```
 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                           3       COPY  LOG4802                ** MAP EC HISTORY **
                           4 ********************************************************************************
                           5 *                                                                              *
                           6 *                     ***       PREREQUISITES         ***                      *
                           7 *                                                                              *
                           8 *                                NONE                                          *
                           9 *                                                                              *
                          10 ********************************************************************************
                          11 *                                                                              *
                          12 *                     ***       MODIFICATIONS         ***                      *
                          13 *                                                                              *
                          14 *  MODIFICATION'S MADE TO CORRECT PROBLEMS ENCOUNTERED DURING TESTING          *
                          15 *                                                                              *
                          16 ********************************************************************************
                          17 *                                                                              *
                          18 *                     ***     REA'S INCORPORATED      ***                      *
                          19 *                                                                              *
                          20 *                                NONE                                          *
                          21 *                                                                              *
                          22 ********************************************************************************
                          23 *                                                                              *
                          24 *                     ***    SPECIAL INSTRUCTIONS     ***                      *
                          25 *                                                                              *
                          26 *                                NONE                                          *
                          27 *                                                                              *
                          28 ********************************************************************************
                          29 *                                                                              *
                          30 *                     ***       E. C. HISTORY         ***                      *
                          31 *                                                                              *
                          32 *          DATE 01OCT76  DATE 15MAR77  DATE 10JUN77  DATE 22JUL77              *
                          33 *          E.C. 578468   E.C. 578714   E.C. 578625   E.C. 578757              *
                          34 *                                                                              *
                          35 ********************************************************************************
002500                    37 I4802     START X'2500'            START ADDRESS OF ALL 'I' TYPE PROG
000100                    38 @QUES     EQU   X'0100'            EQUATED VALUE FOR MDI STATEMENT
000101                    39 @FIXT     EQU   X'0101'            EQUATED VALUE FOR MDI STATEMENT
000102                    40 @STOP     EQU   X'0102'            EQUATED VALUE FOR MDI STATEMENT
000200                    41 @GOTO     EQU   X'0200'            EQUATED VALUE FOR MDI STATEMENT
000201                    42 @CALL     EQU   X'0201'            EQUATED VALUE FOR MDI STATEMENT
000300                    43 @INPT     EQU   X'0300'            EQUATED VALUE FOR MDI STATEMENT
000400                    44 @QUXX     EQU   X'0400'            EQUATED VALUE FOR MDI STATEMENT
000500                    45 @TUXX     EQU   X'0500'            EQUATED VALUE FOR MDI STATEMENT
000600                    46 @NVLD     EQU   X'0600'            EQUATED VALUE FOR MDI STATEMENT
000000                    47 EQ        EQU   X'0000'            EQUATE FOR EQUAL
000004                    48 NE        EQU   X'0004'            EQUATE FOR NOT EQUAL
000008                    49 HI        EQU   X'0008'            EQUATE FOR HIGH
00000C                    50 NH        EQU   X'000C'            EQUATE FOR NOT HIGH
000010                    51 LO        EQU   X'0010'            EQUATE FOR LCW
000014                    52 NL        EQU   X'0014'            EQUATE FOR NOT LOW
000010                    53 LT        EQU   X'0010'            EQUATE FOR LESS THAN
00000C                    54 LE        EQU   X'000C'            EQUATE FOR LESS THAN OR EQUAL TO
000008                    55 GT        EQU   X'0008'            EQUATE FOR GREATER THAN
000014                    56 GE        EQU   X'0014'            EQUATE FOR GREATER THAN OR EQUAL TO
000200                    57 ON        EQU   X'0200'            EQUATE FOR ON
000202                    58 OF        EQU   X'0202'            EQUATE FOR OFF
000204                    59 MX        EQU   X'0204'            EQUATE FOR MIXED
000000                    60 EBC       EQU   X'0000'            EQUATE FOR EBCDIC DATA TRANSFER
000001                    61 HEX       EQU   X'0001'            EQUATE FOR HEX DATA TRANSFER
000001                    62 XTRNL     EQU   X'0001'            EQUATE FOR EXTERNAL REFERENCE
000000                    63 INTRNL    EQU   X'0000'            EQUATE FOR INTERNAL REFERENCE
000000                    64 PARM      EQU   X'0000'            EQUATE INDICATING PARAMETER
000001                    65 DA        EQU   X'0001'            EQUATE FOR DEVICE ADDRESS
000002                    66 UA        EQU   X'0002'            EQUATE FOR UNIT ADDRESS
000000                    67 DUMMY     EQU   X'0000'            DUMMY EQUATE
001800                    69 PID       EQU   *-X'0D00'          ADDRESS OF MDI HEADER
000232                    70 PTYPE     EQU   *-X'22CE'          ADDRESS OF PROCESSOR TYPE FIELD
00180C                    71 STEPNUM   EQU   PID+X'000C'        ADDRESS OF DECIMAL STEP NUMBER
00180E                    72 OPWD1     EQU   PID+X'000E'        ADDRESS OF OPTION WORD ONE
001810                    73 OPWD2     EQU   PID+X'0010'        ADDRESS OF OPTION WORD TWO
001818                    74 TUSTATUS  EQU   PID+X'0018'        ADDRESS OF TU STATUS WORD
00181A                    75 TUWORK    EQU   PID+X'001A'        ADDRESS OF TU WORK AREA
00189A                    76 TUPARM1   EQU   PID+X'009A'        ADDRESS OF PARM 1 POINTER
00189C                    77 TUPARM2   EQU   PID+X'009C'        ADDRESS OF PARM 2 POINTER
00189E                    78 TUPARM3   EQU   PID+X'009E'        ADDRESS OF PARM 3 POINTER
0018A0                    79 TUPARM4   EQU   PID+X'00A0'        ADDRESS OF PARM 4 POINTER
0018A2                    80 TUPARM5   EQU   PID+X'00A2'        ADDRESS OF PARM 5 POINTER
0018A4                    81 TUPARM6   EQU   PID+X'00A4'        ADDRESS OF PARM 6 POINTER
0018A6                    82 TUPARM7   EQU   PID+X'00A6'        ADDRESS OF PARM 7 POINTER
0018A8                    83 TUPARM8   EQU   PID+X'00A8'        ADDRESS OF PARM 8 POINTER
0018AA                    84 TUPARM9   EQU   PID+X'00AA'        ADDRESS OF PARM 9 POINTER
0018AC                    85 TUPARM10  EQU   PID+X'00AC'        ADDRESS OF PARM 10 POINTER
0018AE                    86 TUPARM11  EQU   PID+X'00AE'        ADDRESS OF PARM 11 POINTER
0018B0                    87 TUPARM12  EQU   PID+X'00B0'        ADDRESS OF PARM 12 POINTER
0018B2                    88 TUPARM13  EQU   PID+X'00B2'        ADDRESS OF PARM 13 POINTER
0018B4                    89 TUPARM14  EQU   PID+X'00B4'        ADDRESS OF PARM 14 POINTER
0018B6                    90 TUPARM15  EQU   PID+X'00B6'        ADDRESS OF PARM 15 POINTER
0018B8                    91 TUPARM16  EQU   PID+X'00B8'        ADDRESS OF PARM 16 POINTER
0018BA                    92 TUMSGWTR  EQU   PID+X'00BA'        ADDRESS OF -> TO COMMON MSG WRITER
0018BE                    93 TUUA      EQU   PID+X'00BE'        ADDRESS OF UNIT ADDRESS IN EBC
0018C0                    94 TUDA      EQU   PID+X'00C0'        ADDRESS OF DEVICE ADDRESS IN EBC
0018C2                    95 TUBUFF    EQU   PID+X'00C2'        ADDRESS OF LAST USED WORD IN MAP
0018C4                    96 TULAST    EQU   PID+X'00C4'        ADDRESS OF LAST ADDRESSABLE WORD
0018C6                    97 TURESULN  EQU   PID+X'00C6'        ADDRESS OF LENGTH OF TU RESULTS
0018C8                    98 TURESUL   EQU   PID+X'00C8'        ADDRESS OF TU RESULTS FIELD
0018FC                    99 MAPNAME   EQU   PID+X'00FC'        ADDRESS OF MAP NAME FIELD IN HEX
001948                   100 TUINPT    EQU   PID+X'0148'        ADDRESS OF $INPT DATA
00196E                   101 PARMARA   EQU   PID+X'016E'        ADDRESS OF $INPT INPUT AREA
0019B8                   102 @DCADD1   EQU   PID+X'01B8'        MDI POINTER
0019BA                   103 @DCADD2   EQU   PID+X'01BA'        MDI POINTER
0019C4                   104 SUPSTAT   EQU   PID+X'01C4'        ADDRESS OF MDI STATUS
0019D0                   105 DEVADD    EQU   PID+X'01D0'        ADDRESS OF DEVICE ADDRESS TABLE 0
0019DA                   106 DEVADD1   EQU   PID+X'01DA'        ADDRESS OF DEVICE ADDRESS TABLE 1
0019E4                   107 DEVADD2   EQU   PID+X'01E4'        ADDRESS OF DEVICE ADDRESS TABLE 2
0019EE                   108 DEVADD3   EQU   PID+X'01EE'        ADDRESS OF DEVICE ADDRESS TABLE 3
0019F8                   109 DEVADD4   EQU   PID+X'01F8'        ADDRESS OF DEVICE ADDRESS TABLE 4
001A02                   110 DEVADD5   EQU   PID+X'0202'        ADDRESS OF DEVICE ADDRESS TABLE 5
001A0C                   111 DEVADD6   EQU   PID+X'020C'        ADDRESS IF DEVICE ADDRESS TABLE 6
001A16                   112 DEVADD7   EQU   PID+X'0216'        ADDRESS OF DEVICE ADDRESS TABLE 7
                         113           PRINT OFF
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 LOCTR  OBJECT TEXT      STMT SCURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
002500  2588             198       DC    A(ENTPT)           POINT TO MAP ENTRY POINT TABLE
                         199 ********************************************************************************
                         200 ********************************************************************************
                         201 **                                                                            **
                         202 **   THE FOLLOWING TABLES ARE USED BY THE MDI SUPERVISOR (D3C00)               **
                         203 **   TO LOCATE THE CORRECT RULE TO INVOKE, TO OBTAIN THE PROPER                **
                         204 **   PARAMETERS TO PASS TO THE TU'S AND TO PASS TO THE OPERATOR                **
                         205 **   THE INDICATED MESSAGE(S). THERE ARE FOUR TABLES USED FOR THIS             **
                         206 **   PURPOSE THEY ARE:                                                        **
                         207 **                                                                            **
                         208 **   STEP AND RULE ADDRESS TABLE                                              **
                         209 **        THIS TABLE GIVES THE ADDRESS OF THE RULE TO INVOKE AND              **
                         210 **        THE ASSOCIATED STEP DECIMAL STEP NUMBER OF THAT RULE.               **
                         211 **        ENTRIES ARE AS FOLLOWES                                             **
                         212 **                  A)  AN ADDRESS OF THE RULE DC START AREA                  **
                         213 **                  B)  THE STEP NUMBER IN DECIMAL                            **
                         214 **                  C)  AN EQUATE FOR THE STEP NUMBER                         **
                         215 **                                                                            **
                         216 **   RULE INFORMATION TABLE                                                   **
                         217 **        THIS TABLE CONTAINES THE REQUIRED INFORMATION TO EXECUTE            **
                         218 **        THE APPROPRIATE RULE UNDER MDI. EACH RULE HAS ITS OWN               **
                         219 **        UNIQUELY DEFINED AREA INDICATED BELOW. END OF TABLE IS              **
                         220 **        INDICATED WITH A X'0000' FOR THE RULE EQUATE.                       **
                         221 **                                                                            **
                         222 **        $QUES                                                               **
                         223 **              A) RULE EQUATE X'0100'                                        **
                         224 **              B) ADDRESS OF THE YES LEG RULE                                **
                         225 **                                                                            **
                         226 **        $FIXT                                                               **
                         227 **              A) RULE EQUATE X'0101'                                        **
                         228 **              B) ADDRESS OF MESSAGE TO PRINT                                **
                         229 **                                                                            **
                         230 **        $STOP                                                               **
                         231 **              A) RULE EQUATE X'0102'                                        **
                         232 **              B) ADDRESS OF MESSAGE                                         **
                         233 **                                                                            **
                         234 **        $GOTO                                                               **
                         235 **              A) RULE EQUATE X'0200'                                        **
                         236 **              B) ADDRESS OF MESSAGE                                         **
                         237 **              C) NAME OF MAP TO GO TO                                       **
                         238 **              D) ENTRY POINT WITHIN GO TO MAP TO USE                        **
                         239 **              E) INDICATOR FOR EXTERNAL OR INTERNAL REFERENCE               **
                         241 **                                                                            **
                         242 **        $CALL                                                               **
                         243 **              A) RULE EQUATE X'0201'                                        **
                         244 **              B) ADDRESS OF MESSAGE                                         **
                         245 **              C) NAME OF MAP TO CALL                                        **
                         246 **              D) ENTRY POINT WITHIN CALLED MAP TO USE                       **
                         247 **              E) INDICATOR FOR EXTERNAL OR INTERNAL REFERENCE               **
                         248 **                                                                            **
                         249 **        $INPT                                                               **
                         250 **              A) RULE EQUATE X'0300'                                        **
                         251 **              B) INPUT TYPE (EBCDIC OR HEX)                                 **
                         252 **              C) ADDRESS OF YES LEG RULE                                    **
                         253 **              D) DESTINATION LOCATION OF INPUT DATA                         **
                         254 **              E) LENGTH OF INPUT DATA                                       **
                         255 **              F) LOWER LIMIT OF GOOD DATA                                   **
                         256 **              G) HIGHER LIMIT OF GOOD DATA                                  **
                         257 **                                                                            **
                         258 **        $QUXX                                                               **
                         259 **              A) RULE EQUATE X'0400'                                        **
                         260 **              B) ADDRESS OF YES LEG RULE                                    **
                         261 **              C) TU BRANCH TO ADDRESS (INITIAL)                             **
                         262 **              D) TU BRANCH TO ADDRESS (SECCNDARY)                           **
                         263 **              E) LENGTH OF PARAMETER IN BYTES                               **
                         264 **              F) PARAMETER TO PASS TO TU                                    **
                         265 **              G) STORE ADDRESS FOR FIRST 8 WORDS OF PARAMETER               **
                         266 **                                                                            **
                         267 **        $TUXX                                                               **
                         268 **              A) RULE EQUATE X'0500'                                        **
                         269 **              B) ADDRESS OF YES LEG RULE                                    **
                         270 **              C) TU BRANCH TO ADDRESS                                       **
                         271 **              D) TYPE OF COMPARE TO MAKE ON RESULTS                         **
                         272 **              E) LENGTH OF COMPARED RESULTS                                 **
                         273 **              F) MASK FIELD FOR COMPARE                                     **
                         274 **              G) LENGTH OF PARAMETER IN BYTES                               **
                         275 **              H) PARAMETER TO PASS TO THE TU                                **
                         276 **              I) STORE ADDRESS FOR FIRST 8 WORDS OF PARAMETER               **
                         277 **                                                                            **
                         278 **        $NVLD                                                               **
                         279 **              A) RULE EQUATE X'0600'                                        **
                         281 **                                                                            **
                         282 **   ENTRY POINT TABLE                                                        **
                         283 **        THIS TABLE CONTAINS THE ENTRY POINTS WITHIN THE MAP THAT            **
                         284 **        THE MAP CAN BE ENTERED FROM THESE ENTRY POINTS ARE                  **
                         285 **        REFERENCED BY NAME AND ADDRESS. ENTRIES ARE AS FOLLOWES:            **
                         286 **                                                                            **
                         287 **            A) NAME OF ENTRY POINT                                          **
                         288 **            B) ADDRESS OF ENTRY POINT RULE TABLE                            **
                         289 **                                                                            **
                         290 **        THE ENTRY POINT TABLE END IS INDICATED BY A X'0000'                 **
                         291 **                                                                            **
                         292 **   MESSAGE TABLE                                                            **
                         293 **        THIS TABLE CONTAINES THE MESSAGE PASSED TO THE OPERATOR             **
                         294 **        VIA THE MDI SUPERVISOR. THE TABLE IS AS FOLLOWES:                   **
                         295 **                                                                            **
                         296 **            A) EQUATE FOR START OF MESSAGE BLOCK                            **
                         297 **            B) NUMBER OF LINES OF MESSAGE                                   **
                         298 **            C) LENGTH OF FOLLOWING LINE                                     **
                         299 **            D) FIRST LINE OF MESSAGE                                        **
                         300 **            E) LENGTH OF FOLLOWING LINE                                     **
                         301 **            F) SECOND LINE OF MESSAGE                                       **
                         302 **            G) ETC.                                                         **
                         303 **                                                                            **
                         304 ********************************************************************************
                         305 ********************************************************************************
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                   COPYRIGHT IBM CORP 1976
                         308 ************************************************************************
                         309 ************************************************************************
                         310 **                                                                    **
                         311 **                    STEP AND RULE ADDRESS TABLE                     **
                         312 **                                                                    **
                         313 ************************************************************************
                         314 ************************************************************************
002502  2528             315          DC    AL2(N00001)
002504  0001             316          DC    XL2'0001'
000001                   317 EQN00001 EQU       0001
002506  252C             318          DC    AL2(N00002)
002508  0002             319          DC    XL2'0002'
000002                   320 EQN00002 EQU       0002
00250A  2530             321          DC    AL2(N00003)
00250C  0003             322          DC    XL2'0003'
000003                   323 EQN00003 EQU       0003
00250E  2542             324          DC    AL2(N00004)
002510  0004             325          DC    XL2'0004'
000004                   326 EQN00004 EQU       0004
002512  254E             327          DC    AL2(N00005)
002514  0005             328          DC    XL2'0005'
000005                   329 EQN00005 EQU       0005
002516  2560             330          DC    AL2(N00006)
002518  0006             331          DC    XL2'0006'
000006                   332 EQN00006 EQU       0006
00251A  256C             333          DC    AL2(N00007)
00251C  0007             334          DC    XL2'0007'
000007                   335 EQN00007 EQU       0007
00251E  257E             336          DC    AL2(N00008)
002520  0008             337          DC    XL2'0008'
000008                   338 EQN00008 EQU       0008
002522  2582             339          DC    AL2(N00009)
002524  0009             340          DC    XL2'0009'
000009                   341 EQN00009 EQU       0009
002526  0000             342          DC    AL2(DUMMY)
                         343 ************************************************************************
                         344 ************************************************************************
                         345 **                                                                    **
                         346 **                    RULE INFORMATION TABLE                          **
                         347 **                                                                    **
                         348 ************************************************************************
                         349 ************************************************************************
                         350 N00001   $QUES QT=(Q00046),YES=N0000Q3,CT=(C00037),ST=(S00048)
002528  0100             351+N00001   DC    A(@QUES)
00252A  2530             352+         DC    AL2(N00003)
                         353 N00002   $FIXT FT=(F00051)
00252C  0101             354+N00002   DC    A(@FIXT)
00252E  258E             355+         DC    A(F00051)
                         356 N00003   $TUXX T4802,02,8F3E,OF,QT=(Q00056),YES=N00005,CT=(C00055)
002530  0500             357+N00003   DC    A(@TUXX)
002532  254E             358+         DC    AL2(N00005)
002534  2756             359+         DC    A(T4802)
002536  0202             360+         DC    AL2(OF)
002538  0002             361+         DC    AL2(02)
00253A  8F3E             362+         DC    X'8F3E'
                         363+         ALIGN WORD
00253C  0000             364+         DC    AL2(0)
00253E  C1C1             365+         DC    C'AA'
                         366+         ALIGN WORD
002540  196E             367+         DC    AL2(PARMARA)
                         368 N00004   $CALL TYPE=XTRNL,MAP=4810,EP=A,FT=(F00058),GTO=((4810,A))
002542  0201             369+N00004   DC    A(@CALL)
002544  25DA             370+         DC    A(F00058)
002546  F4F8F1F0         371+         DC    CL4'4810'
00254A  C140             372+         DC    CL2'A'
00254C  0001             373+         DC    AL2(XTRNL)
                         374 N00005   $TUXX T3C02,02,0040,OF,QT=(Q00061),YES=N00007,ST=(S00015)
00254E  0500             375+N00005   DC    A(@TUXX)
002550  256C             376+         DC    AL2(N00007)
002552  274E             377+         DC    A(T3C02)
002554  0202             378+         DC    AL2(OF)
002556  0002             379+         DC    AL2(02)
002558  0040             380+         DC    X'0040'
                         381+         ALIGN WORD
00255A  0000             382+         DC    AL2(0)
00255C  C1C1             383+         DC    C'AA'
                         384+         ALIGN WORD
00255E  196E             385+         DC    AL2(PARMARA)
                         386 N00006   $CALL TYPE=XTRNL,MAP=4820,EP=B,FT=(F00064),GTO=((4820,B))
002560  0201             387+N00006   DC    A(@CALL)
002562  25FA             388+         DC    A(F00064)
002564  F4F8F2F0         389+         DC    CL4'4820'
002568  C240             390+         DC    CL2'B'
00256A  0001             391+         DC    AL2(XTRNL)
                         392 N00007   $TUXX T3C02,02,0000,EQ,QT=(Q00067),YES=N00009,ST=(S00015)
00256C  0500             393+N00007   DC    A(@TUXX)
00256E  2582             394+         DC    AL2(N00009)
002570  274E             395+         DC    A(T3C02)
002572  0000             396+         DC    AL2(EQ)
002574  0002             397+         DC    AL2(02)
002576  0000             398+         DC    X'0000'
                         399+         ALIGN WORD
002578  0000             400+         DC    AL2(0)
00257A  C1C1             401+         DC    C'AA'
                         402+         ALIGN WORD
00257C  196E             403+         DC    AL2(PARMARA)
                         404 N00008   $FIXT FT=(F00070),CT=(C00014)
00257E  0101             405+N00008   DC    A(@FIXT)
002580  261A             406+         DC    A(F00070)
                         407 N00009   $FIXT FT=(F00074)
002582  0101             408+N00009   DC    A(@FIXT)
002584  2646             409+         DC    A(F00074)
002586  0000             410          DC    AL2(DUMMY)
002588                   411 ENTPT    EQU   *
                         412 ************************************************************************
                         413 ************************************************************************
                         414 **                                                                    **
                         415 **                    ENTRY POINT TABLE                               **
                         416 **                                                                    **
                         417 ************************************************************************
                         418 ************************************************************************
                         419          ENTPT EP=A,STEP=000Q1
002588  C140             420+         DC    CL2'A'
00258A  2528             421+         DC    A(N00001)
00258C  0000             422          DC    AL2(DUMMY)
                         423 ************************************************************************
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                   COPYRIGHT IBM CORP 1976
                         424 ************************************************************************
                         425 **                                                                    **
                         426 **                    MESSAGE TABLE                                   **
                         427 **                                                                    **
                         428 ************************************************************************
                         429 ************************************************************************
00258E                   430 F00051   EQU   *
00258E  0002             431          DC    AL2(0002)
002590  002E             432          DC    A(0046)
002592  C9D5E2C5D9E340C14 433          DC    CL0046'INSERT A DIAGNOSTIC OR A SCRATCH DISKETTE AND '
0025C0  0018             434          DC    A(0024)
0025C2  D3D6C1C440E3C8C54 435         DC    CL0024'LOAD THE PROGRAM AGAIN. '
0025DA                   436 F00058   EQU   *
0025DA  0002             437          DC    AL2(0002)
0025DC  000C             438          DC    A(0012)
0025DE  E3C5E2E340C6C1C9D 439         DC    CL0012'TEST FAILED '
0025EA  000E             440          DC    A(0014)
0025EC  C7D640E3D640D4C1D 441         DC    CL0014'GO TO MAP 4810'
0025FA                   442 F00064   EQU   *
0025FA  0002             443          DC    AL2(0002)
0025FC  000C             444          DC    A(0012)
0025FE  E3C5E2E340C6C1C9D 445         DC    CL0012'TEST FAILED '
00260A  000E             446          DC    A(0014)
00260C  C7D640E3D640D4C1D 447         DC    CL0014'GO TO MAP 4810'
00261A                   448 F00070   EQU   *
00261A  0001             449          DC    AL2(0001)
00261C  0028             450          DC    A(0040)
00261E  D9C5D7D3C1C3C540E 451         DC    CL0040'REPLACE THE DISKETTE UNIT ATTACH. CARD. '
002646                   452 F00074   EQU   *
002646  0006             453          DC    AL2(0006)
002648  0012             454          DC    A(0018)
00264A  D4C1D740D9C1D540C 455         DC    CL0018'MAP RAN CORRECTLY.'
