATION(0000311C) IN CSECT(I7813) LENGTH(2) 903 957 1144 1905 2135
2088	IODCB	ADDRESS. HEX LOCATION(00003120) IN CSECT(I7813) LENGTH(2) 1765 1768 1771 1783 1786 1789 1792 1800 1804 1808 1816 1820 1823 1827 1887 1893 2134
2089	IOMOD	ADDRESS. HEX LOCATION(00003122) IN CSECT(I7813) LENGTH(2) 1882 1888
40	I7813	CSECT. START(00002500) LENGTH(3540) ESDID(0) 40
1454	LGSEC	ADDRESS. HEX LOCATION(00002DF0) IN CSECT(I7813) LENGTH(2) 747 765 767 920 928 940 942 1175 1186 1188 1255 1256 1677 1679 1682 1689
2202	LINE1	ADDRESS. HEX LOCATION(000031F6) IN CSECT(I7813) LENGTH(40) 2173
710	LOOP1	ADDRESS. HEX LOCATION(000026F0) IN CSECT(I7813) LENGTH(2) 783
472	LSTIO	ADDRESS. HEX LOCATION(0000260A) IN CSECT(I7813) LENGTH(2) 1555 1561 1567 1574 1580 1891 2138
1713	LWSID	ADDRESS. HEX LOCATION(00002F3E) IN CSECT(I7813) LENGTH(4) 1216
449	MI	ABSOLUTE. HEX VALUE(00000020) 2050
2176	MVBUF	ADDRESS. HEX LOCATION(00003182) IN CSECT(I7813) LENGTH(2) 2180 2183
461	NG	ABSOLUTE. HEX VALUE(0000002C) 2053
456	NI	ABSOLUTE. HEX VALUE(00000027) 1910
342	N00001	ADDRESS. HEX LOCATION(00002518) IN CSECT(I7813) LENGTH(2) 318 385
354	N00002	ADDRESS. HEX LOCATION(00002532) IN CSECT(I7813) LENGTH(2) 321
357	N00003	ADDRESS. HEX LOCATION(00002536) IN CSECT(I7813) LENGTH(2) 324 343
369	N00004	ADDRESS. HEX LOCATION(0000254E) IN CSECT(I7813) LFNGTH(2) 327
372	N00005	ADDRESS. HEX LOCATION(00002552) IN CSECT(I7813) LENGTH(2) 330 358
1441	ONE1	ADDRESS. HEX LOCATION(00002DC4) IN CSECT(I7813) LENGTH(2) 715 758 761 780
414	OPTN1	ADDRESS. HEX LOCATION(000025FE) IN CSECT(I7813) IENGTH(2) 669 875 1134 1994 2034
437	OPTN3	ADDRESS. HEX LOCATION(00002602) IN CSECT(I7813) LENGTH(2) 791 2081 2129
104	PARMAPA	ADDRESS. HEX LOCATION(0000196E) IN CSECT(I7813) LENGTH(1) 352 367
1497	PASS1	ADDRESS. HEX LOCATION(00002E36) IN CSECT(I7813) LENGTH(2) 887 971 1007
1455	PHYSC	ADDRESS. HEX LOCATION(00002DE2) IN CSECT(I7813) LENGTH(2) 749 769 922 1177 1197 1198 1199 1200 1684 1686 1691
72	PID	ADDRESS. HEX LOCATION(00001800) IN CSECT(I7813) LENGTH(1) 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 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 2184
2216	PIDMSG10	ABSOLUTE. HEX VALUE(0000F1F0) 2184
531	PREP	ABSOLUTE. HEX VALUE(0000000C) 2139
1408	RDDCB	ADDRESS. HEX LOCATION(00002D92) IN CSECT(I7813) LENGTH(2) 1780 1783
1022	RDID	ADDRESS. HEX LOCATION(00002A46) IN CSECT(I7813) LENGTH(4) 923
527	RESET	ABSOLUTE. HEX VALUE(00000008) 904 958 1145
538	RICB	ABSOLUTE. HEX VALUE(00000013) 2193
1352	RIDCB	ADDRESS. HEX LOCATION(00002D42) IN CSECT(I7813) LENGTH(2) 691
1430	RKDCB	ADDRESS. HEX LOCATION(00002DB2) IN CSECT(I7813) LENGTH(2) 1200 1792 1797 1804 1805