00265C  0002             456          DC    A(0002)
00265E  4040             457          DC    CL0002' '
002660  002C             458          DC    A(0044)
002662  C9C640E8D6E440C8C 459         DC    CL0044'IF YOU HAVE HAD PROBLEMS RUNNING WITH A ONE '
00268E  002A             460          DC    A(0042)
002690  E2C9C4C5C440C4C9E 461         DC    CL0042'SIDED DISKETTE AND HAVE RUN THE AUTO MAPS '
0026BA  002C             462          DC    A(0044)
0026BC  E6C9E3C8D6E4E340C 463         DC    CL0044'WITHOUT ERROR WITH THE DIAGNOSTIC DISKETTE, '
0026E8  001E             464          DC    A(0030)
0026EA  C7D640E3D640D4C1D 465         DC    CL0030'GO TO MAP 0173, ENTRY POINT D.'
                         466          HDIT  0106
002708  0000             468+OPTN1    DC    X'0000'          PROGRAM OPTION CONTROL WORD 1
                         469+**
00270A  0000             470+OPTN2    DC    X'0000'          PROGRAM OPTION CONTROL WORD 2
                         471+**                    BIT    HEX
000010                   472+B48      EQU   16     0      8   PROBLEM PROGRAM CONTROL BITS
000011                   473+B49      EQU   17     1      4   *
000012                   474+B50      EQU   18     2      2   * THESE BITS ARE USED WITH THE
000013                   475+B51      EQU   19     3      1   * SECOND OPTION WD   AND ARE TO
000014                   476+B52      EQU   20     4      8   * BE ASSIGNED BY EACH PROGRAMMER
000015                   477+B53      EQU   21     5      4   *
000016                   478+B54      EQU   22     6      2   *
000017                   479+B55      EQU   23     7      1   *
000018                   480+B56      EQU   24     8      8   *
000019                   481+B57      EQU   25     9      4   *
00001A                   482+B58      EQU   26    10      2   *
00001B                   483+B59      EQU   27    11      1   *
00001C                   484+B60      EQU   28    12      8   *
00001D                   485+B61      EQU   29    13      4   *
00001E                   486+B62      EQU   30    14      2   *
00001F                   487+B63      EQU   31    15      1   *
00001E                   488+CH       EQU   30    14      2   CHARACTER SUPPLIED
00001F                   489+CMP      EQU   31    15      1   COMPARE OPERATION
00270C  0000             491+OPTN3    DC    X'0000'          PROGRAM OPTION CONTROL WORD 3
                         492+**
                         493+*  0  MYSTERY INTERRUPT      MI        8  CS STATUS IN PROGRESS    CS
                         494+*  1  ERROR INTERRUPT        ER        9  CS AVAILABLE             CSA
                         495+*  2  EXPECTED INTERRUPT     XI       10  CS STATUS INTERRUPT ERR  CE
                         496+*  3  INTERRUPT RECEIVED     IN       11  ISB BITS ON (1-7)        ISBON
                         497+*
                         498+*  4  EXPECTED ERR/ATTENT    XE       12  TEST UNIT RESULTS VOID   NG
                         499+*  5  HARD ERRCR FOUND       HE       13  OIO CC ERROR             IOCC
                         500+*  6  WRONG INTR LEVEL       $LE      14  NO INTERRUPT             NOIN
                         501+*  7  NO INTR EXPECTED       NI       15  INTERRUPT CC ERROR       INCC
                         502+**                    BIT    HEX
000020                   503+MI       EQU   32     0      8   MYSTERY INTERRUPT HAPPENED
000021                   504+ER       EQU   33     1      4   ERROR RECEIVED ON INTERRUPT
000022                   505+XI       EQU   34     2      2   EXPECTED INTERRUPT CONTROL BIT
000023                   506+IN       EQU   35     3      1   INTERRUPT RECEIVED CONTROL BIT
000024                   507+XE       EQU   36     4      8   EXPECTED ERROR RESPONSE
000025                   508+HE       EQU   37     5      4   HARD ERROR, 8 RETRIES
000026                   509+$LE      EQU   38     6      2   INTERRUPT ON WRONG LEVEL ERROR
000027                   510+NI       EQU   39     7      1   NO INTERRUPT EXPECTED E
000028                   511+CS       EQU   40     8      8   CYCLE STATUS IN PROGRESS
000029                   512+CSA      EQU   41     9      4   CYCLE STEAL AVAILABLE
00002A                   513+CE       EQU   42    10      2   CYCLE STEAL STATUS INERRRUPT ERROR
00002B                   514+ISBON    EQU   43    11      1   ISB BITS ON (1-7)
00002C                   515+NG       EQU   44    12      8   TEST UNIT RESULTS NO GOOD
00002D                   516+IOCC     EQU   45    13      4   OIO CC ERROR
00002E                   517+NCIN     EQU   46    14      2   NO INTERRUPT
00002F                   518+INCC     EQU   47    15      1   INTERRUPT CC ERROR
                         519+*
                         520+*    COMMON BUFFER FOR PRINTING DATA
                         521+*
002710  0000             523+$TUID    DC    A(*-*)           TEST UNIT IDENTIFICATION
002712  0000             524+$IOIN    DC    A(*-*)           I/O AND INTR CONDITION CODES
002714  0000             525+$ISB     DC    A(*-*)           R7, INTR STATUS BYTE & DEV ADRS
002716  0000             526+$STIO    DC    A(*-*)           ADRS OF LAST I/O + 4 BYTES
002718  0000             527+DEV1     DC    A(*-*)           DEVICE DEPENDENT DATA
00271A  0000             528+DEV2     DC    A(*-*)           *
00271C  0000             529+DEV3     DC    A(*-*)           *
00271E                   530+DEV4     DC    A(*-*)           *
002716                   531+SCTID    EQU   DEV1             READ ID BUFFER FOR IBIS & TERN
00271E                   532+DCBUF    EQU   *                DCB BUFFER FOR LAST DCB USED
00271E  0000             533+DCB1     DC    A(*-*)           LAST DCB TABLE, CONTROL WORD
002720  0000             534+DCB2     DC    A(*-*)           LAST DCB TABLE, DEV DEP WORD
002722  0000             535+DCB3     DC    A(*-*)           LAST DCB TABLE, DEV DEP WORD
002724  0000             536+DCB4     DC    A(*-*)           LAST DCB TABLE, DEV DEP WORD
002726  0000             537+DCB5     DC    A(*-*)           LAST DCB TABLE, DEV DEP WORD
002728  0000             538+DCB6     DC    A(*-*)           LAST DCB TABLE, CHAIN ADRS
00272A  0000             539+DCB7     DC    A(*-*)           LAST DCB TABLE, BYTE COUNT
00272C  0000             540+DCB8     DC    A(*-*)           LAST DCB TABLE, BUFFER ADDRESS
                         541+*
00272E                   542+CSBUF    EQU   *                CYCLE STEAL DATA BUFFER
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
00272E  0000                543+CSTL1 DC    A(*-*)                 CYCLE STEAL BUFFER, RESIDUAL ADRS
002730  0000                544+CSTL2 DC    A(*-*)                 CYCLE STEAL WD 2, DEVICE DEPEND
002732  0000                545+CSTL3 DC    A(*-*)                 CYCLE STEAL WD 3, DEVICE DEPEND
002734  0000                546+CSTL4 DC    A(*-*)                 CYCLE STEAL WD 4, DEVICE DEPEND
002736  0000                547+CSTL5 DC    A(*-*)                 CYCLE STEAL WD 5, DEVICE DEPEND
002738  0000                548+CSTL6 DC    A(*-*)                 CYCLE STEAL WD 6, DEVICE DEPEND
00273A  0000                549+CSTL7 DC    A(*-*)                 CYCLE STEAL WD 7, DEVICE DEPEND
00273C  0000                550+CSTL8 DC    A(*-*)                 CYCLE STEAL WD 8, DEVICE DEPEND
                            551+*
00273E  0000                552+$SUBN DC    A(*-*)                 LAST SUBROUTINE ADDRESS USED
002740  00000000            553+$DATA DC    2A(*-*)                OPTIONAL DATA
002744  0021                554+$INTL DC    X'0021'                INTERRUPT LEVEL REQUESTED
002746  0000                555+TURTN DC    A(*-*)                 TEST UNIT RETURN ADRS TO MDI
002748  0106                556+$DVID DC    X'0106'                DEVICE ID
00274A  19D0                557+$VCAL DC    A(DEVADD)              ADRS OF DEVICE ADDRESS
00274C  0000                558+      DC    A(*-*)                 IBIS CYLINDER ADDRESS
                            559+*
                            560+*     THIS TEST UNIT WILL RETURN TO MDI WITHOUT DOING ANY PROGRAM
                            561+*     FUNCTION.  THE RESULTS THAT WERE SET UP IN THE RESULTS AREA ARE
                            562+*     STILL VALID BUT A DIFFERENT TEST IS TO BE PERFORMED.
                            563+*
00274E  4020 270E 3C02      564+T3C02 MVWI  X'3C02',$TUID            SET UP TEST UNIT ID
002754  5700                565+      BXS   (R7)                     RETURN TO MDI SUPVR
                            567       COPY  COMECU
                            568 ********************************************************************
                            569 *                                                                  *
                            570 *              EQUATED NAMES FOR SUPPORTED SVC'S                   *
                            571 *                                                                  *
                            572 ********************************************************************
000000                      573 OUT   EQU   0                      OUT SVC
000001                      574 OUTIN EQU   1                      OUTIN SVC
000002                      575 IDLE  EQU   2                      IDLE SVC
000003                      576 ASCII EQU   3                      HEX TO ASCII SVC
000004                      577 CHNGE EQU   4                      CHANGE LEVEL SVC
000005                      578 PGMCK EQU   5                      ALLOW RETURN ON PROGRAM CHECK SVC
000006                      579 EXIT  EQU   6                      EXIT SVC
000007                      580 TERM  EQU   7                      TERMINATE SVC
000008                      581 RESET EQU   8                      RESET DEVICE SVC
000009                      582 RID   EQU   9                      READ ID SVC
00000A                      583 START EQU   10                     START CYCLE STEAL SVC
00000B                      584 STCSS EQU   11                     START CYCLE STEAL STATUS SVC
00000C                      585 PREP  EQU   12                     PREPARE DEVICE SVC
00000D                      586 READ0 EQU   13                     READ WITH FUNCTION BIT 3 OFF SVC
00000E                      587 READ1 EQU   14                     READ WITH FUNCTION BIT 3 ON SVC
00000F                      588 RSTAT EQU   15                     READ STATUS SVC
000010                      589 WRITO EQU   16                     WRITE WITH FUNCTION BIT 3 OFF SVC
000011                      590 WRIT1 EQU   17                     WRITE WITH FUNCTION BIT 3 ON SVC
000012                      591 CTRL  EQU   18                     CONTROL SVC
000013                      592 RICB  EQU   19                     RELEASE INTERUPT CONTROL BLOCK SVC
000014                      593 CICB  EQU   20                     CONNECT INTERUPT CONTROL BLOCK SVC
000015                      594 HIO   EQU   21                     HALT ALL I/C
000016                      595 REQSD EQU   22                     REQUEST USE OF DCP DISK SVC
000017                      596 RELSD EQU   23                     RELEASE USE OF DCP DISK SVC
000018                      597 HALT  EQU   24                     HALT SVC
000019                      598 ETOH  EQU   25                     EBCDIC TO HEX SVC (STRING)
00001A                      599 HTOE  EQU   26                     HEX TO EBCDIC SVC (STRING)
00001B                      600 ATOH  EQU   27                     ASCII TO HEX SVC (STRING)
00001C                      601 HTOA  EQU   28                     HEX TO ASCII SVC (STRING)
00001D                      602 ETOA  EQU   29                     EBCDIC TO ASCII SVC (STRING)
00001E                      603 ATOE  EQU   30                     ASCII TO EBCDIC SVC (STRING)
00001F                      604 READI EQU   31                     READ DATA SETS FOR MDI/UTIL
000020                      605 WRITI EQU   32                     WRITE DATA SETS FOR UTIL
                            607 ********************************************************************
                            608 *                                                                  *
                            609 *                  EQUATES USED BY TU'S AS CONSTANTS               *
                            610 *                                                                  *
                            611 ********************************************************************
00004E                      612 PLUS  EQU   C'+'                   PLUS CHAR
000060                      613 MINUS EQU   C'-'                   MINUS CHAR
000000                      615 ZERO  EQU   0
000001                      616 ONE   EQU   1
000002                      617 TWO   EQU   2
000003                      618 THREE EQU   3
000004                      619 FOUR  EQU   4
000005                      620 FIVE  EQU   5
000006                      621 SIX   EQU   6
000007                      622 SEVEN EQU   7
000008                      623 EIGHT EQU   8
000009                      624 NINE  EQU   9
00000A                      625 TEN   EQU   10
00000B                      626 ELEVN EQU   11                                     11
00000C                      627 TWELV EQU   12                                     12
00000D                      628 THRTN EQU   13                                     13
00000F                      629 FIVTN EQU   15                                     15
000010                      630 SIXTN EQU   16                                     16
000020                      631 THRY2 EQU   32                                     32
000040                      632 SIXT4 EQU   64                                     64
000080                      633 CNE28 EQU   128                                    128
000100                      634 TWO56 EQU   256                                    256
000400                      635 ONEK  EQU   1024                                   1024
000800                      636 TWOK  EQU   2048                                   2048
000C00                      637 THREK EQU   3072                                   3072
001000                      638 FOURK EQU   4096                                   4096
FFFFFF                      640 M1    EQU   -1                                     -1
FFFFFE                      641 M2    EQU   -2                                     -2
FFFFFD                      642 M3    EQU   -3                                     -3
FFFFFC                      643 M4    EQU   -4                                     -4
                            645 ********************************************************************
                            646 *                                                                  *
                            647 *     THE FOLLOWING ARE EQUATES FOR BIT DISPLACEMENTS FROM THE     *
                            648 *     BEGINNING OF THE BYTE TO EACH BIT IN THE WORD OF SWITCHES.   *
                            649 *                                                                  *
                            650 ********************************************************************
000000                      651 BS0   EQU   0
000001                      652 BS1   EQU   1
000002                      653 BS2   EQU   2
000003                      654 BS3   EQU   3
000004                      655 BS4   EQU   4
000005                      656 BS5   EQU   5
000006                      657 BS6   EQU   6
000007                      658 BS7   EQU   7
000008                      659 BS8   EQU   8
000009                      660 BS9   EQU   9
00000A                      661 BS10  EQU   10
00000B                      662 BS11  EQU   11
00000C                      663 BS12  EQU   12
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
00000D                      664 BS13  EQU   13
00000E                      665 BS14  EQU   14
00000F                      666 BS15  EQU   15
                            668       COPY  T4802
                            669 T4802 TUIT T02EE      3/03/76
                            670+*************************************************************06FEB76**
                            671+*
                            672+** TEST UNIT
                            673+*
                            674+*     DIAGNOSTIC TEST 2
                            675+*
                            676+* PURPOSE
                            677+*
                            678+*     VERIFY THE FOLLOWING:
                            679+*     1. SEEK RECALIBRATE,SEEK,FORMAT,WRITE(DATA AM),VERIFY AND READ.
                            680+*
                            681+* CALLING SEQUENCE
                            682+*
                            683+*     PERFORM THE FOLLOWING:
                            684+*     1. PREPARE TO INTERRUPT LEVEL 'X'.
                            685+*     2. SEEK RECALIBRATE.
                            686+*     3. SEEK TO CYLINDERS 1,2,3,74,75 AND 76.
                            687+*     4. ON EACH TRACK PERFORM ROUTINES 4-8.
                            688+*
                            689+*     PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
                            690+*          TURESUL BIT 0---WRITE/READ COMPARE ERROR
                            691+*          TURESUL BIT 1---TOO MUCH READ ON FRACTIONAL SECT RD OP
                            692+*          TURESUL BIT 2---WRONG RESIDUAL ADDRESS
                            693+*          TURESUL BIT 3---CS STATUS ERROR
                            694+*          TURESUL BIT 4---READ DATA OP ERROR
                            695+*          TURESUL BIT 5---READ VERIFY ERROR
                            696+*          TURESUL BIT 6---WRITE DATA OP ERROR
                            697+*          TURESUL BIT 7---DEF FORMAT NOT 'FF'
                            698+*          TURESUL BIT 8---WR/RD SECTOR ID COMPARE ERROR
                            699+*          TURESUL BIT 9---HEAD SELECT ERROR
                            700+*          TURESUL BIT 10--RECALABRATE OP ERROR
                            701+*          TURESUL BIT 11--SEEK OP ERROR
                            702+*          TURESUL BIT 12--READ SECTOR ID OP ERROR
                            703+*          TURESUL BIT 13--FORMAT ERROR
                            704+*          TURESUL BIT 14--FORMAT ARGUMENT ERROR
                            705+*          TURESUL BIT 15--OIO CC ERROR
                            706+*          TURESUL BIT 16-31  CYCLE STEAL STATUS FOR FAILING OP
                            707+*          TURESUL BIT 32-47  CC - 32-39 OIO CC, 40-47 INT CC
                            708+*          TURESUL BIT 48-63  IBS
                            709+*          TURESUL BIT 64-79  OPTION WORD 3 (ERROR INDICATORS)
                            710+*
                            711+* RETURN CONTROL
                            712+*
                            713+*       B     TURTN*                   RETURN TO MDI SUPERVISOR
                            714+*
                            715+*************************************************************************
002756  6F0D 2746           716+T4802 MVW   R7,TURTN                  SAVE RETURN ADDRESS
00275A  4020 270E 4602      717+      MVWI  X'4802',$TUID            SAVE TU ID FOR DISPLAY
002760  4424 2708           718+      MVA   CP1N1,R4                 SET UP POINTER ADRS IN R4
002764  6E03 2F1A           719+      BAL   $CONC,R6                 CLEAR DEV DEP STG AND CONNECT I/O BL
002768  291C                720+      DC    A(T02EE)                 ERROR ADRS FOR INVALID PREP
                            721+*
00276A  CA25 18C8           722       MVWZ  TURESUL,R2               CLEAR RESULTS WORD
00276E  CA25 18CA           723       MVWZ  TURESUL+2,R2             CLEAR RESULTS WORD 2
002772  CA25 18CC           724       MVWZ  TURESUL+4,R2             CLEAR RESULTS WORD 3
002776  CA25 18CE           725       MVWZ  TURESUL+6,R2             CLEAR RESULTS WORD 4
00277A  CA25 18D0           726       MVWZ  TURESUL+8,R2             CLEAR RESULTS WORD 5
00277E  4020 2746 0000      727       MVWI  0,$DATA                  INIT DATA FOR WRITE BUFFER TO '0000'
002784  6808 18C2           728       MVW   TUBUFF,R0                GET ADDRESS OF FIRST UNUSED STOR POS
002788  680D 2D2A           729       MVW   R0,WRDCB+14              LOAD BUFFER ADDRESS IN WRT DCB
00278C  680D 2D3A           730       MVW   R0,VRDCB+14              LOAD BUFFER ADDRESS IN VERIFY DCB
002790  7801 0400           731       AWI   X'0400',R0               ADJ ADDRESS FOR READ BUFFER
002794  680D 2D4A           732       MVW   R0,RDDCB+14              LOAD BUFFER ADDRESS IN READ DCB
002798  6E03 2B12           733       BAL   $WBUF,R6                 INIT WRITE BUFFER
00279C  4024 5000           734       MVWI  X'5000',R0               DELAY TO GET BY BUSY AFTER RESET
0027A0  B8FF                735       JCT   *,R0                     *
0027A2  6E03 2DB0           736 RT327 BAL   $RECL,R6                 RECALIBRATE
0027A6  2930                737       DC    A(T02ER)                 ERROR
0027A8  4CA1                738       TBTR  (R4,ER)                  CHECK FOR CC ERROR
0027AA  6A00 2950           739       BON   T02A                     ERROR
0027AE  4020 2D54 004C      740       MVWI  76,DIFF                  LOAD 76 IN DIFFERENCE WORD
0027B4  8028 2D5C 2D04      741       MVB   ZERO0,SKDCB+8            NEW ARCH.
0027BA  4020 2D58 0000      742       MVWI  0,XXX                    ZERO LOC XXX
0027C0  4C9F                743       TBTR  (R4,B63)                 CLEAR SEEK DIRECTION INDICATOR
0027C2  4C9E                744       TBTR  (R4,B62)                 CLEAR INDICATOR
0027C4  4020 2DA0 0000      745 LOOP  MVWI  0,SIDE                   SELECT SIDE 0
0027CA  4CDF                746       TBTV  (R4,B63)                 TEST AND INVERT DIRECTION BIT
0027CC  1210                747       JON   SKREV                    BCH NEG - BCH IF REV BIT ON
0027CE  8028 2D5C 2CFE      748       MVB   ZERO0,SKDCB+2            H=0,D=0=FORWARD; PLUS DIFFERENCE
0027D4  8028 2D5C 2D04      749       MVB   ZERO0,SKDCB+8            NEW ARCH.
0027DA  C220 2D59           750       MVB   XXX+1,R2                 MOVE CONTENTS OF 'XXX' IN R2
0027DE  C226 2D55           751       AB    DIFF+1,R2                SEEK DIFFERENCE PLUS 'XXX'
0027E2  6A0D 2DA2           752       MVW   R2,TRK                   SAVE CYLINDER NUMBER
0027E6  A828 2D5E 2D58      753       AW    ONE1,XXX                 ONE PLUS 'XXX'
0027EC  500A                754       J     GO
0027EE  8028 2D60 2CFE      755 SKREV MVB   REVR,SKDCB+2             H=0,D=REV
0027F4  8028 2D5C 2D04      756       MVB   ZERO0,SKDCB+8            NEW ARCH.
0027FA  C220 2D59           757       MVB   XXX+1,R2
0027FE  6A0D 2DA2           758       MVW   R2,TRK                   SAVE CYLINDER NUMBER
002802  4020 2CFC 0005      759 GO    MVWI  X'0005',SKDCB            SEEK CONTROL WD - NO CHAINING
002808  8028 2D55 2CFF      760       MVB   DIFF+1,SKDCB+3           SETUP SEEK DIFFERENCE
00280E  6E03 2DA8           761       BAL   $SEEK,R6                 SEEK
002812  2930                762       DC    A(T02ER)                 ERROR,RETRY ROUTINE
002814  4CA1                763       TBTR  (R4,ER)                  CC ERROR
002816  6A00 2948           764       BON   T02E                     ERROR
00281A  6E03 2B56           765 G1    BAL   FT0,R6                   FORMAT N=0
00281E  4020 2D66 2C80      766       MVA   TAB00,JOE                WRITE TABLE PARM
002824  6E03 2972           767       BAL   WRRD,R6                  GOTO WRITE/VERY READ ROUTINE
002828  6E03 2BA0           768       BAL   FT2,R6                   FORMAT N=2
00282C  4020 2D66 2C94      769       MVA   TAB20,JOE                WRITE TABLE PARM
002832  6E03 2972           770       BAL   WRRD,R6                  GOTO WRITE/VERIFY READ ROUTINE
002836  9028 2716 2D50      771       MVD   SCTID,SAVE               SAVE SEARCH ARG FROM RD SECTOR ID OP
00283C  6E03 2BC6           772       BAL   FTF,R6                   FORMAT DEFECTIVE
002840  9028 2D50 2716      773       MVD   SAVE,SCTID               RESTORE SCTID INFO
002846  6E03 2B7A           774       BAL   FT1,R6                   FORMAT N=1
00284A  4020 2D66 2CA8      775       MVA   TAB10,JOE                WRITE TABLE PARM
002850  6E03 2972           776       BAL   WRRD,R6                  GOTO WRITE/VERIFY READ ROUTINE
002854  4CDE                777       TBTV  (R4,B62)                 TEST & INVERT SEQ BIT
002856  1210                778       JON   L1                      JUMP IF BIT IS ON
002858  4020 2CFC 0005      779       MVWI  X'0005',SKDCB            SEEK CONTROL WORD-NO CHAINING
00285E  4020 2CFE 1000      780       MVWI  X'1000',SKDCB+2          H=1,D=0=FORWARD; PLUS DIFFERENCE
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
002864  4020 2D04 0100    781         MVWI  X'0100',SKDCB+8
00286A  6E03 2DA8         782         BAL   $SEEK,R6             SEEK
00286E  2930              783         DC    A(T02ER)            ERROR
002870  4CA1              784         TBTR  (R4,ER)             CC ERROR
002872  126A              785         JON   T02B                ERROR
002874  8028 2D5F 2DA1    786         MVB   ONE1+1,SIDE+1         SETUP HEAD 1 FOR FORMAT ROUTINE
00287A  50CF              787         J     G1
00287C  A829 2D5E 2D54    788 L1      SW    ONE1,DIFF             SEEK DIFFERENCE - ONE
002882  882B 2D5A 2D54    789         CW    ENDEX,DIFF          CHECK FOR END OF TEST
002888  6800 2956         790         BE    FINIS               CKECK LOOP ROUTINE
00288C  4020 2CFC 0005    791         MVWI  X'0005',SKDCB       CONTROL WORD - NO CHAINING
002892  4020 2CFE 0000    792         MVWI  0,SKDCB+2           HEAD  0,NO DIFFERENCE (NOOP)
002898  4020 2D04 0000    793         MVWI  0,SKDCB+8
00289E  6E03 2DA8         794         BAL   $SEEK,R6            SEEK
0028A2  2930              795         DC    A(T02ER)            ERROR
0028A4  4CA1              796         TBTR  (R4,ER)             CC ERROR
0028A6  1250              797         JON   T02B                ERROR
0028A8  4020 2CEC 200A    798         MVWI  X'200A',RSDCB       CONTROL WORD- NO CHAINING
0028AE  6E03 2DB8         799         BAL   $RDID,R6            READ SECTOR ID
0028B2  2930              800         DC    A(T02ER)            ERROR
0028B4  4CA1              801         TBTR  (R4,ER)             CC ERROR
0028B6  1244              802         JON   T02C                ERROR
                          803 *                                 TO INSURE HEAD SELECT IF FUNCTIONING
0028B8  802B 2D5C 2718    804         CB    ZERO0,SCTID+2         CK FOR HEAD SELECT ZERO
0028BE  1826              805         JNE   T02F                HEAD SELECT ERROR
0028C0  6802 27C4         806         B     LOOP
                          807 *
0028C4  402C 18C8 8000    808 T02R    OWI X'8000',TURESUL     COMPARE ERROR
0028CA  5045              809         J     FINIS
0028CC  402C 18C8 4000    810 T02Q    OWI X'4000',TURESUL     TOO MUCH READ ON FRACTIONAL RD OP
0028D2  5041              811         J     FINIS
0028D4  402C 18C8 2000    812 T02P    OWI X'2000',TURESUL     WRONG RESIDUAL ADDRESS
0028DA  503D              813         J     FINIS
0028DC  402C 18C8 1000    814 T02N    OWI X'1000',TURESUL     CS STATUS OP ERROR
0028E2  5039              815         J     FINIS
0028E4  402C 18C8 0800    816 T02L    OWI X'0800',TURESUL     READ DATA OP ERROR
0028EA  5035              817         J     FINIS
0028EC  402C 18C8 0100    818 T02H    OWI X'0100',TURESUL     DEF FORMAT NOT 'FF'
0028F2  5031              819         J     FINIS
0028F4  402C 18C8 0400    820 T02K    OWI X'0400',TURESUL         READ VERIFY ERROR
0028FA  502D              821         J     FINIS
0028FC  402C 18C8 0200    822 T02J    OWI X'0200',TURESUL     WRITE DATA OP ERROR
002902  5029              823         J     FINIS
002904  402C 18C8 0080    824 T02G    OWI X'0080',TURESUL     WR/RD SECTOR ID COMPARE ERROR
00290A  5025              825         J     FINIS
00290C  402C 18C8 0040    826 T02F    OWI X'0040',TURESUL     HEAD SELECT ERROR
002912  5021              827         J     FINIS
002914  402C 18C8 0004    828 T02D    OWI X'0004',TURESUL       FORMAT ERROR
00291A  501D              829         J     FINIS
00291C  CA25 18C8         830 T02EE   MVWZ  TURESUL,R2          CLEAR RESULTS WORD
002920  CA25 18CA         831         MVWZ  TURESUL+2,R2        CLEAR RESULTS WORD 2
002924  CA25 18CC         832         MVWZ  TURESUL+4,R2        CLEAR RESULTS WORD 3
002928  CA25 18CE         833         MVWZ  TURESUL+6,R2        CLEAR RESULTS WORD 4
00292C  CA25 18D0         834         MVWZ  TURESUL+8,R2        CLEAR RESULTS WORD 5
002930  402C 18C8 0001    835 T02ER   OWI   X'0001',TURESUL     OIO CC ERROR
002936  500F              836         J     FINIS
002938  402C 18C8 0002    837 T02E    OWI X'0002',TURESUL       FORMAT ARGUMENT ERROR
00293E  5008              838         J     FINIS
002940  402C 18C8 0008    839 T02C    OWI X'0008',TURESUL     READ ID OF ERROR
002946  5007              840         J     FINIS
002948  402C 18C8 0010    841 T02B    OWI X'0010',TURESUL     SEEK OP ERROR
00294E  5003              842         J     FINIS
002950  402C 18C8 0020    843 T02A    OWI X'0020',TURESUL     RECALIBRATE OP ERROR
002956  8828 2730 18CA    844 FINIS   MVW   CSTL2,TURESUL+2     CYCLE STEAL STATUS FOR FAILING OP
00295C  8828 2710 18CC    845         MVW   $IOIN,TURESUL+4     CONDITION CODES
002962  8828 2712 18CE    846         MVW   $ISB,TURESUL+6      ISB
002968  8828 270C 18D0    847         MVW   OPTN3,TURESUL+8     OPTION WORD 3 (ERROR INDICATORS)
                          848         TXIT
00296E  6802 2FA8         849+        B     $CONX               RETURN TO MDI CONTROLLER
                          850+*************************************************************************
                          851 *************************************************************************
                          852 * SUBROUTINE
                          853 *
                          854 *     WRITE/VERIFY,READ/COMPARE
                          855 *
                          856 *     PURPOSE - PERFORM THE FOLLOWING:
                          857 *               1. WRITE/VERIFY SPECIFIED RECORDS.
                          858 *               2. READ AND COMPARE RECORD WRITTEN.
                          859 *
                          860 * CALLING SEQUENCE -   BAL  WRRD,R6
                          861 *           THE FOLLOWING PARAMETERS MUST BE SETUP PRIOR TO CALLING:
                          862 *               1. WRITE PARAMETER LIST (JOE).
                          863 *               2. SECTOR ID SEARCH ARGUMENT (SCTID)
                          864 *
                          865 *     RETURN -  B   ($WRET+2)
                          866 *
                          867 *************************************************************************
                          868 *
002972  6E0D 2AEE         869 WRRD    MVW   R6,$WRET+2          SETUP RETURN ADDRESS
002976  8828 2D66 2D68    870 WRRD2   MVW   JOE,JOE1            SAVE PARM LIST ADDRESS
00297C  4C9D              871 WRRT    TBTR  (R4,B61)            ZERO INDICATOR
00297E  8828 2D68 2D66    872         MVW   JOE1,JOE            INIT PARM LIST ADDRESS
002984  8838 2D66 2D62    873         MVW   JOE*,HHRR           LOAD PARAMETERS
00298A  4029 2D66 0002    874         AWI   2,JOE               INCREMENT TABLE ADDRESS
002990  8838 2D66 2D64    875         MVW   JOE*,BCNT           LOAD BYTE COUNT
002996  4029 2D66 0002    876         AWI   2,JOE               INCREMENT TABLE ADDRESS
00299C  4020 2D1C 0001    877         MVWI  X'0001',WRDCB       WRITE CONTROL WORD-NO CHAIN
0029A2  8828 2716 2D22    878         MVW   SCTID,WRDCB+6       SETUP N-C
0029A8  8028 2718 2D24    879         MVB   SCTID+2,WRDCB+8     SETUP H
0029AE  8028 2D63 2D25    880         MVB   HHRR+1,WRDCB+9      SETUP R
0029B4  4020 2D26 2D2C    881         MVA   VRDCB,WRDCB+10      CHAIN ADDRESS
0029BA  8828 2D64 2D28    882         MVW   BCNT,WRDCB+12       SETUP BYTE COUNT
0029C0  4020 2D2C 000C    883         MVWI  X'000C',VRDCB       VERIFY CONTROL WORD - NO CHAIN
0029C6  8828 2716 2D32    884         MVW   SCTID,VRDCB+6       SETUP N-C
0029CC  8028 2718 2D34    885         MVB   SCTID+2,VRDCB+8     SETUP H
0029D2  8028 2D63 2D35    886         MVB   HHRR+1,VRDCB+9      SETUP R
0029D8  8828 2D64 2D38    887         MVW   BCNT,VRDCB+12       SETUP BYTE COUNT
0029DE  6E03 2DE8         888         BAL   $WRT,R6             WRITE
0029E2  2930              889         DC    A(T02ER)            ERROR
0029E4  4CA1              890         TBTR  (R4,ER)             CC ERROR?