1340	RSDCB	ADDRESS. HEX LOCATION(00002D32) IN CSECT(I7813) LENGTH(2) 689 692 693 749 769 919 922 1174 1177 1197 1771 1776 1808 1813
1688	RTT01	ADDRESS. HEX LOCATION(00002F2A) IN CSECT(I7813) LENGTH(4) 1680
784	RTY22	ADDRESS. HEX LOCATION(000027D2) IN CSECT(I7813) LENGTH(2) 705
785	RT201	ADDRESS. HEX LOCATION(000027D4) IN CSECT(I7813) LENGTH(2) 703
764	RT203	ADDRESS. HEX LOCATION(00002790) IN CSECT(I7813) LENGTH(1) 759 775
776	RT204	ADDRESS. HEX LOCATION(000027BA) IN CSECT(I7813) LENGTH(1) 756
746	RT205	ADDRESS. HEX LOCATION(0000275E) IN CSECT(I7813) LENGTH(1) 722
779	RT208	ADDRESS. HEX LOCATION(000027C0) IN CSECT(I7813) LFNGTH(1) 762
477	SCTID	ADDRESS. HEX LOCATION(0000260C) IN CSECT(I7813) LENGTH(2) 702 704 755 758 774 777 924 926 928 930 932 1182 1184 1206 1347 1359 1437 1633 1714 1773 1776 1794 1797
1465	SCTST	ADDRESS. HEX LOCATION(00002DF6) IN CSECT(I7813) LENGTH(2) 1629 1805 1810 1813
1364	SKDCB	ADDRESS. HEX LOCATION(00002D52) IN CSECT(I7813) LENGTH(2) 683 684 685 689 691 709 714 719 720 721 744 745 912 913 914 930 932 935 944 946 946 947 948 953 953 963 964 969 1045 1057 1167 1168 1169 1190 1191 1242 1243 1765
717	SKRV	ADDRESS. HEX LOCATION(0000270A) IN CSECT(I7813) LENGTH(1) 711
529	STAPT	ABSOLUTE. HEX VALUE(0000000A) 1908
1510	STATS	ADDRESS. HEX LOCATION(00002E50) IN CSECT(I7813) LENGTH(2) 1029 1030 1221 1222 1233 1268 1269 1280
107	SUPSTAT	ADDRESS. HEX LOCATION(000019C4) IN CSECT(I7813) IENGTH(1) 2187
960	TTT5	ADDRESS. HEX LOCATION(0000296C) IN CSECT(I7813) LENGTH(2)

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DECLARED	NAME	ATTRIBUTES AND REFEPENCES
		961
1686	TT303	ADDRESS. HEX LOCATION(00002F22) IN CSECT(I7813) LENGTH(6)
		1678
1692	TT304	ADDRESS. HEX LOCATION(00002F3A) IN CSECT(I7813) LENGTH(4)
		1676 1685 1687
1635	TT4Y	ADDRESS. HEX LOCATION(00002EF2) IN CSECT(I7813) LENGTH(2)
		1631
95	TUMSGWTR	ADDRESS. HEX LOCATION(000018BA) IN CSECT(I7813) LENGTH(1)
		2189
79	TUPARM1	ADDRESS. HEX LOCATION(0000189A) IN CSECT(I7813) LENGTH(1)
		914 964 1191 1242
80	TUPARM2	ADDRESS. HEX LOCATION(0000189C) IN CSECT(I7813) LENGTH(1)
		948
101	TURESUL	ADDRESS. HEX LOCATION(000018C8) IN CSECT(I7813) LENGTH(1)
		673 674 675 676 677 678 734 735 736
		737 738 739 788 789 790 791 893 894
		895 896 1005 1065 1149 1150 1151 1295
501	TURTN	ADDRESS. HEX LOCATION(0000263C) IN CSECT(I7813) LENGTH(2)
		667 873 1132 2194
77	TUSTATUS	ADDRESS. HEX LOCATION(00001818) IN CSECT(I7813) LENGTH(1)
		2167
78	TUWORK	ADDRESS. HEX LOCATION(0000181A) IN CSECT(I7813) LENGTH(1)
		2171 2223
724	T02A	ADDRESS. HEX LOCATION(00002722) IN CSECT(I7813) LENGTH(2)