0029E6  6A00 28FC         891         BON   T02K                WRITE ERROR
0029EA  6E03 2DE0         892         BAL   $RDVY,R6            VERIFY
0029EE  2930              893         DC    A(T02ER)            ERROR
0029F0  4CA1              894         TBTR  (R4,ER)             CC ERROR?
0029F2  6A00 28F4         895         BON   T02K                VERIFY ERROR
0029F6  8828 2D64 2D48    896 RDF     MVW   BCNT,RDDCB+12        SETUP BYTE COUNT
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
0029FC  4020 2D3C 2009    897         MVWI  X'2009',RDDCB       CONTROL WORD - NO CHAINING
002A02  8828 2716 2D42    898         MVW   SCTID,RDDCB+6       SETUP N-C
002A08  8028 2718 2D44    899         MVB   SCTID+2,RDDCB+8     SETUP H
002A0E  8028 2D63 2D45    900         MVB   HHRR+1,RDDCB+9      SETUP R
002A14  6E03 2DCC         901         BAL   $RD,R6              READ
002A18  2930              902         DC    A(T02ER)            ERROR
002A1A  4CA1              903         TBTR  (R4,ER)             CC ERROR?
002A1C  6A00 28E4         904         BON   T02L                READ ERROR
002A20  6F08 2D64         905         MVW   BCNT,R7             BYTE COUNT
002A24  6800 2AEC         906         BE    $WRET               BYTE COUNT IS ZERO
002A28  6D08 18C2         907         MVW   TUBUFF,R5           WRITE DATA ADDRESS
002A2C  7D61 0400         908         AWI   X'0400',R5,R3       READ DATA ADDRESS
002A30  2BA6              909         CFNEN (R3),(R5)           COMPARE READ DATA TO WRITE
002A32  6801 2AF0         910         BNE   ERR7                COMPARE ERROR
002A36  7B62 0001         911         SWI   1,R3                ADJ RESIDUAL ADDRESS FOR COMPARISON
002A3A  6B0D 2D9C         912         MVW   R3,SAVR3            SAVE CONTAINS OF R3
002A3E  6D0D 2D9E         913         MVW   R5,SAVR5            SAVE CONTAINS OF R5
002A42  6E03 2E12         914         BAL   XIOCS,R6            REQUEST CYCLE STEAL STATUS
002A46  2930              915         DC    A(T02ER)          * VERIFY FOR CORRECT RESIDUAL ADDRESS
002A48  4CA1              916         TBTR  (R4,ER)             CC ERROR?
002A4A  6A00 28DC         917         BON   T02N                CYCLE STEAL STATUS ERROR
002A4E  6B08 2D9C         918         MVW   SAVR3,R3            RESTORE ORGINAL CONTAINS OF R3
002A52  CB24 27CE         919         CW    CSTL+1,R3           *
002A56  6801 28D4         920         BNE   T02P                * WRONG RESIDUAL ADDRESS
002A5A  4324 271E         921         MVA   DCBUF,R3            SETUP ADDRS TO MOVE RD DCB TABLE
002A5E  4524 2D3C         922         MVA   RDDCE,R5            * FOR PRINT OUT IF AN
002A62  0F10              923         MVBI  16,R7               * ERROR OCCURS
002A64  2D64              924         MVFN  (R5),(R3)           *
002A66  6B08 2D9C         925         MVW   SAVR3,R3            RESTORE ORGINAL CONTAINS OF R3
002A6A  6D08 2D9E         926         MVW   SAVR5,R5            RESTORE ORGINAL CONTAINS OF R5
002A6E  7B61 0001         927         AWI   1,R3                RESTORE ORGINAL RESIDUAL ADDRESS
002A72  4724 0400         928         MVWI  X'0400',R7          BYTE COUNT (1024)
002A76  6F0F 2D64         929         SW    BCNT,R7             ADJ BYTE COUNT (UNUSED BYTE CTN)
002A7A  1003              930         JZ    ZER                 RESULTANT COUNT IS ZERO
002A7C  2BA7              931         CFEN  (R3),(R5)           COMP REMAINDER OF FIELD
002A7E  6800 28CC         932         BE    T02Q                TOO MUCH REAL
002A82  6A16 2D66         933 ZER     MVW   JOE*,R1             FULL SECTOR BYTE COUNT
002A86  402E 2D66 0002    934         SWI   2,JOE               ADJ TABLE POINTER
002A8C  6A16 2D66         935         MVW   JOE*,R2             FRACTIONAL SECTOR BYTE COUNT
002A90  4029 2D66 0002    936         AWI   2,JOE               ADJ TABLE POINTER
002A96  722A              937         SW    R2,R1               SUBTRACT BYTE COUNTS
002A98  1014              938         JZ    CLR                 RESULTANT BYTE COUNT IS ZERO
002A9A  6B08 2D2A         939         MVW   WRDCB+14,R3         WRBUF ADDRESS
002A9E  7268              940         AW    R2,R3               FRAC CTN ADDED TO ADDR OF WR BUFF
002AA0  6D08 2D4A         941         MVW   RDDCB+14,R5         ADDRESS OF READ BUFFER
002AA4  72A8              942         AW    R2,R5               FRAC CTN ADDED TO ADDR  OF RD BUFF
002AA6  71E4              943         MVW   R1,R7               LOAD BYTE COUNT IN R7 (DIFFERENCE)
002AA8  03FF              944         ABI   -1,R3               ADJ WR BUF PTR TO LAST BYTE WRITTEN
002AAA  C3C0              945         MVB   (R3),R3             LAST BYTE WRITTEN IN FRACTIONAL SEC
002AAC  2BAF              946         SFEN  R3,(R5)             COMP LAST BYTE TO READ BUFFER
002AAE  6800 28CC         947         BE    T02Q                TOO MUCH READ ON FRACT SECT READ OP
002AB2  6D08 2D4A         948         MVW   RDDCE+14,R5         ADDR OF RD BUFFER
002AB6  72A8              949         AW    R2,R5               FRAC CTN ADDED TO ADDR OF RD BUF
002AB8  71E4              950         MVW   R1,R7               RESIDUAL BYTE COUNT
002ABA  0BFF              951         MVBI  255,R3              LOAD 'FFFF' IN REG
002ABC  2BAE              952         SFNEN R3,(R5)             COMPARE FOR 'FF'
002ABE  6801 28CC         953         BNE   T02Q                TOO MUCH READ
002AC2  4029 2D66 0002    954 CLR     AWI   2,JOE               INCREMENT TABLE ADDRESS
002AC8  4CDD              955 CLEAN   TBTV  (R4,B61)            TEST AND INVERT BIT
002ACA  1208              956         JON   RDF1                BCH IF ON
002ACC  402E 2D66 0002    957         SWI   2,JOE               INCREMENT TABLE ADDRESS
002AD2  8838 2D66 2D64    958         MVW   JOE*,BCNT           SETUP FULL BYTE COUNT
002AD8  6802 29F6         959         B     RDF                 READ FULL SECTOR
002ADC  403F 2D66 FFFF    960 RDF1    CWI   -1,JOE*             CHECK FOR END OF TABLE
002AE2  6801 2976         961         BNE   WRRD2
002AE6  4029 2D66 0002    962         AWI   2,JOE               INCREMENT TABLE ADDRESS
002AEC  6802 0000         963 $WRET   B     *-*                 RETURN TO CALLER
                          964 *
002AF0  6918 2D66         965 ERR7    MVW   JOE*,R1             LOAD FULL SECTOR BYTE COUNT
002AF4  402E 2D66 0002    966         SWI   2,JOE               ADJ TABLE POINTER
002AFA  6A18 2D66         967         MVW   JOE*,R2             LOAD FRACTIONAL SECT BYTE COUNT
002AFE  4029 2D66 0004    968         AWI   4,JOE               ADJ TABLE POINTER
002B04  722A              969         SW    R2,R1               SUB BYTE COUNTS
002B06  6800 28C4         970         BZ    T02R                NO FRACTION SECT -- COMP ERROR
002B0A  7165              971         CW    R1,R7               TEST RESIDUAL BYTE COUNT IN R7
002B0C  10DD              972         JE    CLEAN               BCH IF OK
002B0E  6802 28C4         973         B     T02R                COMPARE ERROR
                          974 *
                          976 *
                          977 *************************************************************************
                          978 *
                          979 *     SUBROUTINE
                          980 *
                          981 *     PURPOSE - INITIALIZE WRITE BUFFER
                          982 *               DOUBLE WORD DATA IS ENTERED BY OPERATOR.  IF ANY BYTE
                          983 *               CONTAINS A DATA COMBINATION OF '00' OR 'FF' DATA
                          984 *               DEFAULTS TO X'7AE569BD'.
                          985 *
                          986 *     CALLING SEQUENCE - BAL   $WBUF,R6
                          987 *
                          988 *     RETURN -  BXS   (R6)
                          989 *
                          990 *************************************************************************
                          991 *
002B12  4124 0004         992 $WBUF MVWI  4,R1                LOAD COUNT 4 IN REG
002B16  4024 2740         993         MVA   $DATA,R0            ADDR OF DATA FROM OPERATOR
002B1A  CB90 2D90         994 CLCP    CB    CDAT,(R0)+          CHECK FOR DATA '00'
002B1E  100E              995         JE    WB                  DEFAULT TO DATA X'7AE569BD'
002B20  7922 0001         996         SWI   1,R1                SUB ONE FROM COUNT
002B24  18FA              997         JNZ   CLOP                REPEAT
002B26  4124 0004         998         MVWI  4,R1                RELOAD COUNT 4 IN REG
002B2A  4024 2740         999         MVA   $DATA,R0            ADDR OF DATA FROM OPERATOR
002B2E  8027 2D91        1000 CLOP1   CB    CDAT+1,(R0)+        CHECK FOR DATA 'FF'
002B32  0E04             1001         JE    WB                  DEFAULT TO FIXED DATA
002B34  7922 0001        1002         SWI   1,R1                SUB ONE FROM COUNT
002B38  18FA             1003         JNZ   CLOP1               REPEAT TEST
002B3A  5003             1004         J     WB1
002B3C  9028 2D6A 2740   1005 WB      MVD   WDATA,$DATA         DATA FOR PRINT STATS
002B42  4724 0400        1006 WB1     MVWI  X'0400',R7          WRITE BUFFER SIZE
002B46  6A08 18C2        1007         MVW   TUBUFF,R2           WRITE BUFFER ADDR
002B4A  90A4 7740        1008 WB2     MVD   $DATA,(R2)+         INIT BUFFER
002B4E  7FB1 FFFC        1009         AWI   -4,R7               DECREMENT BYTE COUNT
002B52  18FB             1010         JNZ   WB2
002B54  5600             1011         BXS   (R6)                RETURN TO CALLER
                         1013 *************************************************************************
                         1014 *
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                         1015 * SUBROUTINE
                         1016 *
                         1017 *        FORMAT N=0
                         1018 *
                         1019 *     PURPQSE - SETUP DCB PARAMENTERS TO FORMAT SELECTED TRACK N=0.
                         1020 *
                         1021 *     CALL SEQUENCE - BAL   FMT0,R6
                         1022 *
                         1023 *     RETURN - B  (FMT00+2)
                         1024 *
                         1025 ********************************************************************
                         1026 *
002B56  6E0D 2B78        1027 FT0   MVW   R6,FMT00+2            SETUP RETURN ADDRESS
002B5A  8028 2D5C 2CE2   1028      MVB   ZERO0,FRDCB+6          SETUP N=0
002B60  8028 2DA3 2CE3   1029      MVB   TRK+1,FRDCB+7          SETUP C
002B66  8028 2DA1 2CE4   1030      MVB   SIDE+1,FRDCB+8         SETUP H
002B6C  4020 2D64 0D00   1031      MVWI  3328,BCNT              BYTE COUNT FOR READ OP
002B72  6E03 2BF6        1032      BAL   FMT,R6                 GOTO FORMAT ROUTINE
002B76  6802 0000        1033 FMT00 B     *-*                   RETURN TO CALLER
                         1034 *
                         1035 ********************************************************************
                         1036 *
                         1037 * SUBROUTINE
                         1038 *
                         1039 *      FORMAT N=1
                         1040 *
                         1041 *     PURPOSE - SETUP DCB PARAMETERS TO FORMAT SELECTED TRACK N=1
                         1042 *
                         1043 *     CALLING SEQUENCE  - BAL  FMT1,R6
                         1044 *
                         1045 *     RETURN -  B   (FMT10+2)
                         1046 *
                         1047 ********************************************************************
                         1048 *
002B7A  6E0D 2B9C        1049 FT1   MVW   R6,FMT10+2            SETUP RETURN ADDRESS
002B7E  8028 2B9E 2CE2   1050      MVB   FONE1,FRDCB+6          SETUP N=1
002B84  8028 2DA3 2CE3   1051      MVB   TRK+1,FRDCB+7          SETUP C
002B8A  8028 2DA1 2CE4   1052      MVB   SIDE+1,FRDCB+8         SETUP H
002B90  4020 2D64 0F00   1053      MVWI  3840,BCNT              BYTE COUNT FOR READ OP
002B96  6E03 2BF6        1054      BAL   FMT,R6                 GOTO FORMAT ROUTINE
002B9A  6802 0000        1055 FMT10 B     *-*                   RETURN TC CALLER
002B9E  1000             1056 FONE1 DC    X'1000'
                         1057 ********************************************************************
                         1058 * SUBROUTINE
                         1059 *
                         1060 *        FORMAT N=2
                         1061 *
                         1062 *     PURPOSE - SETUP DCB PARAMETERS TO FORMAT SELECTED TRACK N=2
                         1063 *
                         1064 *     CALLING SEQUENCE  - BAL  FMT2,R6
                         1065 *
                         1066 *     RETURN -   B   (FMT20+2)
                         1067 *
                         1068 ********************************************************************
                         1069 *
002BA0  6E0D 2BC2        1070 FT2   MVW   R6,FMT20+2            SETUP RETURN ADDRESS
002BA4  8028 2BC4 2CE2   1071      MVB   FTWO,FRDCB+6           SETUP N=2
002BAA  8028 2DA3 2CE3   1072      MVB   TRK+1,FRDCB+7          SETUP C
002BB0  8028 2DA1 2CE4   1073      MVB   SIDE+1,FRDCB+8         SETUP H
002BB6  4020 2D64 1000   1074      MVWI  4096,BCNT              BYTE COUNT FOR READ OP
002BBC  6E03 2BF6        1075      BAL   FMT,R6                 GOTO FORMAT ROUTINE
002BC0  6802 0000        1076 FMT20 B     *-*                   RETURN TO CALLER
002BC4  2000             1077 FTWO  DC    X'2000'
                         1078 *
                         1079 ********************************************************************
                         1080 * SUBROUTINE
                         1081 *
                         1082 *      FORMAT DEFECTIVE
                         1083 *
                         1084 *     PURPOSE - SETUP DCB PARAMETERS TC FORMAT SELECTED TRACK N=DEFECT
                         1085 *
                         1086 *     CALLING SEQUENCE  - BAL  FMTF,R6
                         1087 *
                         1088 *     RETURN -   B   (FMTF0+2)
                         1089 *
                         1090 ********************************************************************
                         1091 *
002BC8  6E0D 2BF2        1092 FTF   MVW   R6,FMTF0+2            SETUP RETURN ADDRESS
002BCA  8028 2BF4 2CE2   1093      MVB   FDEF,FRDCB+6           SETUP N=F
002BD0  8028 2DA3 2CE3   1094      MVB   TRK+1,FRDCB+7          SETUP C
002BD6  8028 2DA1 2CE4   1095      MVB   SIDE+1,FRDCB+8         SETUP H
002BDC  6E03 2BF6        1096      BAL   FMT,R6                 FORMAT N=F
002BE0  4020 2D64 0F00   1097      MVWI  3840,BCNT
002BE6  8028 2B9E 2CE2   1098      MVB   FONE1,FRDCB+6           SETUP FROMAT N=1
002BEC  6E03 2BF6        1099      BAL   FMT,R6                 FORMAT N=1
002BF0  6802 0000        1100 FMTF0 B     *-*                   RETURN TO CALLER
002BF4  FF00             1101 FDEF  DC    X'FF00'
                         1102 ********************************************************************
                         1103 * SUBROUTINE
                         1104 *
                         1105 *     FORMAT TRACK
                         1106 *
                         1107 *     PURPOSE - TO PERFORM THE FOLLOWING:
                         1108 *               1. FORMAT SELECTED TRACK AS PER PARAMETERS.
                         1109 *               2. VERIFY THAT FORMAT OPERATION WAS EXECUTED PROPERLY.
                         1110 *     CALLING SEQUENCE - BAL  FMT,R6
                         1111 *               THE FOLLOWING PARAMETERS MUST BE SETUP PRIOR TO CALLING
                         1112 *               FORMAT DCB (FRDCB)
                         1113 *               BYTE COUNT (BCNT)
                         1114 *
                         1115 *     RETURN - B  (MATT+2)
                         1116 *
                         1117 ********************************************************************
                         1118 *
002BF6  6E0D 2C64        1119 FMT   MVW   R6,MATT+2             SET UP RETURN ADDRESS
002BFA  4020 2CDC 0002   1120      MVWI  X'0002',FRDCB          FORMAT CNTL WD - NO CHAIN
002C00  4020 2CE0 C8C8   1121      MVWI  X'C8C8',FRDCB+4        FORMAT DATA WORD
002C06  6E03 2DF0        1122 FMTT  BAL   $FMT,R6                FORMAT
002C0A  2930             1123      DC    A(T02ER)               ERROR
002C0C  4CA1             1124      TBTR  (R4,ER)                CC ERROR
002C0E  6A00 2914        1125      BON   T02D                   FORMAT ERORR
002C12  4020 2CEC 200A   1126      MVWI  X'200A',RSDCB          CONTROL WORD - NO CHAINING
002C18  6E03 2DB8        1127      BAL   $RDID,R6               READ SECTOR ID
002C1C  2930             1128      DC    A(T02ER)               ERROR
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
002C1E  4CA1             1129      TBTR  (R4,ER)                CC ERROR
002C20  6A00 2914        1130      BON   T02D                   READ ID ERROR
002C24  882B 2CE2 2716   1131      CW    FRDCB+6,SCTID          COMP N-C
002C2A  6801 2C66        1132      BNE   ER16                   FORMAT ERROR
002C2E  802B 2CE4 2718   1133      CB    FRDCB+8,SCTID+2        COMPARE H
002C34  6801 2C66        1134      BNE   ER16                   FORMAT ERROR
002C38  4020 2D2C 000C   1135      MVWI  X'000C',VRDCB          CONTROL WORD - NO CHAINING
002C3E  8828 2716 2D32   1136      MVW   SCTID,VRDCB+6          SETUP N-C
002C44  8028 2718 2D34   1137      MVB   SCTID+2,VRDCB+8        SETUP H
002C4A  8028 2D5F 2D35   1138      MVB   ONE1+1,VRDCB+9          SETUP R=1
002C50  8828 2D64 2D38   1139      MVW   BCNT,VRDCB+12          SETUP BYTE COUNT
002C56  6E03 2DE0        1140      BAL   $RDV,R6                VERIFY
002C5A  2930             1141      DC    A(T02ER)               ERROR
002C5C  4CA1             1142      TBTR  (R4,ER)                CC ERROR
002C5E  6A00 28F4        1143      BON   T02K                   VERIFY ERROR
002C62  6802 0000        1144 MATT  B     *-*                   RETURN TC CALLER
002C66  402F 2716 FFFF   1145 ER16  CWI   -1,SCTID             CHECK FOR DEFECTIVE TRACK
002C6C  1002             1146      JE    DEFT                   *
002C6E  6802 2938        1147      B     T02E                   FORMAT ARGUMENT ERROR
002C72  402F 2718 FFFF   1148 DEFT  CWI   -1,SCTID+2           CHECK FOR DEFECTIVE TRACK
002C78  6802 2C62        1149      BE    MATT                   FORMAT DEFECTIVE (OK)
002C7C  6802 28EC        1150      B     T02H                   DEF FORMAT NOT 'FF'
                         1151 *
                         1152 ********************************************************************
                         1153 *                                                                  *
                         1154 *     WRITE PARAMETER TABLE                                        *
                         1155 *                                                                  *
                         1156 ********************************************************************
                         1157 *
002C80  001A             1158 TAB00 DC    X'001A'                R=26
002C82  0080             1159      DC    F'128'                 BYTE COUNT (N=0,R=26)
002C84  0080             1160      DC    F'128'                 BYTE COUNT (N=0,R=26)
002C86  0019             1161      DC    X'0019'                R=25
002C88  0100             1162      DC    F'0256'                BYTE COUNT (N=0,R=25)
002C8A  0100             1163      DC    F'0256'                BYTE COUNT (N=0,R=25)
002C8C  0019             1164      DC    X'0019'                R=25
002C8E  007E             1165      DC    F'0126'                BYTE CT,N=0,R=25,FRACT SECTOR
002C90  0100             1166      DC    F'0256'                FULL BYTE CT TO CHECK FRACTIONAL SECT
002C92  FFFF             1167      DC    X'FFFF'                END OF PAR LIST
002C94  0008             1168 TAB20 DC    X'0008'                R=8
002C96  0200             1169      DC    F'512'                 BYTE COUNT (N=2,R=8)
002C98  0200             1170      DC    F'512'                 BYTE COUNT (N=2,R=8)
002C9A  0007             1171      DC    X'0007'                R=7
002C9C  0400             1172      DC    F'1024'                BYTE COUNT (N=2,R=7)
002C9E  0400             1173      DC    F'1024'                BYTE COUNT (N=2,R=7)
002CA0  0007             1174      DC    X'0007'                R=7
002CA2  0002             1175      DC    F'2'                   FRACTIONAL SECTOR N=2
002CA4  0400             1176      DC    F'1024'                FULL BYTE COUNT
002CA6  FFFF             1177      DC    X'FFFF'                END OF PAR LIST
002CA8  000F             1178 TAB10 DC    X'000F'                R=15
002CAA  0100             1179      DC    F'256'                 BYTE COUNT (N=1,R=15)
002CAC  0100             1180      DC    F'256'                 BYTE COUNT (N=1,R=15)
002CAE  000E             1181      DC    X'000E'                R=14
002CB0  0200             1182      DC    F'0512'                BYTE COUNT (N=1,R=14)
002CB2  0200             1183      DC    F'0512'                BYTE COUNT (N=1,R=14)
002CB4  000E             1184      DC    X'000E'                R=14
002CB6  000A             1185      DC    F'0010'                FRACTIONAL SECTOR N=1
002CB8  0200             1186      DC    F'0512'                FULL SECTOR BYTE COUNT
002CBA  FFFF             1187      DC    X'FFFF'                END OF PAR LIST
                         1188 *
                         1189      COPY  T48DCB
                         1190 *
                         1191 ********************************2/17/76*****************************
                         1192 *                                                                  *
                         1193 *     DCB TABLES                                                   *
                         1194 *                                                                  *
                         1195 ********************************************************************
                         1196 *
                         1197 ***** DIAGNOSTIC DCB   ********
                         1198 *
002CBC  2000             1199 DGDCB DC    X'2000'                DIAGNOSTIC DCB
002CBE  0000             1200      DC    X'0000'                NOT USED
002CC0  0000             1201      DC    X'0000'                NOT USED
002CC2  0000             1202      DC    X'0000'                NOT USED
002CC4  0000             1203      DC    X'0000'                NOT USED
002CC6  0000             1204      DC    X'0000'                CHAIN ADDRESS
002CC8  000E             1205      DC    X'000E'                BYTE COUNT FOR READ DIAG
002CCA  2D7E             1206      DC    A(DIAGW)               DATA ADDRESS
                         1207 *
                         1208 ***** RECALIBRATE DCB  ********
                         1209 *
002CCC  0007             1210 CLDCB DC    X'0007'                RECALIBRATE DCB
002CCE  0000000000000000 1211      DC    7A(*-*)
                         1212 *
                         1213 ***** FORMAT DCB  *******
                         1214 *
002CDC  0002             1215 FRDCB DC    X'0002'                FORMAT CONTROL WORD
002CDE  0000             1216      DC    X'0000'                NOT USED
002CE0  0000             1217      DC    A(*-*)                 FORMAT DATA WORD
002CE2  0000             1218      DC    A(*-*)                 N - C BYTES
002CE4  0001             1219      DC    X'0001'                H - R BYTES
002CE6  0000             1220      DC    A(*-*)                 CHAIN ADDRESS
002CE8  0000             1221      DC    F'0'                   NOT USED
002CEA  0000             1222      DC    F'0'                   NOT USED
                         1223 *
                         1224 ***** READ SECTOR ID DCB  *******
                         1225 *
002CEC  200A             1226 RSDCB DC    X'200A'                READ SECTOR ID
002CEE  0000             1227      DC    X'0000'                NOT USED
002CF0  0000             1228      DC    X'0000'                NOT USED
002CF2  0000             1229      DC    X'0000'                NOT USED
002CF4  0000             1230      DC    X'0000'                NOT USED
002CF6  0000             1231      DC    X'0000'                CHAIN ADDRESS
002CF8  0004             1232      DC    X'0004'                BYTE COUNT FOR READ SECTOR ID
002CFA  2716             1233      DC    A(SCTID)               SECTOR ID DATA ADDRESS
                         1234 *
                         1235 ***** SEEK DCB  ********
                         1236 *
002CFC  0005             1237 SKDCB DC    X'0005'                SEEK DCB
002CFE  0000             1238      DC    X'0000'                BIT 3=HEAD;BIT 4=DIRECTION;8-15=DIFF
002D00  0000             1239      DC    F'0'
002D02  0000             1240      DC    F'0'
002D04  0000             1241      DC    F'0'                   0-7 HEAD SELECT (NEW ARCH)
002D06  0000             1242      DC    F'0'
002D08  0000             1243      DC    F'0'
```

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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
002D0A  0000            1253         DC    F'0'
                        1254 *
                        1255 *
                        1256 ***** CYCLE STEAL STATUS DCB  ********
                        1257 *
002D0C  2000            1258 CSDCB   DC    X'2000'             CONTROL WORD
002D0E  0000            1259         DC    F'0'                NOT USED
002D10  0000            1260         DC    F'0'                NOT USED
002D12  0000            1261         DC    F'0'                NOT USED
002D14  0000            1262         DC    F'0'                NOT USED
002D16  0000            1263         DC    F'0'                NOT USED
002D18  0004            1264         DC    X'0004'             2 WORDS OF STATS
002D1A  272E            1265         DC    A(CSBUF)            ADDRESS OF CYCLE STEAL STATUS DATA
                        1266 *
                        1267 ***** WRITE DCB  **********
                        1268 *
002D1C  0001            1269 WRDCB   DC    X'0001'             8-15=1- ATA AM;8-15=2-CONTROL AM
002D1E  0000            1270         DC    F'0'                NOT USED
002D20  0000            1271         DC    F'0'
002D22  0000            1272         DC    X'0000'             SERCH ARGUMENT N-C
002D24  0000            1273         DC    X'0000'             SEARCH ARGUMENT H-R
002D26  0000            1274         DC    A(*-*)              CHAIN ADDRESS
002D28  0000            1275         DC    F'0'                BYTE COUNT
002D2A  0000            1276         DC    A(*-*)              WRITE DATA ADDRESS
                        1277 *
                        1278 ***** VERIFY DCB   *******
                        1279 *
002D2C  000C            1280 VRDCB   DC    X'000C'             CONTROL WORD
002D2E  0000            1281         DC    F'0'                NOT USED
002D30  0000            1282         DC    F'0'                NOT USED
002D32  0000            1283         DC    A(*-*)              N-C
002D34  0000            1284         DC    A(*-*)              H-R
002D36  0000            1285         DC    A(*-*)              CHAIN ADDRESS
002D38  0000            1286         DC    F'0'                BYTE COUNT
002D3A  0000            1287         DC    A(*-*)            VERIFY DATA ADDRESS
                        1288 *
                        1289 ***** READ DCB   *******
                        1290 *
002D3C  2009            1291 RDDCB   DC    X'2009'             READ DCB CONTROL WORD
002D3E  0000            1292         DC    F'0'                NOT USED
002D40  0000            1293         DC    F'0'                NOT USED
002D42  0000            1294         DC    X'0000'             SEARCH ARGUMENT N-C
002D44  0101            1295         DC    X'0101'             SEARCH ARGUMENT H-R
002D46  0000            1296         DC    A(*-*)              CHAIN ADDRESS
002D48  0D00            1297         DC    F'3328'             BYTE COUNT
002D4A  0000            1298         DC    A(*-*)              READ DATA ADDRESS
                        1299 *
                        1300 *
                        1301 *
                        1302 *
002D4C  1000            1303 COUNT   DC    F'4096'             BYTE COUNT (4096)
002D4E  0C80            1304 CTN32   DC    F'3200'             BYTE COUNT (3200)
002D50  0000            1305 SAVE    DC    X'0000'             SCTID INFO
002D52  0000            1306         DC    X'0000'             *
002D54  0000            1307 DIFF    DC    X'0000'             SEEK DIFFERENCE
002D56  00C8            1308 FDATA   DC    X'00C8'             FORMAT DATA BYTE FOR COMPARE
002D58  0000            1309 XXX     DC    X'0000'             WORK WORD INT TC ZERO
002D5A  0046            1310 ENDEX   DC    X'0046'             TERMINATING SEEK DIFFERENCE
002D5C  0000            1311 ZERO0   DC    X'0000'             CONSTANT ZERO
002D5E  0001            1312 CNE1    DC    X'0001'             CONSTANT ONE
002D60  0800            1313 REVR    DC    X'0800'             SEEK REVERSE
002D62  0000            1314 HBR     DC    X'0000'             H-R
002D64  0000            1315 BCNT    DC    X'0000'             BYTE COUNT
002D66  0000            1316 JOE     DC    X'0000'             WRITE PARAMETER POINTER
002D68  0000            1317 JOE1    DC    X'0000'             SAVE LOC FOR PARM LIST ADDRESS
002D6A  7AE5            1318 WDATA   DC    X'7AE5'             WRITE DATA
002D6C  69BD            1319         DC    X'69BD'             *
002D6E  0000            1320 CYLND   DC    X'0000'             TEMP SAVE AREA FOR CYLINDER #
002D70  0000            1321         DC    X'0000'             *
002D72  0000            1322 FORMT   DC    X'0000'             FROMAT BIT FROM OPERATOR
002D74  004C            1323 CYLIN   DC    X'004C'             CYLINDER NUM SELECTED FROM OPERATOR
002D76  0000            1324 HEAD    DC    F'0000'             HEAD NUM SELECTED FROM OPERATOR
002D78  0001            1325 SECT    DC    F'0001'             SECTOR # SELECT BY OPERATOR
002D7A  0D00            1326 BYCNO   DC    F'3328'             BYTE COUNT SELECTED BY OPER
002D7C  0000            1327 TABLE   DC    A(*-*)              ADDR OF WRT PAR LIST FOR FORMAT RTNS
002D7E  00000000000000000 1328 DIAGW DC    7A(*-*)             DIAGNOSTIC BUFFER
002D8C  0000            1329 CONST   DC    Y'0000'             SECTOR # PLUS ONE FOR N='X'
002D8E  0000            1330 SBYT    DC    X'0000'             FULL BYTE COUNT FOR N='X'
002D90  00FF            1331 CDAT    DC    X'00FF'             CONSTANT '00' & 'FF'
002D92  0000            1332 CTR01   DC    X'0000'             COUNTER 1
002D94  0000            1333 CTR02   DC    X'0000'             COUNTER 2
002D96  0000            1334 CTR03   DC    X'0000'             COUNTER 3
002D98  0000            1335 CTR04   DC    X'0000'             COUNTER 4
002D9A  0000            1336 CTR05   DC    X'0000'             COUNTER 5
002D9C  0000            1337 SAVR3   DC    X'0000'             SAVE AREA
002D9E  0000            1338 SAVR5   DC    X'0000'             SAVE AREA
002DA0  0000            1339 SIDE    DC    X'0000'             SIDE BEING TESTED
002DA2  0000            1340 TRK     DC    X'0000'             CURRENT CYLINDER NUMBER
002DA4  0000            1341 WTDAT   DC    X'0000'             WORK AREA
002DA6  4C00            1342 SVSIX   DC    X'4C00'             CYLINDER NUMBER 76
                        1344         COPY  T48IO
                        1345 *                        4/15/76
                        1346 *     EXECUTE INPUT & OUTPUT COMMANDS
                        1347 *     TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.
                        1348 *     EACH OF THESE ENTRIES SET R7 WITH THE ADRS OF ITS PARAMETER
                        1349 *     LIST AND ANY SPECIAL SWITCHES BEFORE BRANCHING TO THE
                        1350 *     SUPVR CALL.
                        1351 *
                        1352 *     THIS SUBROUTINE WILL CHECK FOR THE FOLLOWING:
                        1353 *
                        1354 *     1. LOST INTERRUPTS BY TIMING OUT A COUNTING LOOP
                        1355 *     2. ERROR INTERRUPTS RECEIVED FROM SUPVR
                        1356 *     3. LOOP ON ERROR, THE CALL MUST HAVE A 'DC' STATEMENT AFTER
                        1357 *        THE CALL WITH THE ADDRESS OF THE RETRY STATEMENT
                        1358 *     4. CYCLE STEAL IN PROGRESS WITH AN ERROR
                        1359 *     5. SOMETHING ELSE
                        1360 *
                        1361 *     THIS ROUTINE HAS THE FOLLOWING ENTRIES:
                        1362 *
                        1363 * 1   BAL   $SEEK,R6              SEEK
                        1364 *
                        1365 * 2   BAL   $RECL,R6              RECALIBRATE
                        1366 *
                        1367 * 3   BAL   $RDID,R6              READ SECTOR ID
                        1368 *
                        1369 * 4   BAL   $RD,R6                READ
```



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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                        1370 *
                        1371 * 5   BAL   $RDVY,R6              READ VERIFY
                        1372 *     "
                        1373 * 6   BAL   $WRT,R6               WRITE
                        1374 *     "
                        1375 * 7   BAL   $FMT,R6               FORMAT
                        1376 *     "
                        1377 * 8   BAL   XIOCS,R6              CYCLE STEAL STATUSB
                        1378 *     "
                        1379 * 9   BAL   $DIAG,R6             READ DIAGNOSTICS
                        1380 *     "
                        1381 *
002DA8  4020 2F0A 2CFC  1382 $SEEK  MVA   SKDCB,IODCB          SET UP CONTROL BLOCK FOR SVC CALL
002DAE  502C            1383         J     XIO
                        1384 *
002DB0  4020 2F0A 2CCC  1385 $RECL  MVA   CLDCB,IODCB          SET UP BLOCK FOR SVC CALL
002DB6  5028            1386         J     XIO
                        1387 *
002DB8  4020 2F0A 2CEC  1388 $RDID  MVA   RSDCB,IODCB          SET UP BLOCK FOR SVC CALL
002DBE  4020 2716 9999  1389         MVWI  X'9999',SCTID       INVALIDATE SECTOR ID BUFFER AREA
002DC4  4020 2718 9999  1390         MVWI  X'9999',SCTID+2     *
002DCA  501E            1391         J     XIO
                        1392 *
002DCC  0BFF            1393 $RD    MVBI  255,R3              INIT READ BUFFER TO FF'S
002DCE  6D08 2D4A       1394         MVW   RDDCE+14,R5         *
002DD2  4724 0400       1395         MVWI  X'0400',R7          *
002DD6  2BAC            1396         FFN   R3,(R5)             *
002DD8  4020 2F0A 2D3C  1397 $RD$   MVA   RDDCB,IODCB         SET UP BLOCK FOR SVC CALL
002DDE  5014            1398         J     XIO
                        1399 *
002DE0  4020 2F0A 2D2C  1400 $RDVY  MVA   VRDCB,IODCB         SET UP CONTROL BLOCK FOR SVC CALL
002DE6  5010            1401         J     XIO
                        1402 *
002DE8  4020 2F0A 2D1C  1403 $WRT   MVA   WRDCB,IODCB         SET UP CONTROL BLOCK FOR SVC CALL
002DEE  500C            1404         J     XIO
                        1405 *
002DF0  4020 2F0A 2CDC  1406 $FMT   MVA   FRDCB,IODCB         SET UP CONTROL BLOCK FOR SVC CALL
002DF6  5008            1407         J     XIO
002DF8  4020 2F0A 2CBC  1408 $DIAG  MVA   DGDCB,IODCB         SET UP CONTROL BLOCK FOR SVC CALL
002DFE  4020 2F0C 000D  1409         MVWI  X'000D',ICMOD       MODIFIER FOR DIAG OP
002E04  500E            1410         J     XIO1
002E06  5601            1411 CEOP2  BXS   (R6,2)              DUMMY RETURN TO USER
                        1412 *       "
                        1413         XEQIT 1
                        1414+*************************************************************29JUL76**
                        1415+**
                        1416+** SUB-ROUTINE
                        1417+**
                        1418+**      EXECUTE INPUT AND OUTPUT COMMANDS
                        1419+**
                        1420+** PURPOSE
                        1421+**
                        1422+**      TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.
                        1423+**      THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:
                        1424+**
                        1425+**        1. SAVE THE ADDRESS THAT PCINTS TO THE INSTRUCTION THAT STARTED
                        1426+**           THE I/O COMMAND.
                        1427+**        2. SAVES THE DCB BLOCK USED UNLESS IT IS A START CYCLE STATUS
                        1428+**           ISSUED BY THIS SUBROUTINE.
                        1429+**        3. CLEAR OUT THE CYCLE STEAL STATUS STORAGE UNLESS THE
                        1430+**           START CYCLE STATUS WAS ISSUED BY THIS SUBROUTINE.
                        1431+**        4. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT
                        1432+**           SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND,
                        1433+**           MYSTERY INTERRUPT (MI) CONTROL BIT IS SET.