		682 784 798
726	T02B	ADDRESS. HEX LOCATION(00002726) IN CSECT(I7813) LENGTH(2)
		697
728	T02C	ADDRESS. HEX LOCATION(0000272A) IN CSECT(I7813) LENGTH(2)
		701 763 766 773
730	T02D	ADDRESS. HEX LOCATION(0000272E) IN CSECT(I7813) LENGTH(2)
		754 778
740	T02ER	ADDRESS. HEX LOCATION(0000274E) IN CSECT(I7813) LENGTH(2)
		680 695 699 752 771 796
734	T02R	ADDRESS. HEX LOCATION(00002736) IN CSECT(I7813) LENGTH(4)
		671
795	T2END	ADDRESS. HEX LOCATION(000027F2) IN CSECT(I7813) LENGTH(4)
		782
1057	T50A	ADDRESS. HEX LOCATION(00002AA4) IN CSECT(I7813) LENGTH(6)
		927
1063	T50AA	ADDRESS. HEX LOCATION(00002AC0) IN CSECT(I7813) LENGTH(2)
		911
940	T50B	ADDRESS. HEX LOCATION(0000291E) IN CSECT(I7813) LENGTH(6)
		934 938 1060 1062
1067	T50BB	ADDRESS. HEX LOCATION(00002ACC) IN CSECT(I7813) LENGTH(2)
		918 952 968
939	T50C	ADDRESS. HEX LOCATION(00002918) IN CSECT(I7813) LENGTH(6)
		936
1064	T50CC	ADDRESS. HEX LOCATION(00002AC2) IN CSECT(I7813) LENGTH(2)
		1068
944	T50D	ADDRESS. HEX LOCATION(00002930) IN CSECT(I7813) LENGTH(6)
		941
921	T50E	ADDRESS. HEX LOCATION(000028CE) IN CSECT(I7813) LENGTH(4)
		943
955	T50F	ADDRESS. HEX LOCATION(0000295E) IN CSECT(I7813) LENGTH(2)
		945
920	T50G	ADDRESS. HEX LOCATION(000028C8) IN CSECT(I7813) LENGTH(6)
		954 970
971	T50H	ADDRESS. HEX LOCATION(00002992) IN CSECT(I7813) LENGTH(6)
		956
1011	T50I	ADDRESS. HEX LOCATION(00002A24) IN CSECT(I7813) LENGTH(6)
		972
935	T50J	ADDRESS. HEX LOCATION(00002908) IN CSECT(I7813) LENGTH(6)
		925 929 931 933
979	T50L	ADDRESS. HEX LOCATION(000029AE) IN CSECT(I7813) LENGTH(6)
		974 977
985	T50M	ADDRESS. HEX LOCATION(000029C2) IN CSECT(I7813) LENGTH(6)
		980 983
993	T50N	ADDRESS. HEX LOCATION(000029E2) IN CSECT(I7813) LENGTH(6)
		988 991
999	T50R	ADDRESS. HEX LOCATION(000029F6) IN CSECT(I7813) LENGTH(6)
		994 997
1007	T50S	ADDRESS. HEX LOCATION(00002A1A) IN CSECT(I7813) LENGTH(6)
		1002 1004
1070	T50T	ADDRESS. HEX LOCATION(00002AD0) IN CSECT(I7813) LENGTH(4)
		1006 1020 1056 1066
885	T50TC	ADDRESS. HEX LOCATION(0000282A) IN CSECT(I7813) LENGTH(6)
		881
905	T50T1	ADDRESS. HEX LOCATION(00002890) IN CSECT(I7813) LENGTH(4)
		882 885
887	T50T2	ADDRESS. HEX LOCATION(00002836) IN CSECT(I7813) LFNGTH(6)
		884
959	T50T3	ADDRESS. HEX LOCATION(00002968) IN CSECT(I7813) LENGTH(4)
		883 886
897	T50U	ADDRESS. HEX LOCATION(00002866) IN CSECT(I7813) LENGTH(6)
		1008
1014	T50W	ADDRESS. HEX LOCATION(00002A2E) IN CSECT(I7813) LENGTH(6)
		1012
1017	T50X	ADDRESS. HEX LOCATION(00002A38) IN CSECT(I7813) LENGTH(6)
		1015
1020	T50Y	ADDRESS. HEX LOCATION(00002A42) IN CSECT(I7813) LENGTH(4)