                        1434+**        5. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE
                        1435+**           EXPECTED INTERRUPT CONTROL BIT AND ISSUE THE 'SVC  START'.
                        1436+**        6. WHEN THE SUPVR RETURNS AFTER ISSUING THE I/O COMMAND, TIMING
                        1437+**           STARTS TO DETERMINE A LOST INTERRUPT.
                        1438+**        7. EXCEPT THE INTERRUPT AND GATHER INFORMATION TO DETERMINE IF IT
                        1439+**           WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL.
                        1440+**        8. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.
                        1441+**        9. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN.
                        1442+**       10. CHECK IF THERE WAS AN ERROR CONDITION, IF NOT RETURN.
                        1443+**       11. CHECK TO SEE IF THE EXERCISER IS TO BE TERMINATED.
                        1444+**       12. CHECK IF A CYCLE STEAL OPERATION WAS IN PROGRESS THAT WAS
                        1445+**           ISSUED BY THIS SUBROUTINE.
                        1446+**       13. CHECK THE ISB BITS THAT ARE ON. IF BIT 0 IS ON, ISSUE A
                        1447+**           CYCLE STEAL STATUS COMMAND. CHECK FOR ANY OTHER BIT BEING ON,
                        1448+**           COUNT IT AND SET UP THE PROPER ERROR MESSAGE TO BE PRINTED.
                        1449+**
                        1450+** CALLING SEQUENCE
                        1451+**
                        1452+**      THIS ROUTINE HAS THE FOLLOWING ENTRIES:
                        1453+**
                        1454+** --> BAL   XIO         OR        XEQ ANY CYCLE STEAL COMMAND, MOD=0
                        1455+** --> BAL   XIO1                 MOD PARM PRELOADED IN 'IOMOD'
                        1456+** --> BAL   XIOCS,R6    OR        XEQ START CYCLE STEAL STATUS, MOD=F
                        1457+** --> BAL   XIOCS-4,R6           AUTO CS STATUS (FOLLOWING OTHER XIO
                        1458+**      "                         AND DOES NOT POST INTERRUPT STATUS)
                        1459+**
                        1460+** RETURN CONTROL
                        1461+**
                        1462+**      BXS   (R6,2)              RETURN TO USER NO ERROR
                        1463+** OR   B     (R6)*              RETURN AND RETRY ON ERROR
                        1464+*************************************************************
002E08  CB25 2F0C       1466+XIO    MVWZ  IOMOD,R3            SET MOF OF 0 FOR CYCLE STEAL OP
002E0C  500A            1467+       J     XIO1                CS I/O'S ARE NOT RETRIED
                        1468+**
002E0E  4CAA            1469+       TBTR  (R4,CE)             RESET CS STATUS INTER ERROR INDICAT.
002E10  4C68            1470+       TBTS  (R4,CS)             SET 'CYCLE STEAL STATUS' IN PROGRESS
002E12  4020 2F0A 2D0C  1471+XIOCS  MVA   CSDCB,IODCB         SET UP CONTROL BLOCK FOR SVC CALL
002E18  4020 2F0C 000F  1472+       MVWI  X'000F',IOMOD       SET CYCLE STEAL MODIFIER
002E1E  4C28            1473+       TBT   (R4,CS)             IS CS IN PROGRESS, ERROR CONDITION
002E20  1213            1474+       JON   XIO2                * YES, BYPASS SAVING I/O ADRS
002E22  6E0D 2714       1475+XIO1   MVW   R6,LSTIO            SAVE IAR FOR RETRY IF REQUESTED
002E26  4324 271E       1476+       MVA   DCBUF,R3            SET UP TO ADRS TO MOVE DCB TABLE
002E2A  6D08 2F0A       1477+       MVW   IODCB,R5            * AND THE FROM ADRS, ALONG WITH
002E2E  0F10            1478+       MVBI  16,R7               * THE NUMBER OF MOVES
002E30  2D64            1479+       MVFN  (R5),(R3)           MOVE 1 STATUS WORD AND ADJUST
002E32  0BFF            1480+       MVBI  255,R3              CLEAR CYCLE STATUS BUFFER
002E34  4524 272E       1481+       MVA   CSBUF,R5            *  TO ALL ONES  *
002E38  0F10            1482+       MVBI  16,R7               *
002E3A  2BAC            1483+       FFN   R3,(R5)             *
002E3C  4020 2710 0708  1484+       MVWI  X'0708',$IOIN       OVERLAY OLD CONDITION CODES
002E42  CB25 2712       1485+       MVWZ  $ISB,R3             ZERO OUT OLD ISB VALUE
                        1486+**
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
002E46  4CA1             1487+       TBTR  (R4,ER)                 RESET ANY ERROR BEFORE I/O COMMAND
002E48  4CA3             1488+XIO2   TBTR  (R4,IN)                 CLEAR INTERRUPT RECEIVED CNTL BIT
002E4A  4724 2F06        1489+       MVA   IOBLK,R7                SET UP CONTROL BLOCK FOR SUPVR
002E4E  4CA6             1490+       TBTR  (R4,$LE)                RESET LEVEL ERROR INDICATOR
002E50  4C62             1491+       TBTS  (R4,XI)                 SET EXPECTED INTR CONTROL BIT
002E52  600A             1492+       SVC   START                   CALL SUPVR FOR I/O COMMAND
                         1493+*
002E54  4CA7             1494+       TBTR  (R4,NI)                 IS AN INTR EXPECTED
002E56  6AC0 0002        1495+       BN    (R6,2)                  * NO, RETURN TO USER
                         1496+*
                         1497+*            THE INTR SHOULD OCCUR WHILE SPINNING IN THE NEXT SECTION
                         1498+*
002E5A  0D00             1499+       MVBI  X'00',R5                SET UP WORK REG FOR 'LOST INTR'
002E5C  4CA3             1500+XIO8   TBTR  (R4,IN)                 HAS INTERRUPT BEEN RECEIVED
002E5E  1238             1501+       JON   XIOCK                   * YES, CHECK IF ALL WAS SATISFACTORY
002E60  6002             1502+       SVC   IDLE                    ALLOW ANOTHER PROGRAM A CHANCE TO RUN
                         1503+*                                    SUPVR WILL RETURN HERE
002E62  7DA1 0001        1504+       AWI   1,R5                    ADVANCE TIME OUT COUNT
002E66  18FA             1505+       JNZ   XIO8                    BCH IF TIME OUT NOT REACHED
002E68  4C61             1506+       TBTS  (R4,ER)                 SET ON ERROR CONTROL BIT
002E6A  68D2 0000        1507+       B     (R6)*                   ERR 'NO INTERRUPT'
                         1509+*****************************************************************03FEB76**
                         1510+*
                         1511+* SUBROUTINE
                         1512+*
                         1513+*      I/O EXECUTE ERROR HANDLING ROUTINE
                         1514+*
                         1515+* PURPOSE
                         1516+*
                         1517+*      THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE
                         1518+*      PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE
                         1519+*      SUPERVISOR AND IT WAS NOT ACCEPTED.
                         1520+*
                         1521+* CALLING SEQUENCE
                         1522+*
                         1523+*      SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O COMMAND
                         1524+*
                         1525+* RETURN CONTROL
                         1526+*
                         1527+*      B     (R6)*                   RETURN TO USERS ERROR HANDLER
                         1528+*
                         1529+*************************************************************************
                         1530+*
                         1531+* CC          0= DEVICE NOT ATTACHED
                         1532+* FOR         1= DEVICE BUSY
                         1533+* I/O         2= DEVICE BUSY AFTER RESET
                         1534+*            3= COMMAND REJECT
                         1535+*            4= INTERVENTION REQUIRED
                         1536+*            5= INTERFACE DATA CHECK
                         1537+*            6= CCNTROLLER BUSY
                         1538+*            7= I/O COMMAND EXCEPTED
                         1539+*
002E6E  706E             1540+XIOER  DC    X'706E'                 COPY STATUS ANY LEVEL INTO R3
002E70  336A             1541+       SRL   13,R3                   POSITION CC CODE TO BITS 13-15
002E72  C328 2710        1542+       MVB   R3,$IOIN                * PUT IN LOG OUT AREA
002E76  68D2 0000        1543+       B     (R6)*                   RETURN TO USER ERROR HANDLER
                         1545+*****************************************************************14APR76**
                         1546+*                                                                        IL
                         1547+* SUB-ROUTINE                                                           IL
                         1548+*                                                                        IL
                         1549+*      ERROR INTERRUPT             RUNS ON INTERRUPT LEVEL '$INTL'       IL
                         1550+*                                                                        IL
                         1551+* PURPOSE                                                              IL
                         1552+*                                                                        IL
                         1553+*      THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR      IL
                         1554+*      OR THE INTERRUPTING CONDITION CODE DOES NOT AGREE WITH THE        IL
                         1555+*      EXPECTED CODE.                                                    IL
                         1556+*                                                                        IL
                         1557+* CALLING SEQUENCE                                                     IL
                         1558+*                                                                        IL
                         1559+*      SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT         IL
                         1560+*                                                                        IL
                         1561+* RETURN CONTROL                                                       IL
                         1562+*                                                                        IL
                         1563+*      SVC   EXIT                  RETURN TO USER VIA SUPVR              IL
                         1564+*                                                                        IL
                         1565+*************************************************************************IL
                         1566+*                                                                        IL
                         1567+* CC          0= CONTROLLER END                 ISB   0= ADD STATUS     IL
                         1568+* FOR         1= PROGRAM CONTROL INTERRUPT      BITS  1= COMD REJECT    IL
                         1569+* INTR        2= EXCEPTION INTERRUPT            FOR   2= INCOR LENGTH   IL
                         1570+*            3= DEVICE END INTERRUPT           INTR  3= DCB SPEC CK    IL
                         1571+*            4= ATTENTION INTERRUPT                  4= STG DATA CK    IL
                         1572+*            5= ATTENTION / PROGRAM CNTL INTR        5= INV STG ADRS   IL
                         1573+*            6= ATTENTION / EXCEPTION INTR           6= PROTRCT CK     IL
                         1574+*            7= ATTENTION / DEVICE END INTR          7= I-FACE DATA    IL
                         1575+*                                                                        IL
002E7A  706E             1576+INTER  DC    X'706E'                 COPY STATUS ANY LEVEL INTO R3     IL
002E7C  336A             1577+       SRL   13,R3                   POSITION INDICATORS IN R3         IL
002E7E  4424 2708        1578+       MVA   OPTN1,R4                SET UP BASE ADRS                  IL
002E82  4C28             1579+       TBT   (R4,CS)                 IS CS IN PROGRESS                 IL
002E84  1006             1580+       JOFF  INTES                   * NO                              IL
002E86  4C6A             1581+       TBTS  (R4,CE)                 TURN ON CYCLE STEAL INTER ERROR   IL
002E88  6F0D 273C        1582+       MVW   R7,CSTL8                SAVE CS ERR ISB VALUE, BITS 0-7   IL
002E8C  C328 273D        1583+       MVB   R3,CSTL8+1              * AND THE COND CODE               IL
002E90  500A             1584+       J     INTR1                                                     IL
002E92  4C24             1585+INTES  TBT   (R4,XE)                 TEST  EXPECTED ATTEN / ERROR IND  IL
002E94  1002             1586+       JOFF  INTET                   BCH IF NOT EXPECTED               IL
002E96  F304             1587+       CBI   4,R3                    IS THIS AN 'ATTENTION' INTR       IL
002E98  1006             1588+       JE    INTR1                   * YES, BCH TO END INTR SEQUENCE   IL
002E9A  4C61             1589+INTET  TBTS  (R4,ER)                 SET ERROR ON I/O COMMAND CNTL BIT IL
002E9C  5004             1590+       J     INTR1                                                     IL
                         1591+*                                    THE ERROR INTERRUPT USES THE SAME IL
                         1592+*                                    ENDING SEQUENCE AS THE NORMAL INTR IL
                         1594+*****************************************************************14APR76IL
                         1595+*                                                                        IL
                         1596+* SOUBROUTINE                                                           IL
                         1597+*                                                                        IL
                         1598+*      OKAY  INTERRUPT             RUNS ON INTERRUPT LEVEL '$INTL'       IL
                         1599+*                                                                        IL
                         1600+* PURPOSE                                                              IL
                         1601+*                                                                        IL
                         1602+*      TO CHECK THE INTERRUPT AND CONTINUE THE TEST                      IL
                         1603+*                                                                        IL
                         1604+* CALLING SEQUENCE                                                     IL
                         1605+*                                                                        IL
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                         1606+*      SUPERVISOR WILL ENTER HERE  IF INTR CC IS AS REQUESTED            IL
                         1607+*      THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS ROUTINE           IL
                         1608+*      AFTER THE SPECIAL PART HAS BEEN COMPLETED  AND THE                IL
                         1609+*      COMMON SECTION IS HANDLED HERE.                                   IL
                         1610+*                                                                        IL
                         1611+* RETURN CONTROL                                                        IL
                         1612+*                                                                        IL
                         1613+*      SVC   EXIT                  RETURN TO USER VIA SUPVR              IL
                         1614+*                                                                        IL
                         1615+*************************************************************************IL
002E9E  706E             1616+INTOK  DC    X'706E'                 COPY STATUS ANY LEVEL INTO R3     IL
002EA0  336A             1617+       SRL   13,R3                   POSITION INDICATORS IN R3         IL
002EA2  4424 2708        1618+       MVA   OPTN1,R4                SET UP BASE ADRS                  IL
002EA6  4C63             1619+INTR1  TBTS  (R4,IN)                 SET  INTERRUPT RECEIVED           IL
002EA8  4C28             1620+       TBT   (R4,CS)                 IS 'CS IN PROGRESS' ON            IL
002EAA  1204             1621+       JON   INTR2                   * YES, BCH AROUND UPDATE          IL
002EAC  C328 2711        1622+       MVB   R3,$IOIN+1              SAVE INTERRUPTING CC CODE         IL
002EB0  6F0D 2712        1623+       MVW   R7,$ISB                 SAVE INTR STATUS AND DEV ADRS     IL
002EB4                   1624+INTR2  EQU   *                                                       IL
                         1625+*      CPCL  R5                      CURRENT LEVEL COPIED BY DCP       IL
002EB4  3521             1626+       SLL   4,R5                    POSITION INTR LEVEL AND PUT       IL
002EB6  0501             1627+       ABI   1,R5                    * IN 'I' BIT                      IL
002EB8  CD24 2744        1628+       CW    $INTL,R5                IS THIS THE CORRECT INTR LEVEL     IL
002EBC  1002             1629+       JE    INTR3                   * YES, GO EXIT THIS LEVEL         IL
002EBE  4C66             1630+       TBTS  (R4,$LE)                SET INTR LEVEL ERROR CONTROL BIT  IL
002EC0  4C61             1631+       TBTS  (R4,ER)                 SET ERROR ON I/O COMMAND CNTL BIT  IL
002EC2  4CA2             1632+INTR3  TBTR  (R4,XI)                 WAS INTERRUPT EXPECTED            IL
002EC4  1204             1633+       JON   INTRX                   * YES, EXIT OFF THIS INTR LEVEL   IL
002EC6  4C60             1634+       TBTS  (R4,MI)                 * NO  SET MYSTERY INTR CONTROL BIT IL
002EC8  F304             1635+       CBI   4,R3                    ATTENTION INTERRUPT?              IL
002ECA  1001             1636+       JE    INTRX                   YES                               IL
002ECC  4C6C             1637+       TBTS  (R4,NG)                 ERROR,UNEXPECTED INTERRUPT        IL
002ECE  6006             1638+INTRX  SVC   EXIT                    EXIT THIS LEVEL VIA SUPVR TO PGM  IL
                         1640+*****************************************************************03FEB76**
                         1641+*
                         1642+*      THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT
                         1643+*      HAS BEEN SERVICED. THE EXERCISER FINDS AN INTERRUPT HAS BEEN
                         1644+*      RECEIVED AND BRANCHES HERE TO CHECK FOR ANY ERROR CONDITIONS.
                         1645+*
                         1646+*
002ED0  4CA4             1647+XIOCK  TBTR  (R4,XE)                 WAS AN ERROR EXPECTED
002ED2  6AC0 0002        1648+       BN    (R6,2)                  * YES, EXIT THIS ROUTINE
002ED6  4CA8             1649+       TBTR  (R4,CS)                 WAS AUTO CS IN PROGRESS
002ED8  1006             1650+       JOFF  XIOCV                   * NO, CONTINUE CHECKING
002EDA  4C2A             1651+       TBT   (R4,CE)                 IS CS IN AN ERR CONDITION
002EDC  1002             1652+       JOFF  XIOCO                   * NO, BCH
002EDE  68D2 0000        1653+       B     (R6)*                   CS ERROR
002EE2  4C69             1654+XIOCO  TBTS  (R4,CSA)                TURN ON CS STATS AVAIL FLAG
002EE4  5601             1655+       BXS   (R6,2)                  GO TO USER
002EE6  4C21             1656+XIOCV  TBT   (R4,ER)                 WAS ERROR INTR CONTROL BIT ON
002EE8  100B             1657+       JOFF  XIOCX                   * NO, EXIT THIS ROUTINE
                         1658+*
002EEA  C520 2711        1659+       MVB   $IOIN+1,R5              GET LAST INTR CC CODE
002EEE  F502             1660+       CBI   2,R5                    IS THIS CC=2
002EF0  68D1 0000        1661+       BNE   (R6)*                   * NO, BCH TC ERROR HANDLER
002EF4  C520 2712        1662+XIOCQ  MVB   $ISB,R5                 GET LAST ISB DATA BYTE AND IF CS
002EF8  6A00 2E0E        1663+       BN    XIOCS-4                 * AVAILABLE, GO AND GET IT
002EFC  68D2 0000        1664+       B     (R6)*                   ERROR
002F00  CB25 270C        1665+XIOCX  MVWZ  OPTN3,R3                CLEAR OUT OPTION 3 CNTL BITS
002F04  5601             1666+       BXS   (R6,2)                  RETURN TO USER VIA REG 6
                         1667+*
                         1668+*            I/O   PARAMETER LIST
                         1669+*
002F06  19D0             1670+IOBLK  DC    A(DEVADD)               ADRS OF DEVICE ADRS
002F08  2E6E             1671+       DC    A(XIOER)                ERROR ROUTINE ADRS
002F0A  0000             1672+IODCB  DC    A(*-*)                  DCB ADRS OR LEVEL & INTR
002F0C  0000             1673+IOMOD  DC    A(*-*)                  MODIFIER
002F0E  0000             1674+       DC    A(*-*)                  ADRS OF LAST SVC CALL
002F10  0000             1675+IORSP  DC    A(*-*)                  SECOND WORD OF LAST IDCB
                         1676+*
                         1677+*            INTERRUPT CONTROL BLOCK FOR I/C COMMANDS
                         1678+*
002F12  19D0             1679+INTBL  DC    A(DEVADD)               ADRS OF DEVICE ADRS
002F14  2E9E             1680+       DC    A(INTOK)                INTERRUPT OK RETURN ADRS
002F16  2E7A             1681+       DC    A(INTER)                INTERRUPT ERROR ADRS
002F18  0003             1682+INTCC  DC    X'0003'                 INTERRUPT CODE EXPECTED
                         1684+*****************************************************************11MAY76**
                         1685+*
                         1686+* SUBROUTINE
                         1687+*
                         1688+*      CONNECT INTERRUPT CONTFOL BLOCK & PREPARE DEVICE
                         1689+*
                         1690+* PURPOSE
                         1691+*
                         1692+*      TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND
                         1693+*      PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE
                         1694+*      TO INTERRUPT.
                         1695+*
                         1696+* CALLING SEQUENCE
                         1697+*
                         1698+*      THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:
                         1699+*
                         1700+* --> BAL   $CONC,R6                CLEAR DEV DEP STG AND CONNECT I/O BLK
                         1701+* --> BAL   $CONP,R6                PREPARE DEVICE ONLY, ALREADY CONNECT
                         1702+*
                         1703+* RETURN CONTROL
                         1704+*
                         1705+*      BXS   (R6,2)                  RETURN TO USER VIA REG 6 IF OKAY
                         1706+* OR  B     (R6)*                   IF THE DEVICE COULD NOT BE CONNECTED
                         1707+*
                         1708+*************************************************************************
002F1A  0F06             1709+$CONC  MVBI  6,R7                    NUMBER OF BYTE TO CLEAR
002F1C  0B00             1710+       MVBI  0,R3                    * AND THE DATA TO USE
002F1E  4524 2716        1711+       MVA   DEV1,R5                 * ALONG WITH THE ADRS TO USE
002F22  2BAC             1712+       FFN   R3,(R5)                 *
002F24  CB25 270C        1713+       MVWZ  OPTN3,R3                CLEAR OLD CONTROLS FOR NEW ROUTINE
002F28  4724 274A        1714+       MVA   SVCAL,R7                SET UP TO REQUEST DCP SUPR DISK
002F2C  6016             1715+       SVC   REQSD                   *
002F2E  0FFF             1716+       MVBI  -1,R7                   SET UP DELAY FOR IBIS
002F30  BFFF             1717+       JCT   *,R7                    * AND DECREMENT IT DOWN
002F32  4724 2F12        1718+       MVA   INTBL,R7                SET R7 TO CONTROL BLOCK AND
002F36  6014             1719+       SVC   CICB                    * CONNECT IT TO THIS DEVICE
002F38  6AD0 0000        1720+       BN    (R6)*                   ERROR RETURN TO USER
                         1721+*
002F3C  8828 2744 2F0A   1722+$CONP  MVW   $INTL,IODCB             PUT IN LEVEL & INTR PARAMETER
002F42  4724 2F06        1723+       MVA   IOBLK,R7                SET R7 TO CONTROL BLOCK TO PREPARE
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
002F46  4020 2710 07Q8   1724+        MVWI  X'07Q8',$IOIN       INITIALIZE CONDITION CODE STORAGE
002F4C  CB25 2712        1725+        MVWZ  $ISB,R3             * AND CLEAR OLD ISB VALUE
002F50  6E0D 2714        1726+        MVW   R6,LSTIO            SET UP ADDRESS THAT STARTED LAST I/O
002F54  600C             1727+        SVC   PREP                * AND CALL ON SUPVR
002F56  5601             1728+        BXS   (R6,2)              RETURN TO USER
                         1730+*************************************************************06APR76**
                         1731+*
                         1732+* SUBROUTINE
                         1733+*
                         1734+*      DISCONNECT THE INTERRUPT CONTROL BLCCK AND LOG ERRORS
                         1735+*
                         1736+* PURPOSE
                         1737+*
                         1738+*      DISCONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND
                         1739+*      SET THE 'NO GOOD' CONTROL BIT, THEN LOG THE DATA THAT HAS
                         1740+*      BEEN FOUND TO HELP THE OPERATOR DEFINE THE ERROR CONDITION.
                         1741+*
                         1742+* CALLING SEQUENCE
                         1743+*
                         1744+*      THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:
                         1745+*
                         1746+* --> B     $ERR$               SET 'NG' BIT AND CONVERT DATA TO LOG
                         1747+* --> B     $CONX               RETURN TO MDI SUPERVISOR TO TEST STS
                         1748+*
                         1749+* RETURN CONTROL
                         1750+*
                         1751+*      B     TURTN*              RETURN TO MDI
                         1752+* OR   B     (R6)*               IF THE DEVICE COULD NOT BE CONNECTED
                         1753+*
                         1754+*************************************************************************
002F58  4020 1818 8000   1755+$ERR$  MVWI  X'8000',TUSTATUS     SET ON 'NO GOOD' STATUS BIT
002F5E  4724 30CE        1756+        MVA   HEELK,R7            GET ADRS OF CONTROL BLOCK
002F62  601A             1757+        SVC   HTOE                CONVERT HEX TO EBC VIS DCP
002F64  0D03             1758+$PRNT   MVBI  3,R5
002F66  4324 181A        1759+        MVA   TUWCRK,R3           SET UP BUFFER STORAGE
002F6A  6B0D 30C6        1760+        MVW   R3,BUFPT
002F6E  4124 2FF6        1761+        MVA   LINE1,R1
002F72  0F04             1762+        MVBI  4,R7
002F74  0E08             1763+        MVBI  8,R6
002F76  2B24             1764+MVBUF   MVFN  (R3),(R1)
002F78  0F04             1765+        MVBI  4,R7
002F7A  0A40             1766+        MVBI  X'40',R2
002F7C  C258             1767+        MVE   R2,(R1)+
002F7E  BEFB             1768+        JCT   MVBUF,R6
002F80  0E08             1769+        MVBI  8,R6
002F82  7921 002C        1770+        AWI   44,R1
002F86  BDF7             1771+        JCT   MVBUF,R5
002F88  4020 1802 F1F0   1772+        MVWI  PIDMSG10,PID+2
002F8E  4020 19B8 30CC   1773+        MVA   FAKETU,@DCADD1
002F94  4020 19BA 30C8   1774+        MVA   DC2PT,@DCADD2
002F9A  402C 19C4 0080   1775+        OWI   BIT0080,SUPSTAT
002FA0  4324 270E        1776+        MVA   $TUID,R3            SET UP BUFFER STORAGE
002FA4  6F13 18BA        1777+        BAL   TUMSGWTR*,R7        GO TO MESSAGE WRITER
                         1778+*
002FA8                   1779+$CONX   EQU   *
002FA8  8028 2717 274D   1780+        MVB   SCTID+1,SVCAL+3     SETUP CURRENT CYLINDER NUM
002FAE  4724 274A        1781+        MVA   SVCAL,R7            ADDR OF RELEASE PARM LIST
002FB2  6017             1782+        SVC   RELSD               RELEASE CONTROL
002FB4  C720 19D0        1783+        MVB   DEVADD,R7           GET DEVICE ADDRESS FROM MDI
002FB8  6013             1784+        SVC   RICB                RELEASE INTERRUPT CONTROL BLOCK
002FBA  6812 2746        1785+        B     TURTN*              RETURN TO MDI SUPERVISOR
                         1786+*
002FBE  0007             1787+BEGIN   DC    A(0007)             NUMBER OF LINES TO PRINT
002FC0  0008             1788+        DC    A(0008)             LINE LENGTH = 8 CHAR
002FC2  5C5C40C1C2D6D9E3 1789+        DC    C'** ABCRT'
002FCA  0028             1790+        DC    A(0040)             LINE LENGTH = 40 CHAR
002FCC  E3E4C9C440C9D6C9D 1791+       DC    C'TUID IOIN ISB  INST DEV1 DEV2 DEV3 DEV4 '
002FF4  0028             1792+        DC    A(0040)             LINE LENGTH = 40 CHAR
002FF6  4040404040404040 1793+LINE1   DC    C'                                        '
00301E  0028             1794+        DC    A(0040)             LINE LENGTH = 40 CHAR
003020  C3D5E3D340C4C3C2F 1795+       DC    C'CNTL DCB2 DCB3 DCB4  DCB5 CHAD BYCT ADRS '
003048  0028             1796+        DC    A(0040)             LINE LENGTH = 40 CHAR
00304A  4040404040404040 1797+LINE2   DC    C'                                        '
003072  0028             1798+        DC    A(0040)             LINE LENGTH = 40 CHAR
003074  D9E2C9C440C3E260F 1799+       DC    C'RSID CS-2 CS-3 CS-4  CS-5 CS-6 CS-7 CS-8 '
00309C  0028             1800+        DC    A(0040)             LINE LENGTH = 40 CHAR
00309E  4040404040404040 1801+LINE3   DC    C'                                        '
                         1802+*
0030C6  0000             1803+BUFPT   DC    A(*-*)
0030C8  2FBE             1804+DC2PT   DC    A(BEGIN)
0030CA  0101             1805+FIXTU   DC    X'0101'
0030CC  0101             1806+FAKETU    DC  X'0101'
00F1F0                   1807+PIDMSG10  EQU   X'F1F0'
000080                   1808+BIT0080   EQU   X'0080'
                         1809+*
                         1810+*       DATA CONTROL BLOCK FOR CONVERTING HEX TO EBCDIC
                         1811+*
0030C8  0030             1812+HEBLK   DC    A(48)               NUMBER OF BYTES TO CONVERT
0030D0  270E             1813+        DC    A($TUID)            FROM ADRS
0030D2  181A             1814+        DC    A(TUWCRK)           AND THE TO ADRS
                         1815 *
000000                   1817         END
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CROSS-REFERENCE LISTING COPYRIGHT IBM CORP 1976

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
       0  .R0.      ABSOLUTE. HEX VALUE(00000000)
                    728   729   730   731   732   734   735   993   994
                    999  1000
       0  .R1.      ABSOLUTE. HEX VALUE(00000001)
                    933   937   943   950   965   969   971   992   996
                    998  1002  1761  1764  1767  1770
       0  .R2.      ABSOLUTE. HEX VALUE(00000002)
                    722   723   724   725   726   750   751   752   757
                    758   830   831   832   833   834   935   937   940
                    942   949   967   969  1007  1008  1766  1767
       0  .R3.      ABSOLUTE. HEX VALUE(00000003)
                    908   909   911   912   918   919   921   924   925
                    927   931   939   940   944   945   945   946   951
                    952  1393  1396  1466  1476  1479  1480  1483  1485
                   1541  1542  1577  1583  1587  1617  1622  1635  1665
                   1710  1712  1713  1725  1759  1760  1764  1776
       0  .R4.      ABSOLUTE. HEX VALUE(00000004)
                    718   738   743   744   746   763   777   784   796
                    801   871   890   894   903   916   955  1130  1135
                   1148  1469  1470  1473  1487  1488  1490  1491  1494
                   1500  1506  1578  1579  1581  1585  1589  1618  1619
                   1620  1630  1631  1632  1634  1637  1647  1649  1651
                   1654  1656
       0  .R5.      ABSOLUTE. HEX VALUE(00000005)
                    907   908   909   913   922   924   926   931   941
                    942   946   948   949   952  1394  1396  1477  1479
                   1481  1483  1499  1504  1626  1627  1628  1659  1660
                   1662  1711  1712  1758  1771
       0  .R6.      ABSOLUTE. HEX VALUE(00000006)
                    719   733   736   761   765   767   768   770   772
                    774   776   782   794   799   869   888   892   901
                    914  1011  1027  1032  1050  1055  1073  1078  1096
                   1100  1103  1125  1128  1133  1146  1411  1475  1495
                   1507  1543  1648  1653  1655  1661  1664  1666  1720
                   1726  1728  1763  1768  1769
       0  .R7.      ABSOLUTE. HEX VALUE(00000007)
                    565   716   905   923   928   929   943   950   971
                   1006  1009  1395  1478  1482  1489  1582  1623  1709
                   1714  1716  1717  1718  1723  1756  1762  1765  1777
                   1781  1783
    1709  $CONC     ADDRESS. HEX LOCATION(00002F1A) IN CSECT(I4802  ) LENGTH(2)
                    719
    1779  $CONX     ADDRESS. HEX LOCATION(00002FA8) IN CSECT(I4802  ) LENGTH(1)
                    849
     553  $DATA     ADDRESS. HEX LOCATION(00002740) IN CSECT(I4802  ) LENGTH(2)
                    727   993   999  1005  1008
    1406  $FMT      ADDRESS. HEX LOCATION(00002DF0) IN CSECT(I4802  ) LENGTH(6)
                   1128
     554  $INIL     ADDRESS. HEX LOCATION(00002744) IN CSECT(I4802  ) LENGTH(2)
                   1628  1722
     524  $IOIN     ADDRESS. HEX LOCATION(00002710) IN CSECT(I4802  ) LENGTH(2)
                    845  1484  1542  1622  1659  1724
     525  $ISB      ADDRESS. HEX LOCATION(00002712) IN CSECT(I4802  ) LENGTH(2)
                    846  1485  1623  1662  1725
     509  $LE       ABSOLUTE. HEX VALUE(00000026)
                   1490  1630
    1393  $RD       ADDRESS. HEX LOCATION(00002DCC) IN CSECT(I4802  ) LENGTH(2)
                    901
    1388  $RDID     ADDRESS. HEX LOCATION(00002DB8) IN CSECT(I4802  ) LENGTH(6)
                    799  1133
    1400  $RDVY     ADDRESS. HEX LOCATION(00002DE0) IN CSECT(I4802  ) LENGTH(6)
                    892  1146
    1385  $RECL     ADDRESS. HEX LOCATION(00002DB0) IN CSECT(I4802  ) LENGTH(6)
                    736
    1382  $SEEK     ADDRESS. HEX LOCATION(00002DA8) IN CSECT(I4802  ) LENGTH(6)
                    761   782   794
     523  $TUID     ADDRESS. HEX LOCATION(0000270E) IN CSECT(I4802  ) LENGTH(2)
                    564   717  1776  1813
     992  $WBUF     ADDRESS. HEX LOCATION(00002E12) IN CSECT(I4802  ) LENGTH(4)
                    733
     963  $WRET     ADDRESS. HEX LOCATION(00002AEC) IN CSECT(I4802  ) LENGTH(4)
                    869   906
    1403  $WRT      ADDRESS. HEX LOCATION(00002DE8) IN CSECT(I4802  ) LENGTH(6)
                    888
      42  @CALL     ABSOLUTE. HEX VALUE(00000201)
                    369   387
     102  @DCADD1   ADDRESS. HEX LOCATION(000019B8) IN CSECT(I4802  ) LENGTH(1)
                   1773
     103  @DCADD2   ADDRESS. HEX LOCATION(000019BA) IN CSECT(I4802  ) LENGTH(1)
                   1774
      39  @FIXT     ABSOLUTE. HEX VALUE(00000101)
                    354   405   408
      38  @QUES     ABSOLUTE. HEX VALUE(00000100)
                    351
      45  @TUXX     ABSOLUTE. HEX VALUE(00000500)
                    357   375   393
    1315  BCNT      ADDRESS. HEX LOCATION(00002D64) IN CSECT(I4802  ) LENGTH(2)
                    875   882   887   896   905   929   958  1031  1054
                   1077  1101  1145
    1787  BEGIN     ADDRESS. HEX LOCATION(00002FBE) IN CSECT(I4802  ) LENGTH(2)
                   1804
    1808  BIT0080   ABSOLUTE. HEX VALUE(00000080)
                   1775
    1803  BUFPT     ADDRESS. HEX LOCATION(000030C6) IN CSECT(I4802  ) LENGTH(2)
                   1760
     485  B61       ABSOLUTE. HEX VALUE(0000001D)
                    871   955
     486  B62       ABSOLUTE. HEX VALUE(0000001E)
                    744   777
     487  B63       ABSOLUTE. HEX VALUE(0000001F)
                    743   746
    1331  CDAT      ADDRESS. HEX LOCATION(00002D90) IN CSECT(I4802  ) LENGTH(2)
                    994  1000
     513  CE        ABSOLUTE. HEX VALUE(0000002A)
                   1469  1581  1651
     593  CICB      ABSOLUTE. HEX VALUE(00000014)
                   1719
    1219  CLDCB     ADDRESS. HEX LOCATION(00002CCC) IN CSECT(I4802  ) LENGTH(2)
                   1385
     955  CLEAN     ADDRESS. HEX LOCATION(00002AC8) IN CSECT(I4802  ) LENGTH(2)
                    972
     994  CLOP      ADDRESS. HEX LOCATION(00002B1A) IN CSECT(I4802  ) LENGTH(4)
                    997
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CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
1000	CLOP1	ADDRESS. HEX LOCATION(00002E2E) IN CSECT(I4802) LENGTH(4)
		1003
954	CLR	ADDRESS. HEX LOCATION(00002AC2) IN CSECT(I4802) LENGTH(6)
		938
511	CS	ABSOLUTE. HEX VALUE(00000028)