		1018
1052	T500	ADDRESS. HEX LOCATION(00002A9A) IN CSECT(I7813) LENGTH(4)
		1022 1026 1048 1050
1051	T501	ADDRESS. HEX LOCATION(00002A98) IN CSECT(I7813) LENGTH(2)
		1032
1055	T502	ADDRESS. HEX LOCATION(00002A9E) IN CSECT(I7813) LENGTH(2)
		1034
1044	T503	ADDRESS. HEX LOCATION(00002A7E) IN CSECT(I7813) LFNGTH(2)
		1036 1038
1042	T504	ADDRESS. HEX LOCATION(00002A7A) IN CSECT(I7813) LENGTH(2)
		1040
1045	T505	ADDRESS. HEX LOCATION(00002A80) IN CSECT(I7813) LENGTH(6)
		1043
1049	T506	ADDRESS. HEX LOCATION(00002A90) IN CSECT(I7813) LENGTH(6)
		1046
1061	T507	ADDRESS. HEX LOCATION(00002AB6) IN CSECT(I7813) LENGTH(6)
		1058
906	T750	ADDRESS. HEX LOCATION(00002894) IN CSECT(I7813) LENGTH(2)
		907
692	T7777	ADDRESS. HEX LOCATION(000026AA) IN CSECT(I7813) LENGTH(6)
		690

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DECLARED	NAME	ATTRIBUTES AND REFERENCES
667	T7802	ADDRESS. HEX LOCATION(0000264C) IN CSECT(I7813) LENGTH(4)
		344
1147	T784	ADDRESS. HEX LOCATION(00002B08) IN CSECT(I7813) LENGTH(2)
		1148
873	T7850	ADDRESS. HEX LOCATION(00002800) IN CSECT(I7813) LENGTH(4)
		359
691	T7888	ADDRESS. HEX LOCATION(000026A4) IN CSECT(I7813) LENGTH(6)
		688
1255	T84A	ADDRESS. HEX LOCATION(00002C82) IN CSECT(I7813) LENGTH(6)
		1205 1207
1293	T84AA	ADDRESS. HEX LOCATION(00002CEC) IN CSECT(I7813) LENGTH(2)
		1155 1164 1166
1283	T84B	ADDRESS. HEX LOCATION(00002CD0) IN CSECT(I7813) LENGTH(2)
		1281
1294	T84BB	ADDRESS. HEX LOCATION(00002CEE) IN CSECT(I7813) LENGTH(2)
		1298 1300
1232	T84C	ADDRESS. HEX LOCATION(00002C48) IN CSECT(I7813) LENGTH(2)
		1230
1226	T84CC	ADDRESS. HEX LOCATION(00002C3C) IN CSECT(I7813) LENGTH(2)
		1224
1229	T84DD	ADDRESS. HEX LOCATION(00002C42) IN CSECT(I7813) LENGTH(2)
		1227
1291	T84E	ADDRESS. HEX LOCATION(00002CE8) IN CSECT(I7813) LENGTH(2)
		1289
1297	T84EE	ADDRESS. HEX LOCATION(00002CFA) IN CSECT(I7813) LENGTH(2)
		1173 1195
1236	T84F	ADDRESS. HEX LOCATION(00002C54) IN CSECT(I7813) LENGTH(4)
		1220 1234
1157	T84FF	ADDRESS. HEX LOCATION(00002B26) IN CSECT(I7813) LENGTH(4)
		1153
1276	T84GG	ADDRESS. HEX LOCATION(00002CBE) IN CSECT(I7813) LENGTH(2)
		1274
1253	T84H	ADDRESS. HEX LOCATION(00002C7E) IN CSECT(I7813) LENGTH(2)
		1241
1273	T84HH	ADDRESS. HEX LOCATION(00002CB8) IN CSECT(I7813) LENGTH(2)
		1271
1248	T84J	ADDRESS. HEX LOCATION(00002C7A) IN CSECT(I7813) LENGTH(4)
		1246 1254 1259 1283 1296
1258	T84JJ	ADDRESS. HEX LOCATION(00002C90) IN CSECT(I7813) LENGTH(2)
		1187
1196	T84K	ADDRESS. HEX LOCATION(00002BC2) IN CSECT(I7813) LENGTH(4)
		1257
1284	T84KK	ADDRESS. HEX LOCATION(00002CD2) IN CSECT(I7813) LENGTH(4)
		1265
1279	T84L	ADDRESS. HEX LOCATION(00002CC4) IN CSECT(I7813) LENGTH(2)
		1277
1290	T84R	ADDRESS. HEX LOCATION(00002CE4) IN CSECT(I7813) LENGTH(4)
		1261 1292
1299	T84T	ADDRESS. HEX LOCATION(00002CFE) IN CSECT(I7813) LENGTH(2)
		1287
1143	T84TC	ADDRESS. HEX LOCATION(00002AF8) IN CSECT(I7813) LENGTH(6)
		1140
1146	T84T1	ADDRESS. HEX LOCATION(00002B04) IN CSECT(I7813) LENGTH(4)
		1141 1143
1144	T84T2	ADDRESS. HEX LOCATION(00002AFE) IN CSECT(I7813) LENGTH(4)
		1142
1261	T84WR	ADDRESS. HEX LOCATION(00002C94) IN CSECT(I7813) LENGTH(4)
		1211 1215
1167	T84Z	ADDRESS. HEX LOCATION(00002B4A) IN CSECT(I7813) LENGTH(6)
		1156
1186	T842	ADDRESS. HEX LOCATION(00002B98) IN CSECT(I7813) LENGTH(6)
		1181 1183
1190	T843	ADDRESS. HEX LOCATION(00002BAA) IN CSECT(I7813) LENGTH(6)
		1185
1176	T844	ADDRESS. HEX LOCATION(00002B74) IN CSECT(I7813) LENGTH(4)
		1189
1397	VRDCB	ADDRESS. HEX LOCATION(00002D82) IN CSECT(I7813) LENGTH(2)
		1786
1419	WKDCB	ADDRESS. HEX LOCATION(00002DA2) IN CSECT(I7813) LENGTH(2)
		1199 1800 1801 1816 1817
1386	WRDCB	ADDRESS. HEX LOCATION(00002D72) IN CSECT(I7813) LENGTH(2)
		1789
1458	WRSID	ADDRESS. HEX LOCATION(00002DE8) IN CSECT(I7813) LENGTH(2)
		1337 1426 1634 1715 1817 1821
1330	WSDCB	ADDRESS. HEX LOCATION(00002D22) IN CSECT(I7813) LENGTH(2)
		1198 1820 1821 1823 1824
1462	WSIDT	ADDRESS. HEX LOCATION(00002DF0) IN CSECT(I7813) LENGTH(2)
		1208 1209 1210 1212 1213 1214 1630 1801 1824
453	XE	ABSOLUTE. HEX VALUE(00000024)
		1201 2001 2063
451	XI	ABSOLUTE. HEX VALUE(00000022)
		1907 2048
1882	XIO	ADDRESS. HEX LOCATION(0000301E) IN CSECT(I7813) LENGTH(4)
		1766 1769 1777 1784 1787 1790 1798 1802 1806
		1814 1818 1822 1825 1828
2053	XIOCK	ADDRESS. HEX LOCATION(000030E6) IN CSECT(I7813) LENGTH(2)
		1917
2070	XIOCO	ADDRESS. HEX LOCATION(000030F8) IN CSECT(I7813) LENGTH(2)
		2068
1887	XIOCS	ADDRESS. HEX LOCATION(00003028) IN CSECT(I7813) LENGTH(6)
		1159 2079
2072	XIOCV	ADDRESS. HEX LOCATION(000030FC) IN CSECT(I7813) LENGTH(2)
		2066
2081	XIOCX	ADDRESS. HEX LOCATION(00003116) IN CSECT(I7813) LENGTH(4)
		2073
1956	XIOER	ADDRESS. HEX LOCATION(00003084) IN CSECT(I7813) LENGTH(2)
		2087
1891	XIO1	ADDRESS. HEX LOCATION(00003038) IN CSECT(I7813) LENGTH(4)
		1883
1904	XIO2	ADDRESS. HEX LOCATION(0000305E) IN CSECT(I7813) LENGTH(2)
		1890
1916	XIO8	ADDRESS. HEX LOCATION(00003072) IN CSECT(I7813) LENGTH(2)
		1921
1447	XXX	ADDRESS. HEX LOCATION(00002DD2) IN CSECT(I7813) LENGTH(2)
		707 712 715 718
1440	ZERO0	ADDRESS. HEX LOCATION(00002DC2) IN CSECT(I7813) LENGTH(2)
		702 755 774 926 935 944 1005 1182 1206
		1677

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