		1470 1473 1579 1620 1649
512	CSA	ABSOLUTE. HEX VALUE(00000029)
		1654
542	CSBUF	ADDRESS. HEX LOCATION(0000272E) IN CSECT(I4802) LENGTH(1)
		1265 1481
1258	CSDCB	ADDRESS. HEX LOCATION(00002D0C) IN CSECT(I4802) LENGTH(2)
		1471
543	CSTL1	ADDRESS. HEX LOCATION(0000272E) IN CSECT(I4802) LENGTH(2)
		919
544	CSTL2	ADDRESS. HEX LOCATION(00002730) IN CSECT(I4802) LENGTH(2)
		844
550	CSTL8	ADDRESS. HEX LOCATION(0000273C) IN CSECT(I4802) LENGTH(2)
		1582 1583
532	DCBUF	ADDRESS. HEX LOCATION(0000271E) IN CSECT(I4802) LENGTH(1)
		921 1476
1804	DC2PT	ADDRESS. HEX LOCATION(000030C8) IN CSECT(I4802) LENGTH(2)
		1774
1154	DEFT	ADDRESS. HEX LOCATION(00002C72) IN CSECT(I4802) LENGTH(6)
		1152
105	DEVADD	ADDRESS. HEX LOCATION(000019D0) IN CSECT(I4802) LENGTH(1)
		557 1670 1679 1783
527	DEV1	ADDRESS. HEX LOCATION(00002716) IN CSECT(I4802) LENGTH(2)
		531 1711
1207	DGDCB	ADDRESS. HEX LOCATION(00002CBC) IN CSECT(I4802) LENGTH(2)
		1408
1328	DIAGW	ADDRESS. HEX LOCATION(00002D7E) IN CSECT(I4802) LENGTH(2)
		1214
1307	DIFF	ADDRESS. HEX LOCATION(00002D54) IN CSECT(I4802) LENGTH(2)
		740 751 760 788 789
67	DUMMY	ABSOLUTE. HEX VALUE(00000000)
		342 410 422
1310	ENDEX	ADDRESS. HEX LOCATION(00002D5A) IN CSECT(I4802) LENGTH(2)
		789
411	ENTFT	ADDRESS. HEX LOCATION(00002588) IN CSECT(I4802) LENGTH(1)
		198
47	EQ	ABSOLUTE. HEX VALUE(00000000)
		396
504	ER	ABSOLUTE. HEX VALUE(00000021)
		738 763 784 796 801 890 894 903 916
		1130 1135 1148 1487 1506 1589 1631 1656
965	ERR7	ADDRESS. HEX LOCATION(00002AF0) IN CSECT(I4802) LENGTH(4)
		910
1151	ER16	ADDRESS. HEX LOCATION(00002C66) IN CSECT(I4802) LENGTH(6)
		1138 1140
579	EXIT	ABSOLUTE. HEX VALUE(000000D6)
		1638
1806	FAKETU	ADDRESS. HEX LOCATION(000030CC) IN CSECT(I4802) LENGTH(2)
		1773
1105	FDEF	ADDRESS. HEX LOCATION(00002BF4) IN CSECT(I4802) LENGTH(2)
		1097
844	FINIS	ADDRESS. HEX LOCATION(00002956) IN CSECT(I4802) LENGTH(6)
		790 809 811 813 815 817 819 821 823
		825 827 829 836 838 840 842
1125	FMT	ADDRESS. HEX LOCATION(00002BF6) IN CSECT(I4802) LENGTH(4)
		1032 1055 1078 1100 1103
1104	FMTF0	ADDRESS. HEX LOCATION(00002EF0) IN CSECT(I4802) LENGTH(4)
		1096
1033	FMT00	ADDRESS. HEX LOCATION(00002B76) IN CSECT(I4802) LENGTH(4)
		1027
1056	FMT10	ADDRESS. HEX LOCATION(00002E9A) IN CSECT(I4802) LENGTH(4)
		1050
1079	FMT20	ADDRESS. HEX LOCATION(00002EC0) IN CSECT(I4802) LENGTH(4)
		1073
1057	FONE1	ADDRESS. HEX LOCATION(00002E9E) IN CSECT(I4802) LENGTH(2)
		1051 1102
1224	FRDCB	ADDRESS. HEX LOCATION(00002CDC) IN CSECT(I4802) LENGTH(2)
		1028 1029 1030 1051 1052 1053 1074 1075 1076
		1097 1098 1099 1102 1126 1127 1137 1139 1406
1096	FTF	ADDRESS. HEX LOCATION(00002BC6) IN CSECT(I4802) LENGTH(4)
		772
1080	FTWO	ADDRESS. HEX LOCATION(00002EC4) IN CSECT(I4802) LENGTH(2)
		1074
1027	FT0	ADDRESS. HEX LOCATION(00002B56) IN CSECT(I4802) LENGTH(4)
		765
1050	FT1	ADDRESS. HEX LOCATION(00002E7A) IN CSECT(I4802) LENGTH(4)
		774
1073	FT2	ADDRESS. HEX LOCATION(00002EA0) IN CSECT(I4802) LENGTH(4)
		768
430	F00051	ADDRESS. HEX LOCATION(0000258E) IN CSECT(I4802) LENGTH(1)
		355
436	F00058	ADDRESS. HEX LOCATION(000025DA) IN CSECT(I4802) LENGTH(1)
		370
442	F00064	ADDRESS. HEX LOCATION(000025FA) IN CSECT(I4802) LENGTH(1)
		388
448	F00070	ADDRESS. HEX LOCATION(0000261A) IN CSECT(I4802) LENGTH(1)
		406
452	F00074	ADDRESS. HEX LOCATION(00002646) IN CSECT(I4802) LENGTH(1)
		409
759	GO	ADDRESS. HEX LOCATION(00002802) IN CSECT(I4802) LENGTH(6)
		754
765	G1	ADDRESS. HEX LOCATION(0000281A) IN CSECT(I4802) LENGTH(4)
		787
1812	HEBLK	ADDRESS. HEX LOCATION(000030CE) IN CSECT(I4802) LENGTH(2)
		1756
1314	HHRR	ADDRESS. HEX LOCATION(00002D62) IN CSECT(I4802) LENGTH(2)
		873 880 886 900
599	HTOE	ABSOLUTE. HEX VALUE(0000001A)
		1757
575	IDLE	ABSOLUTE. HEX VALUE(00000002)
		1502
506	IN	ABSOLUTE. HEX VALUE(00000023)
		1488 1500 1619
1679	INTBL	ADDRESS. HEX LOCATION(00002F12) IN CSECT(I4802) LENGTH(2)
		1718
1576	INTER	ADDRESS. HEX LOCATION(00002E7A) IN CSECT(I4802) LENGTH(2)
		1681
1585	INTES	ADDRESS. HEX LOCATION(00002E92) IN CSECT(I4802) LENGTH(2)
		1580

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
1589	INTET	ADDRESS. HEX LOCATION(00002E9A) IN CSECT(I4802) LENGTH(2)
		1586
1616	INTOK	ADDRESS. HEX LOCATION(00002E9E) IN CSECT(I4802) LENGTH(2)
		1680
1638	INTRX	ADDRESS. HEX LOCATION(00002ECE) IN CSECT(I4802) LENGTH(2)
		1633 1636
1619	INTR1	ADDRESS. HEX LOCATION(00002EA6) IN CSECT(I4802) LENGTH(2)
		1584 1588 1590
1624	INTR2	ADDRESS. HEX LOCATION(00002EB4) IN CSECT(I4802) LENGTH(1)
		1621
1632	INTR3	ADDRESS. HEX LOCATION(00002EC2) IN CSECT(I4802) LENGTH(2)
		1629
1670	IOBLK	ADDRESS. HEX LOCATION(00002F06) IN CSECT(I4802) LENGTH(2)
		1489 1723
1672	IODCB	ADDRESS. HEX LOCATION(00002F0A) IN CSECT(I4802) LENGTH(2)
		1382 1385 1388 1397 1400 1403 1406 1408 1471
		1477 1722
1673	IOMOD	ADDRESS. HEX LOCATION(00002F0C) IN CSECT(I4802) LENGTH(2)
		1409 1466 1472
37	I4802	CSECT. START(00002500) LENGTH(3028) ESDID(0)
		37
1316	JOE	ADDRESS. HEX LOCATION(00002D66) IN CSECT(I4802) LENGTH(2)
		766 769 775 870 872 873 874 875 876
		933 934 935 936 954 957 958 960 962
		965 966 967 968
1317	JOE1	ADDRESS. HEX LOCATION(00002D68) IN CSECT(I4802) LENGTH(2)
		870 872
1793	LINE1	ADDRESS. HEX LOCATION(00002FF6) IN CSECT(I4802) LENGTH(40)
		1761
745	LOOP	ADDRESS. HEX LOCATION(000027C4) IN CSECT(I4802) LENGTH(6)
		806
526	LSTIO	ADDRESS. HEX LOCATION(00002714) IN CSECT(I4802) LENGTH(2)
		1475 1726
788	L1	ADDRESS. HEX LOCATION(0000287C) IN CSECT(I4802) LENGTH(6)
		778
1150	MAT1	ADDRESS. HEX LOCATION(00002C62) IN CSECT(I4802) LENGTH(4)
		1125 1155
503	MI	ABSOLUTE. HEX VALUE(00000020)
		1634
1764	MVBUF	ADDRESS. HEX LOCATION(00002F76) IN CSECT(I4802) LENGTH(2)
		1768 1771
515	NG	ABSOLUTE. HEX VALUE(0000002C)
		1637
510	NI	ABSOLUTE. HEX VALUE(00000027)
		1494
351	N00001	ADDRESS. HEX LOCATION(00002528) IN CSECT(I4802) LENGTH(2)
		315 421
354	N00002	ADDRESS. HEX LOCATION(0000252C) IN CSECT(I4802) LENGTH(2)
		318
357	N00003	ADDRESS. HEX LOCATION(00002530) IN CSECT(I4802) LENGTH(2)
		321 352
369	N00004	ADDRESS. HEX LOCATION(00002542) IN CSECT(I4802) LENGTH(2)
		324
375	N00005	ADDRESS. HEX LOCATION(0000254E) IN CSECT(I4802) LENGTH(2)
		327 358
387	N00006	ADDRESS. HEX LOCATION(00002560) IN CSECT(I4802) LENGTH(2)
		330
393	N00007	ADDRESS. HEX LOCATION(0000256C) IN CSECT(I4802) LENGTH(2)
		333 376
405	N00008	ADDRESS. HEX LOCATION(0000257E) IN CSECT(I4802) LENGTH(2)
		336
408	N00009	ADDRESS. HEX LOCATION(00002582) IN CSECT(I4802) LENGTH(2)
		339 394
58	OF	ABSOLUTE. HEX VALUE(00000202)
		360 378
1312	ONE1	ADDRESS. HEX LOCATION(00002D5E) IN CSECT(I4802) LENGTH(2)
		753 786 788 1144
468	OPTN1	ADDRESS. HEX LOCATION(00002708) IN CSECT(I4802) LENGTH(2)
		718 1578 1618
491	OPTN3	ADDRESS. HEX LOCATION(0000270C) IN CSECT(I4802) LENGTH(2)
		847 1665 1713
101	PARMARA	ADDRESS. HEX LOCATION(0000196E) IN CSECT(I4802) LENGTH(1)
		367 385 403
69	PID	ADDRESS. HEX LOCATION(00001800) IN CSECT(I4802) LENGTH(1)
		71 72 73 74 75 76 77 78 79
		80 81 82 83 84 85 86 87 88
		89 90 91 92 93 94 95 96 97
		98 99 100 101 102 103 104 105 106
		107 108 109 110 111 112 1772
1807	PIDMSG10	ABSOLUTE. HEX VALUE(0000F1F0)
		1772
585	PREP	ABSOLUTE. HEX VALUE(0000000C)
		1727
1291	RDDCB	ADDRESS. HEX LOCATION(00002D3C) IN CSECT(I4802) LENGTH(2)
		732 896 897 898 899 900 922 941 948
		1394 1397
896	RDF	ADDRESS. HEX LOCATION(00002976) IN CSECT(I4802) LENGTH(6)
		959
960	RDF1	ADDRESS. HEX LOCATION(00002A0C) IN CSECT(I4802) LENGTH(6)
		956
596	RELSD	ABSOLUTE. HEX VALUE(00000017)
		1772
595	REQSD	ABSOLUTE. HEX VALUE(00000016)
		1715
1313	REVR	ADDRESS. HEX LOCATION(00002D60) IN CSECT(I4802) LENGTH(2)
		755
592	RICB	ABSOLUTE. HEX VALUE(00000013)
		1784
1235	RSDCB	ADDRESS. HEX LOCATION(00002CEC) IN CSECT(I4802) LENGTH(2)
		798 1132 1388
1305	SAVE	ADDRESS. HEX LOCATION(00002D50) IN CSECT(I4802) LENGTH(2)
		771 773
1337	SAVR3	ADDRESS. HEX LOCATION(00002D9C) IN CSECT(I4802) LENGTH(2)
		912 918 925
1338	SAVR5	ADDRESS. HEX LOCATION(00002D9E) IN CSECT(I4802) LENGTH(2)
		913 926
531	SCTID	ADDRESS. HEX LOCATION(00002716) IN CSECT(I4802) LENGTH(2)
		771 773 804 878 879 884 885 898 899
		1137 1139 1142 1143 1151 1154 1242 1389 1390
		1780
1339	SIDE	ADDRESS. HEX LOCATION(00002DA0) IN CSECT(I4802) LENGTH(2)
		745 786 1030 1053 1076 1099
1246	SKDCB	ADDRESS. HEX LOCATION(00002CFC) IN CSECT(I4802) LENGTH(2)

CROSS-REFERENCE LISTING

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
                    741   748   749   755   756   759   760   779   780
                    781   791   792   793  1382
   755    SKREV     ADDRESS. HEX LOCATION(000027EE) IN CSECT(I4802   ) LENGTH(6)
                    747
   583    START     ABSOLUTE. HEX VALUE(0000000A)
                   1492
   104    SUPSTAT   ADDRESS. HEX LOCATION(000019C4) IN CSECT(I4802   ) LENGTH(1)
                   1775
   557    SVCAL     ADDRESS. HEX LOCATION(0000274A) IN CSECT(I4802   ) LENGTH(2)
                    714  1780  1781
  1165    TAB00     ADDRESS. HEX LOCATION(00002C80) IN CSECT(I4802   ) LENGTH(2)
                    766
  1185    TAB10     ADDRESS. HEX LOCATION(00002CA8) IN CSECT(I4802   ) LENGTH(2)
                    775
  1175    TAB20     ADDRESS. HEX LOCATION(00002C94) IN CSECT(I4802   ) LENGTH(2)
                    769
  1340    TRK       ADDRESS. HEX LOCATION(00002DA2) IN CSECT(I4802   ) LENGTH(2)
                    752   758  1029  1052  1075  1098
    95    TUBUFF    ADDRESS. HEX LOCATION(000016C2) IN CSECT(I4802   ) LENGTH(1)
                    728   907  1007
    92    TUMSGWTR  ADDRESS. HEX LOCATION(000018BA) IN CSECT(I4802   ) LENGTH(1)
                   1777
    98    TURESUL   ADDRESS. HEX LOCATION(000018C8) IN CSECT(I4802   ) LENGTH(1)
                    722   723   724   725   726   808   810   812   814
                    816   818   820   822   824   826   828   830   831
                    832   833   834   835   837   839   841   843   844
                    845   846   847
   555    TURTN     ADDRESS. HEX LOCATION(00002746) IN CSECT(I4802   ) LENGTH(2)
                    716  1785
    74    TUSTATUS  ADDRESS. HEX LOCATION(00001818) IN CSECT(I4802   ) LENGTH(1)
                   1755
    75    TUWORK    ADDRESS. HEX LOCATION(0000181A) IN CSECT(I4802   ) LENGTH(1)
                   1759  1814
   843    T02A      ADDRESS. HEX LOCATION(00002950) IN CSECT(I4802   ) LENGTH(6)
                    739
   841    T02B      ADDRESS. HEX LOCATION(00002948) IN CSECT(I4802   ) LENGTH(6)
                    764   785   797
   839    T02C      ADDRESS. HEX LOCATION(00002940) IN CSECT(I4802   ) LENGTH(6)
                    802
   828    T02D      ADDRESS. HEX LOCATION(00002914) IN CSECT(I4802   ) LENGTH(6)
                   1131  1136
   837    T02E      ADDRESS. HEX LOCATION(00002938) IN CSECT(I4802   ) LENGTH(6)
                   1153
   830    T02EE     ADDRESS. HEX LOCATION(0000291C) IN CSECT(I4802   ) LENGTH(4)
                    720
   835    T02ER     ADDRESS. HEX LOCATION(00002930) IN CSECT(I4802   ) LENGTH(6)
                    737   762   783   795   800   889   893   902   915
                   1129  1134  1147
   826    T02F      ADDRESS. HEX LOCATION(0000290C) IN CSECT(I4802   ) LENGTH(6)
                    805
   818    T02H      ADDRESS. HEX LOCATION(000028EC) IN CSECT(I4802   ) LENGTH(6)
                   1156
   822    T02J      ADDRESS. HEX LOCATION(000028FC) IN CSECT(I4802   ) LENGTH(6)
                    891
   820    T02K      ADDRESS. HEX LOCATION(000028F4) IN CSECT(I4802   ) LENGTH(6)
                    895  1149
   816    T02L      ADDRESS. HEX LOCATION(000028E4) IN CSECT(I4802   ) LENGTH(6)
                    904
   814    T02N      ADDRESS. HEX LOCATION(000028DC) IN CSECT(I4802   ) LENGTH(6)
                    917
   812    T02P      ADDRESS. HEX LOCATION(000028D4) IN CSECT(I4802   ) LENGTH(6)
                    920
   810    T02Q      ADDRESS. HEX LOCATION(000028CC) IN CSECT(I4802   ) LENGTH(6)
                    932   947   953
   808    T02R      ADDRESS. HEX LOCATION(000028C4) IN CSECT(I4802   ) LENGTH(6)
                    970   973
   564    T3C02     ADDRESS. HEX LOCATION(0000274E) IN CSECT(I4802   ) LENGTH(6)
                    377   395
   716    T4802     ADDRESS. HEX LOCATION(00002756) IN CSECT(I4802   ) LENGTH(4)
                    359
  1280    VRDCB     ADDRESS. HEX LOCATION(00002D2C) IN CSECT(I4802   ) LENGTH(2)
                    730   881   883   884   885   886   887  1141  1142
                   1143  1144  1145  1400
  1005    WB        ADDRESS. HEX LOCATION(00002B3C) IN CSECT(I4802   ) LENGTH(6)
                    995  1001
  1006    WB1       ADDRESS. HEX LOCATION(00002B42) IN CSECT(I4802   ) LENGTH(4)
                   1004
  1008    WB2       ADDRESS. HEX LOCATION(00002E4A) IN CSECT(I4802   ) LENGTH(4)
                   1010
  1318    WDATA     ADDRESS. HEX LOCATION(00002D6A) IN CSECT(I4802   ) LENGTH(2)
                   1005
  1269    WRDCB     ADDRESS. HEX LOCATION(00002D1C) IN CSECT(I4802   ) LENGTH(2)
                    729   877   878   879   880   881   882   939  1403
   869    WRRD      ADDRESS. HEX LOCATION(00002972) IN CSECT(I4802   ) LENGTH(4)
                    767   770   776
   870    WRRD2     ADDRESS. HEX LOCATION(00002976) IN CSECT(I4802   ) LENGTH(6)
                    961
   507    XE        ABSOLUTE. HEX VALUE(00000024)
                   1585  1647
   505    XI        ABSOLUTE. HEX VALUE(00000022)
                   1491  1632
  1466    XIO       ADDRESS. HEX LOCATION(00002E08) IN CSECT(I4802   ) LENGTH(4)
                   1383  1386  1391  1398  1401  1404  1407
  1647    XIOCK     ADDRESS. HEX LOCATION(00002ED0) IN CSECT(I4802   ) LENGTH(2)
                   1501
  1654    XIOCO     ADDRESS. HEX LOCATION(00002EE2) IN CSECT(I4802   ) LENGTH(2)
                   1652
  1471    XIOCS     ADDRESS. HEX LOCATION(00002E12) IN CSECT(I4802   ) LENGTH(6)
                    914  1663
  1656    XIOCV     ADDRESS. HEX LOCATION(00002EE6) IN CSECT(I4802   ) LENGTH(2)
                   1650
  1665    XIOCX     ADDRESS. HEX LOCATION(00002F00) IN CSECT(I4802   ) LENGTH(4)
                   1657
  1540    XIOER     ADDRESS. HEX LOCATION(00002E6E) IN CSECT(I4802   ) LENGTH(2)
                   1671
  1475    XIO1      ADDRESS. HEX LOCATION(00002E22) IN CSECT(I4802   ) LENGTH(4)
                   1410  1467
  1488    XIO2      ADDRESS. HEX LOCATION(00002E48) IN CSECT(I4802   ) LENGTH(2)
                   1474
  1500    XIO8      ADDRESS. HEX LOCATION(00002E5C) IN CSECT(I4802   ) LENGTH(2)
                   1505
    62    XTRNL     ABSOLUTE. HEX VALUE(00000001)
                    373   391
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CROSS-REFERENCE LISTING

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
  1309    XXX       ADDRESS. HEX LOCATION(00002D58) IN CSECT(I4802   ) LENGTH(2)
                    742   750   753   757
   933    ZER       ADDRESS. HEX LOCATION(00002A82) IN CSECT(I4802   ) LENGTH(4)
                    930
  1311    ZERO0     ADDRESS. HEX LOCATION(00002D5C) IN CSECT(I4802   ) LENGTH(2)
                    741   748   749   756   804  1028
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